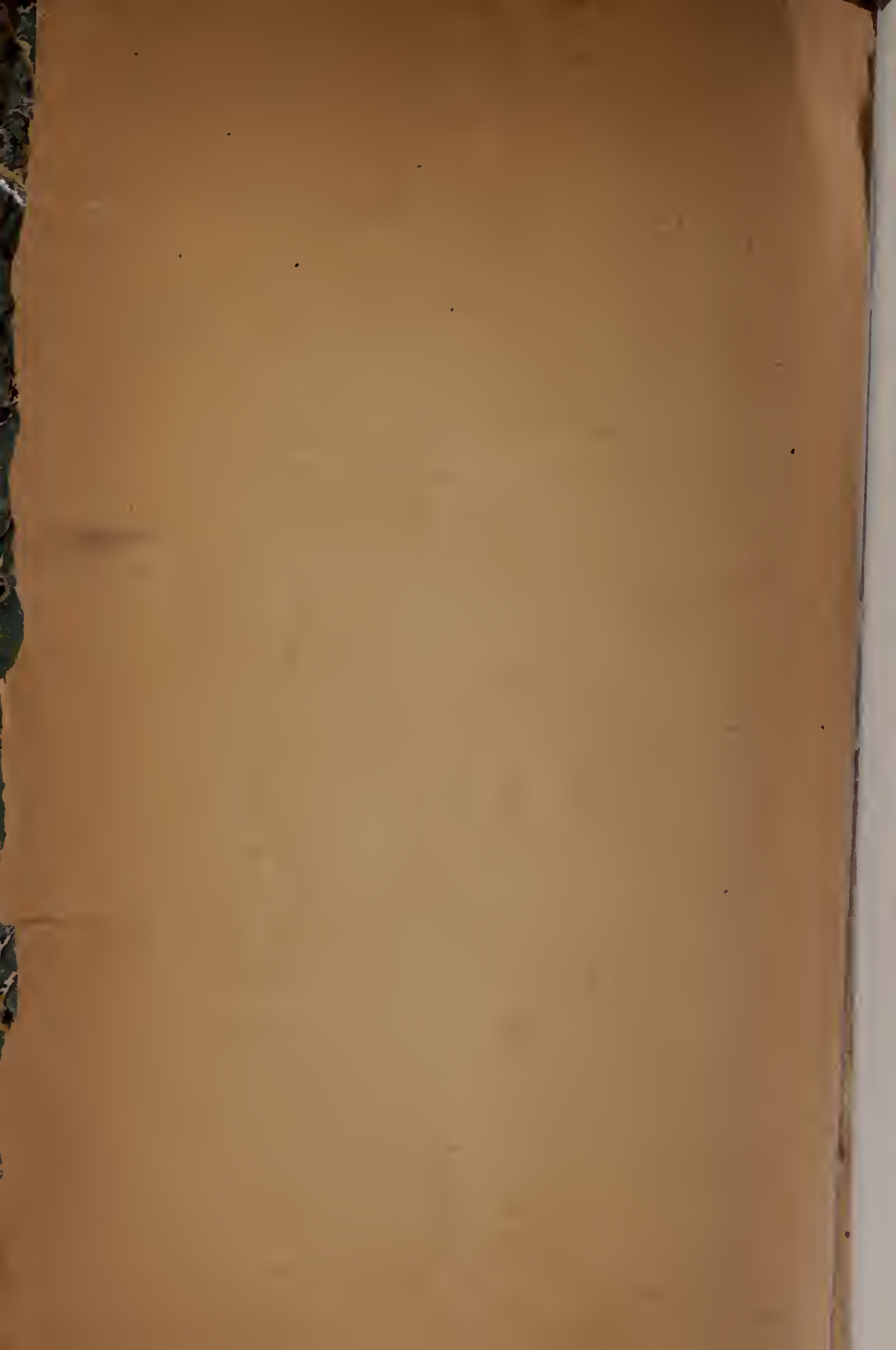




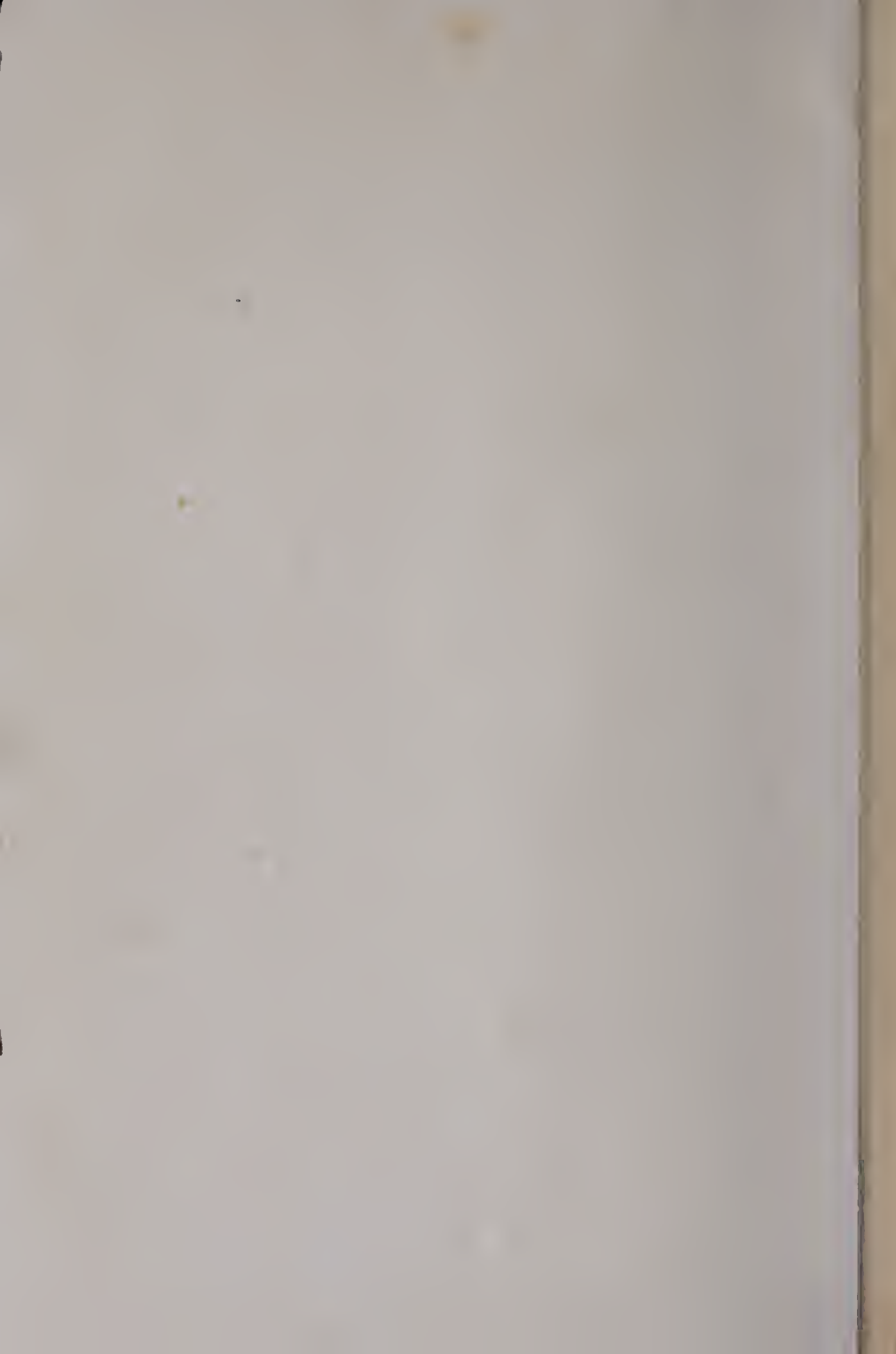


Gift of the
Society for International Numismatics









DYE'S
COIN ENCYCLOPÆDIA:

A
COMPLETE ILLUSTRATED HISTORY

OF THE

Coins of the World.

CONTAINING A FULL ACCOUNT OF THE

EARLIEST KNOWN MEDIUMS OF EXCHANGE; DISCOVERY OF THE PRECIOUS METALS; COINS OF THE BIBLE; ANCIENT GREEK, ROMAN AND JEWISH COINAGE; EARLY AND MODERN COINS OF ASIA AND AFRICA; ANGLO-AMERICAN, AMERICAN COLONIAL, AND CONTINENTAL ISSUES; ANGLO-AMERICAN TOKENS, AND THE PATTERN PIECES, EXPERIMENTAL ISSUES,

AND

COINS OF THE UNITED STATES OF AMERICA.

TOGETHER WITH A GENERAL HISTORY OF

MINES, MINING, MINTS, ASSAYS, ETC. ETC.

ILLUSTRATED WITH OVER FIFTEEN HUNDRED FAC SIMILES.

By JOHN S. DYE,

(*Founder of Dye's Counterfeit Detector.*)

TO WHICH IS ADDED AN APPENDIX,

BY E. MASON, JR., (NUMISMATIST.)

PRESENTING AN AUTHENTICATED STATEMENT OF THE COINAGE OF THE LATE SOUTHERN CONFEDERACY, AT NEW ORLEANS, IN 1861, WITH COPIES OF PAPERS ON FILE IN THE CONFEDERATE ARCHIVES AT WASHINGTON, AND FAC-SIMILE OF THE COINS ISSUED.

PHILADELPHIA:

BRADLEY & COMPANY.

No. 66 NORTH FOURTH ST

1883.

Copyright, EMMA C. DYE, 1883.

PREFACE

A PARAMOUNT consideration in putting a book on the market is a demand. A demand, therefore, is essential to success. Strange to say, such a demand has remained unmet in this country since its inception in the publication, or the absence of a publication, of a universal history, accurately illustrated, of the coins of the world, precious metal resources, mintages, etc. This unoccupied field in the commercial and numismatic worlds, we trust, is intelligently and comprehensively filled in the work which this prefaces.

The author, John S. Dye, the founder and for thirty odd years the editor and publisher of "*Dye's Counterfeit Detector*," and for forty years a recognized authority on the paper and precious metal currencies of the world, devoted the best years of his life to compiling and formulating matter, corresponding with the "money centres" of the world, expending large sums of money in the procurement of *fac similes* of coins drawn from original and in many instances almost extinct specimens—all culminating in a work of which it is its own original; a work which will stand for all ages, a monument of the past, and a criterion for the present.

Shortly before the closing pages were given to the printer, the author, then in the eventide of a long and eventful life, was peacefully "gathered to his fathers," and the work on the book necessarily suspended.

When the merits of such an elaborate compilation of recon-dite facts and figures, on a subject of such vast importance, not only to the money-changer and antiquarian, but to the general reader, were made known to the undersigned publishers, they assumed the responsibility of completing the publication and giving it to the public at the advertised price, notwithstanding it contains some five hundred more pages than was originally intended.

To realize the difficulties encountered in the publication of so elaborate and comprehensive a work as the present one, both in the matter of text and illustration, it is necessary to state that true copies of the original coins are indispensable to the correctness of history in the matter of illustrating a nation's coinage; and the search among the various public and private cabinets is often laborious and sometimes fruitless in results. Again; the collation of material explanatory of the *fac similes* is a task of no ordinary sort, and would have discouraged many numismatic writers possessing less energy and ambition than the author who devoted so much of his valuable time to a work of which fate prevented the full accomplishment. In connection with the national and other coinages herein presented, full details are given of the various national mints, with an exhaustive *résumé* on mines, mining and assays of the precious metals; thus tracing the world's coinages from their origin to their completion as public circulating mediums of exchange. In the combination and condensation of numismatic matter, both in the text and illustrations, we fully believe this work has neither compeer nor rival, it being the only combined illustrated history of the world's coinage and precious metal resources extant.

The work has undergone a strict censorship at the hands of

the most accomplished and critical numismatists of this and other cities. We are especially indebted to Dr. Edward Maris and E. Mason, Jr., for laborious research and valuable addenda. This, together with the author's well-known discerning and analytical mind and scope of comprehension, warrant us in assuring the reader that the accuracy of the work can be relied upon with a maximum degree of certainty.

BRADLEY & COMPANY.

Philadelphia, 1883.

CONTENTS.

PREFACE	3
THE ORIGIN OF MONEY.....	7
THE PRIMITIVE FORMS OF MONEY.....	14
ANCIENT COINAGES.....	41
BRITISH COLONIAL COINAGES.....	115
UNITED STATES COINAGE. THE FUGIOS.....	247
AMERICAN AND OTHER GOLD.....	257
COINS OF FOREIGN COUNTRIES:	
ABYSSYNIA.....	481
ARABIA.....	482
ARGENTINE REPUBLIC.....	484
AUSTRIA.....	488
BELGIUM.....	512
BOLIVIA.....	525
BRAZIL.....	532
CENTRAL AMERICA.....	545
CHILI.....	556
CHINA.....	566
DENMARK AND POSSESSIONS.....	585
ECUADOR.....	605
FRANCE.....	609
GERMAN EMPIRE.....	640
GREAT BRITAIN AND POSSESSIONS.....	759
GREECE.....	877
HOLLAND.....	883
ITALY.....	902
JAPAN.....	968
MEXICO.....	978
NORWAY.....	989
PARAGUAY.....	993
PERU.....	994
POLAND.....	1002
PORTUGAL.....	1003
RUSSIA.....	1008
SPAIN.....	1018
SWEDEN.....	1032
SWITZERLAND.....	1037
TURKEY.....	1045
UNITED STATES OF COLOMBIA.....	1055
URUGUAY.....	1061
VENEZUELA.....	1062
UNITED STATES OF AMERICA.....	1065
APPENDIX—COINAGE OF THE "SOUTHERN CONFEDERACY.".....	1150

CURRENT COINS OF THE WORLD,

AND THEIR PRESENT EXCHANGEABLE VALUES.

Tabulated for "Dye's Coin Encyclopædia" by ZIMMERMAN & FORSHAY, 19 Wall Street, New York.

DEALERS IN

Bullion, Specie, and Foreign Bank Notes. Railroad Stocks, Bonds, and Mining Stocks bought and sold strictly on commission for cash or on margin.

JANUARY, 1883.

UNITED STATES.

Gold.

California Quintuple Eagle	\$53.55
Double Eagle	20.00
Eagle	10.00
Half Eagle	5.00
Quarter Eagle	2.50
Three Dollars	3.00
One Dollar	1.00
California Gold .....	.98
Georgia Gold 22 carat fine.....	.94
Bechtler Doll .....	.95
Bechtler, Rutherford	2.40
Bechtler, 5, C. Rutherford.....	4.75

Silver.

Mutilated Silver, per oz.....	\$1.02
Standard Dollar.....	.99 $\frac{3}{4}$
Trade Dollar .....	.99 $\frac{3}{4}$
Half Dollar .....	.50
Quarter Dollar .....	.25
Twenty Cents .....	.20
Dime .....	.10
Half Dime .....	.05
Three Cents .....	.03

ENGLAND.

Gold.

Five Sovereigns	\$24.25
One Sovereign	4.83
Half Sovereign	2.41
Double Guinea.....	10.25
One Guinea	5.12
Half Guinea	2.56
Third Guinea	1.70

Silver.

Crown.....	\$1.17
Crown, Anne.....	1.17
Crown, 1662	1.17
Half Crown .....	.58
Half Crown, George II .....	.58
Half Crown, Victoria .....	.58
Two Shilling, or 1 Florin .....	.47
One Shilling .....	.23
Sixpence .....	.11
Four Pence .....	.07
Three Pence .....	.05
Two Pence .....	.04
Per £.....	4.75

BRITISH COLONIES.

Gold.

One Mohur, India.....	\$7.10
One Mohur, E. India.....	7.08
Half Sovereign.....	2.41
New Foundland, \$2	1.95

Silver.

Sierra Leone Co. Dol	\$0.80
One Dollar, 1791.....	.80
Three Guilders.....	.75

Canada Silver.

Canada, 50 cents.....	\$0.48
Canada, 25 cents.....	.24
Canada, 20 cents .....	.19
Canada, 10 cents.....	.09 $\frac{1}{2}$
Canada, 5 cents.....	.04 $\frac{1}{4}$
In lots @ 97 $\frac{1}{2}$ c. per Doll.	

BRAZIL AND PORTUGAL.

Gold.

Crown.....	\$5.75
Moidore.....	4.75

Silver.

640 Reis, Portugal	\$0.60
960 Reis, do .....	.85
1,000 Reis, Brazil.....	.40
2,000 Reis, do .....	.80
Cruzado .....	.45

SPAIN.

Gold.

Doubleloon.....	\$15.50
Half Doubleloon.....	7.75
Four Piastres	3.80
Pistole.....	3.80
Half Pistole.....	1.90
Quarter Pistole.....	.95
25 Pesetas.....	4.76

Silver.

Spanish Dollar	\$0.90
Half Spanish Dollar.....	.40
Spanish Quarters, new .....	.20
Five Pesetas .....	.85
Twenty Reals.....	.85
Ten Reals .....	.40
Pistareen .....	.18
Half Pistareen .....	.09

FRANCE.

Gold.

Louis d'Or	\$1 50
Five Francs .....	.96
Ten Francs	1.91
Twenty Francs	3.83
Forty Francs	7.66
Fifty Francs	9.54
One hundred Francs	19.15

Silver.

Crown, Louis XIV	\$1.90
Quarter Crown .....	.20
Eighth Crown .....	.10
Five Francs .....	.93
Two Francs .....	.36
One Franc .....	.18
Half Franc, 50 Centimes .....	.09
Twenty Centimes .....	.03

AUSTRIA.

Gold.

Quadruple Ducat	\$3.80
One Ducat	2.20
Sovereign	6.75
Half Sovereign	3.38
4 Florins (10 Francs)	1.90

Silver.

Specie Dollar	\$0.85
One Florin .....	.35

MEXICO.

Gold.

Doubloon	\$15.56
Half Doubloon	7.75
Quarter Doubloon	3.87
Eighth Doubloon	1.93
Sixteenth Doubloon .....	.97
Twenty Pesos	19.50
Ten Pesos	9.75
Five Pesos	4.87
Two and a half Pesos	2.43

Silver.

One Peso	\$1.85
Mexican Dollar, common .....	.85
Maximilian Dollar .....	.85
Eight Reals .....	.80
Half Mexican .....	.40
Quarter Mexican .....	.20
Tenth Mexican .....	.08
Real .....	.10
One-half Real .....	.05

CENTRAL AND SOUTH
AMERICA.

Gold.

Doubloon	\$15 50
Half Doubloon	7 75
Pistole	3 87
Half Pistole	1 93
One-fourth Pistole .....	.96
Four Escudos	7 55

Silver.

Eight Reals	\$ 80
Four Reals .....	.40
Two Reals .....	.20
One Real .....	.10

CHILI.

Gold.

Doubloon	\$15.50
Pistole	3 87

Silver.

1 Peso	\$0 79
½ Peso .....	.38
¼ Peso .....	.19
1-10 Peso .....	.07

HONG KONG.

Silver.

Chilian Peso	\$0 81
Eight Reals .....	.80
Two Reals .....	.20
One Real .....	.10
One-half Real .....	.05

PERU.

Gold.

Doubloon	\$15.50
Pistole	3 87
Five Soles	4 75
Ten Soles	9 50
Twenty Soles	19 00

Silver.

One Sole	\$0 79
One-half Sole .....	.39
One-quarter Sole .....	.19
One-tenth .....	.08

GERMANY.

Gold.

Twenty Marks	\$4 74
Ten Marks	2 37
Five Marks	1 18
Ten Thalers	7 80
Five Thalers	3 90
Two-and-a-half Thalers	1 95
Fred. d'Or	1 00
Double Fred d'Or	7 00
Caroline	4 75
Ducat	2 20
Five Guilders	1 95
Quintuple Ducat	11 00

Silver.

Five Marks	\$1 18
Two Marks .....	.46
One Mark .....	.23
50 Pfennig (½ Mark) .....	.11
20 Pfennig .....	.04
10 Pfennig .....	.02
5 Pfennig .....	.01
Thaler .....	.60
Double Thaler (called	1 15
Specie Dollar	0 00
Rix Dollar	0 00
Double Guilder (called)	0 00
One Florin (called)	31 00
Half Crown	80 00

ITALY.

Gold.

One hundred Lire	\$19 25
Fifty Lire	9 63
Twenty Lire	7 70
Ten Lire	3 85
Five Lire	1 92

Five Lire .....	.96
Two Doppia	\$6.25
96 Livres	15.00

Silver.

Five Lire	\$0.93
Two Lire .....	.34
One Lire .....	.17
One-half Lire .....	.08
Ten Soldi .....	.08
Five Soldi .....	.04
Twenty Grani .....	.15
Testoon .....	.25
Scudo .....	.90
Half Scudo .....	.45
Crown .....	.90
Five Paul .....	.45
Ten Paul .....	.90
Silver Lion .....	.90
Florin .....	.27

SWITZERLAND.

Silver.

Five Francs	\$0.93
Two Francs .....	.36
One Franc .....	.18
Crown .....	.80
Half Crown .....	.40
Quarter Crown .....	.20
Half Florin .....	.18

HOLLAND.

Gold.

Ten Guilders	\$3.96
Five Guilders	1.95

Silver.

Three Guilders	\$1.10
2½ Guilders .....	.93
One Guilder .....	.37
Rix Dollar .....	.90

SWEDEN, NORWAY, AND DENMARK.

Gold.

Twenty Kronors	\$5.25
Ten Kronors	2.63
Ducat	2.20

Silver.

Specie Dollar (called in)	\$0.85
One Rigsdaler (called in) .....	.42
One Kroner .....	.25
One-half Kroner .....	.12½
One-quarter Kroner .....	.06
One-tenth Kroner .....	.02

RUSSIA AND POLAND.

Gold.

Fix Rubles, Platina	\$4.60
Sive Rubles, Gold .....	.90

Silver.

One Ruble	\$0.66
One and a half Ruble .....	.99
One-half Ruble .....	.33
25 Kopecs .....	.09
20 Kopecs .....	.07
15 Kopecs .....	.05
10 Kopecs .....	.03
*Five Zlot .....	.50
Two Zlot .....	.20

GREECE.

Gold.

Twenty Drachms	\$3.44
----------------------	--------

Silver.

Five Drachms	\$0.91
--------------------	--------

TURKEY.

Gold.

Ten Piastres	\$0.43
--------------------	--------

Silver.

Twenty Piastres	\$0.80
Two Piastres .....	.05
One Piastre .....	.04

BELGIUM.

(Gold, Silver and Currency same as France.)

INDIAN STATES.

Gold.

Mohur	\$7.10
-------------	--------

Silver.

One Rupee	\$0.36
Half Rupee .....	.18
Quarter Rupee .....	.09
Quarter Pagoda .....	.30

JAPAN.

Gold.

One Yen	\$0.95
Two Yen	1.90
Five Yen	4.75
Twenty Yen	19.50

Silver.

Itzbu	\$0.35
Five Sen .....	.04
Ten Sen .....	.09
Twenty Sen .....	.18
Fifty Sen .....	.45
One Yne .....	.90

FICTITIOUS AND INTRINSIC VALUES.

Fictitious values, or approximate values, of rare coins, and the intrinsic values of uncurrent coins, will be found under national headings.

FAC-SIMILE OF THE DOLLAR OF 1804.



TRADITIONS OF THE 1804 DOLLAR.

THERE is no authentic history of the 1804 dollar. Tradition, however, is "thousand-tongued" in its regard. The writer of this was told by an old bank cashier in Salem, Mass., at one time the most extensive tea importing place on this continent, that the scarcity of the 1804 dollar was owing to the sinking of a China-bound vessel having on board almost the entire mintage of 1804 dollars, shipped in lieu of the "Spanish milled dollars," intrinsically more valuable. He believed there were not more than eight genuine 1804 dollars extant, and certainly not more than ten.

Owing to the fiscal year ending in midsummer, it is claimed by some that the report entered on the register of the mint in 1805 included the mintage of dollars of the months of 1804 subsequent to the fiscal report and entry of that year. Others claim that old dies were sometimes used in years subsequent to the date they bore. Others, still, claim that many of the 1804 dollars offered for sale are "re-strikes." This, however, is not likely, as it would imply surreptitious work on the part of employes of the mint which could not be substantiated. The rarity of the piece and the almost fabulous prices offered for it are patent facts. One piece has brought at auction seven hundred and fifty dollars, but twelve and even fifteen hundred have been offered with no takers, and it would be safe to offer \$2,000, as all the originals are believed to be in the hands of collectors who hold them above price. There are, however, many counterfeits and altered dates. This writer was shown an 1801 dollar with the final figure altered into a 4, and to an eye not familiar with the dissimilarities of the two issues the piece looked like a veritable 1804 dollar.

The publishers make this special notice of this coin because it is the most notable, and commands the first place and highest price of all American silver coins.

THE ORIGIN OF MONEY.

The wants of the primitive man were few, the simple, imperative, constantly renewing demands of nature, supplied from time to time by immediate personal exertion. Barbarism, knowing no right but might, fails to conceive the idea of property. Savages are improvident, and consider theft a virtue, yet make it a point of honor to defend their own possessions. The aboriginal condition of man was a state of war; after an equal fight for spoil and in defense of possession, when stealing was found impossible, the fact of property was recognized and an exchange of goods suggested. Rude agriculture and rough hunting were the earliest industry, robbery the first form of speculative enterprise, and war the prelude to commerce and civilization.

The original trade was barter; the first question then is that of relative value. In the discussion of this, two considerations at once present themselves: first, the desirability of each commodity, its utility in the support of life, or its capacity to afford gratification to the owner; second, the cost of production according to the time, labor and good fortune of the holder of the stock in trade. In this way was decided the quantity of any article to be given for a certain quantity of another; so many fish for so much game, this way or that, as the parties concerned could agree under the circumstances. The particulars of a bargain of this kind were well remembered and the rates of exchange quoted and referred to when-

ever another trade was attempted, and so after awhile a kind of rough, uncertain varying market price was established.

It was found, however, that the fish varied both in size and quality, and were much more abundant at one time than another. The same was also true of wild fruits, while with the game the same irregularities were found, with additional trouble in dividing it into equal portions. As barter extended during the first advance from barbarism an inconvenience was felt in estimating and measuring all articles by one another, and after a time a standard both of quantity and value was found necessary and sought for. There was an attempt to select as the basis of valuation certain things naturally uniform in character and in relation to the possibilities of production, while of universal use, capable of preservation, and hence acceptable and wanted at all times by everybody.

The South Sea Islanders, when discovered by white men, used coconuts as a standard of value. As they could be kept awhile, the nuts were better fitted to the purpose than fish, fruits, game and other perishable articles of food, besides as they grew somewhat of a size there was no trouble about separating them into equivalent parts; yet as the nuts decayed after a short time and were of limited use, they were a very imperfect measure of an exceedingly small amount of property and the poor facility of a petty trade.

The appetite for food could be readily and cheaply satisfied, and when no one was hungry no one would labor, no one cared to trade. But the savage had an instinct almost as strong as hunger in a natural love of dress and personal ornament, a taste which grew by exercise and constantly became more and more expensive, refined and fastidious through gratification. Every person desired ornament, every one needed dress, at least, especially in severe climates, a covering to the body of some kind or other. Skins or peltries, both of beasts and birds, being used as clothing, and being portable and durable, became articles of traffic, in general uniform demand at a fixed rate, and for these reasons were adopted in many places

as a measure of value, a medium of exchange, a sort of currency or money. Some of these hides were large and heavy and actually worn as blankets, but they were less convenient for a general tender in trade than finer, smaller, more valuable peltries and furs, whose use was more ornamental. As civilization began to dawn, garments were made, at first rudely from skins or leather, or in more advanced tribes of more or less perfect fabrics of bark or even of cloth woven from threads of natural fibre. At the same stage of human progress, industrial tools of different descriptions, and also weapons of war, were much improved in character and degree of finish, and such things at different places and times, were commonly used as a unit or integer of comparative valuation, and tendered in payment as special consideration, passing freely from hand to hand like standard money, for value received.

All these goods and articles, made at first for personal use, or for that of members of the manufacturer's family, were after a time, produced expressly for sale; that is, to be disposed of in barter for various commodities. Goods thus produced, were kept in store until the occasion was found for their transfer; thus industry, providence and thrift became manifest, and wealth accumulated; while trade increased, property was recognized and received public protection.

Articles of primitive manufacture used as ornaments, were not of course made with the same stability as those intended for practical use, and ornaments used merely as articles of trade were less thoroughly done than others; equally all kinds of goods made use of for trading purposes alone were made inferior in quality, and in time were produced the mere show, resemblance and representation of the thing it was assumed they were.

As it was found that all commodities except mere spontaneous products of the earth were the fruit of labor, various articles, ornaments in particular, came to be valued somewhat in proportion to the amount of labor expended upon them, almost regardless of the practical usefulness of such things. To the

rational industry which accumulated articles of use or representations of them for purposes of traffic, an addition was presently made of labor employed in producing representations of itself, articles of no use, but so rare as to cost much trouble to discover, or so elaborately and perhaps beautifully finished, as to show a great amount of work had been done upon them. Thus these things became signs, symbols and evidences of labor done, and as labor alone produced wealth, these things, though essentially worthless, were regarded as actual value, esteemed so much property, and extensively used as equivalents in trade.

Small kinds of rare and beautiful shells called "cowries," when carefully cleaned and polished, were very much esteemed in some places and accepted at an approximate standard and established rate, for all sorts of goods. Being imperishable, portable and precious, these "cowries" became a popular and convenient form of property, and in course of time acquired by common consent the character of a customary tender "in payment of all dues."

In the infancy of the human race, during the pastoral period, when commerce was yet undeveloped, cattle were a most important medium of exchange and standard of values. Salt also was largely used among certain tribes, for the same purpose. The people who lived along the coast, made a bank of the sea, and drew upon it in various ways for more than one form of currency. How long these primitive methods of trade continued, cannot be determined; but new inventions became inevitable as mankind progressed to higher conditions of life. The grand step in this matter was taken when men acquired the art of working ores and extracting the metals, which were presently cast or wrought into the form of money. When the smelting of ores and the separation of metals first began, is unknown, yet there have been discoveries made in Egypt, which indicate that iron and gold must have been an article of common manufacture there, some 3426 years before the Christian era.

To insure accuracy and to give the warrant of responsibility

to coinages of precious metals, the authority to stamp money has been placed and vested in the various governments; but it has been seen that emperors and other potentates were quite as apt at fraud as private parties, and millions on millions of coins have been circulated, bearing the stamp of a great power indicating a certain considerable value, when in truth the wretched piece was no better than a counterfeit, a mere worthless bit of brass or even cheaper composition.

A basket, a tub, a nicely made wand, a strong light chain, or an ingot of metal, each and all have their natural value as such, each for some use to which they are adapted; but the basket is very much more valuable if it hold just a bushel, the tub if it contains just a gallon, the wand if it measures a yard, the chain if just a rod long, and the lump of metal if it weigh just a pound. In the same way coined pieces of money of various denominations have a special value aside from their intrinsic worth as bullion, on account of the facility with which they may be reckoned and their convenience as exact measures of value generally exchangeable for all other goods, that is to say, their special value as money.

The act of minting and stamping confers this extra or money value upon a coin, which to a certain extent is natural; but as it has been assumed that: "The king (or government) can fix the value of a coinage," irredeemable money has at different times been made of cloth, of leather, of paper, of iron and other cheap metals and compositions.

Money has three values: first, the intrinsic *value*, that of the material of which the piece is composed; second, the arbitrary, nominal or pretended value, the denomination sought to be given it by the government which struck or minted it; third, the representative or commercial value, measured by what it will bring in other money, or its power to purchase general merchandise.

The Chinese, who have no currency of their own but small cast brass coins called cash, of little intrinsic value, are in the habit of stamping ingots or bars of silver and gold with their

supposed degree of purity, when these masses of metal are passed currently by weight. A dollar, if it contains a dollar's worth of gold, is simply an ingot, an object of universal barter and exchange, its value is intrinsic, its coinage simply denoting its purity and weight, it will sell for no more as money than as bullion. A silver dollar, nominally a hundred cents, contains but some eighty-five cents worth of silver, its additional value and popularity being derived from the act of coinage, its convenience as currency. At the same time a paper dollar, issued by the United States Treasury or one of the National Banks guaranteed by the Government, though intrinsically quite worthless, represents the good faith and honor of a great nation, and, such is the nature of money, the paper dollar passes current, more popular than gold or silver, because far more convenient.

The subject of money, of the most practical importance, commands the most constant attention of the man of business, is the fascinating study of the numismatologist and antiquarian, while one of the profound problems which concern financiers and statesmen. In this last aspect the matter has been the theme of immense discussion for some years, both in this country and Europe. The interests involved are vast, and some of the measures proposed are very radical. In the United States, especially, much has been done to enlighten the people upon questions of finance, and great improvements have been made in the currency. The present system of National Banks here commands the attention and praise of transatlantic financiers and statesmen. Meantime, many most earnest and thoughtful persons are sanguine of still further simplification, and promise for the future an "American Money" more stable than gold, as economical as paper, perfectly convenient, everywhere current and superior to anything yet developed.

As there has been monetary reform in the past, so there will doubtless be financial progress of some kind in the time to come. To make the inevitable advance, without shock and danger of destructive disturbance, there must be great intelli-

gence among the people; to help that we put forward, for the instruction of the younger class, perhaps, the items of this prefatory writing, which, however, is but a crude statement, a very hasty, imperfect survey of a vast field; yet it exhibits broad principles in a plain manner, must suggest thought, and will doubtless with many, induce as is most desirable, a more thorough study of the succeeding pages.

THE PRIMITIVE FORMS OF MONEY.

MONEY (from the Latin or Italian word *moneta*), is practically the name of anything received by common consent, at a stated value, in general exchange.

MONEY OF ACCOUNT is an ideal unit of value.

CURRENCY is money put to use, a medium of exchange kept in circulation as cash.*

The first and most imperative need of man, has been declared to be association with his fellows, and of this, money is the recognized instrument, the medium of commerce, a customary equivalent, and, when so ordained, a legal tender in payment of all debts.

The primitive forms of money were articles of barter, some of which, by use as the means and measure of trade, in time acquired a special "value in exchange," in excess of that "value in use" originally belonging to them. Thus was established an artificial standard of valuation, continually growing more and more abstract, until there was conceived an ideal money

* According to the strict nomenclature of the science of political economy, the use of the word money is limited to mean a metallic circulation of a medium of exchange, conventional measures of value, whether *immediate* like gold and silver, or *substitutive* like Treasury notes, bank bills and their analogies, being designated by the generic term Currency. Nevertheless, great authors have varied in terms, and the scope and purpose of the present writing it seems may be better served by the use of words and phrases as here defined.

of account, in which, the familiar name of some common article, once made the standard of traffic (though perhaps long superseded), became the denominational unit of arithmetical monetary calculation.

Without a full comprehension of moneys of account, an understanding of the true nature of money, in all its forms, is impossible. Money of account may, or may not, have a material representative. The unit of value, however derived or expressed, becomes fixed in the mind, is "committed to the memories of a whole nation," and comes to be, in relation to valuation, that which leagues, miles, feet and inches, are to distance; which degrees, minutes and seconds, are to angles; what a scale of proportion is to a geographical map, an architectural, or other plan. Money of account, is in fact, an ideal and "arbitrary scale of equal parts, invented for measuring the respective value of things vendable."

The use of money of account, cannot be mechanical, but is mental only; a matter of arithmetic. The money of account of the bank of Venice, which remained the same for five hundred years, had no coins to correspond with it; it was merely an idea, and yet, the value of all coins and commodities, was expressed in and by it. A money of account is a language, in which, all values or prices may be expressed, and by means of which, the relative value of commodities may be stated. It is something every one carries in his mind, as he does his knowledge of words or of arithmetic, and in so doing, he is quite independent of thoughts of coinage or circulating notes.

Montesquieu noted among the natives of the coast of Africa, in the 18th century, an ideal money, which is described as a "sign of value without money." The unit of this money of account, was denominated *macoute*, which was subdivided into tenths, designated by a word which signified pieces. This denomination of value, according to later information, had its origin in the *macoute*, a piece of cloth, or fabricated stuff of the country, which had been used as an article of barter. Mungo Park, who traveled in Africa from 1795 to 1797 and

perished on his journey there, begun in 1805, stated, that when the Mandingoes, of the western coast of Africa between lat. 10° and 14° N. and lon. 6° and 10° West, including the sources of the Senegal and Niger rivers, began trade with Europeans, the article which was most valued by them, was iron, on account of its great utility in making instruments of war and tools for the pursuits of peace. Thus iron soon became a standard of payment, and as the metal was supplied in bars, there was, in the manner already described, presently established a money of account. So any article, or any quantity of a commodity, supposed to be worth as much as a bar of iron, was denominated "a bar," and accounts were kept and trade regulated accordingly.

When the different South Sea islands were discovered, at various periods from A. D. 1511 to 1770 and thereafter, the natives accepted from the Europeans, beads or any gaudy thing which was offered them; but they soon discovered the superior value of iron in various forms, and then exchanged their products for axes, hammers, nails and similar things. Axes were after a time found so useful, they would sell anything they had for them, and axes became the basis of a money of account, the value of all other things being reckoned in "axes," that is to say, calculated by comparison with that of these highly-prized tools. Axes were then the money of account of this people.

According to Dr. Heinrich Barth, an enterprising German explorer, a native of the city of Hamburg, who traveled in Northern Africa in 1845 and in Central Africa alone from 1851 to 1856, the ancient standard of the commerce of Barnoo, Central Africa, was the pound of copper, which the people of that country called *roll*. The use of the pound of copper as a medium of exchange, was abandoned in Barnoo long ago, but the name *roll* still remained, as the unit of a money of account, in which, the cost of commodities was reckoned. Although cotton cloth, shirts, cowry shells, and other goods, with Spanish and Austrian dollars in silver, were used as money,

the value of them all, was expressed in *rotls*. The Chinese, like other people, first conducted their trade on the basis of barter, yet they have had a coinage of metal from almost pre-historic eras. This coinage was used by merchants, as early as 2853 B. C., but the husbandmen and common people, still traded by exchange in kind. To facilitate this barter, a great national market was established 2737 B. C. The names of the early Chinese coins, such as "Merchandise Money," "Merchandise Cloth," and the like, with their forms, in rude resemblance of garments, knives, or other things of most common use, show this currency was preceded by a more or less definitely conceived money of account, originating in the same manner as in the examples already given, of more modern date. The history of every country, or tribe, which has independently made its progress from barbarism to even partial civilization, could be made to furnish some illustration of this method.

For the article of money itself, as currently passing from hand to hand, in the course of trade, very dissimilar things and materials have been used. Some idea of the very earliest forms of money, may be had from the preceding pages upon *The Origin of Money*. The mere barbarian in his nakedness, tendered fruits, or the products of the chase. He who had become a little more advanced, would offer the hide or peltry in which he had learned to wrap himself, selling sometimes, as may be imagined, his clothes for food, or grown more prudent, be provided with a dressed hide for the particular purpose of barter. To meet in any satisfactory degree, the requirements of commerce, money should be of uniform value, divisible and portable. The less the bulk of money, except when made exceedingly small, the greater its convenience. Cattle, which were used as money in ancient Greece, about 1384 B. C. to 1184 B. C., and afterwards, and in Rome, some 600 B. C., and for some generations after, fluctuated but little in value, under ordinary circumstances, being always in demand for use and for food, and always costing about the same

amount of labor to produce. They could be readily counted, and when fully grown, and in good condition, were of something like the same respective or average value. Though a bulky and unwieldy consideration, flocks and herds were readily transferred and could be driven from point to point at the pleasure of the receiver. The poet Homer, between 1000 B. C. and 800 B. C., refers to cattle as a medium of exchange, stating that the armor of Diomed, one of his heroes of preceding ages, cost only nine oxen, while that of Glaucus cost a hundred oxen. From the Latin word *pecus*, signifying cattle, is derived another term *pecunia*, or *pecuniarius*, and from this, the French *pecuniaire*, and the English *pecuniary*, defined to mean: 1. Relating to money. 2. Consisting of money. In Britain, at the time of the Norman Conquest, there were two kinds of money in use. These were described as "living money" and dead money. The living money, consisted of slaves and cattle, and were generally transferred with the land upon which they lived and labored. Dead money, consisted of coined metals, or of metals in quantity.

Under the Roman Cæsars, land was made money, an arrangement possible only in a state of high political civilization, where the privileges of property were maintained, records preserved, and respect for the laws enforced. The ancient Russians, before, and under Ruric the Varangian chief, called to the throne A. D. 862, in common with some other barbaric or semi-barbaric people, used the skins of wild animals as money. The same was done by the North American Indians when in their aboriginal condition, and subsequently by the English and Dutch colonies. Early in the settlement of the central part of the United States, the pioneers in Illinois and some other places, had a currency of deer skins and peltries of the raccoon. A similar form of money, probably existed in prehistoric times in the Chinese empire, for at the beginning of the period *Yuen Seu*, there was a money of account, represented by "valuable skins," termed *Phi-Pi*, an account of which is given in the description of Chinese money in this

work. These skins were made to represent a value of \$644,000 United States money, being elaborately figured and highly ornamented, suggesting crudely, the idea of a Treasury note or Government bond, seeming to partake somewhat, of the nature of each of them. Salt has been used as money in the African nation of Abyssinia, and salted and dried codfish, were made to serve the same purpose in Ireland and Newfoundland. In the English-American colony of Massachusetts, about A. D. 1635, Indian corn, beans, wheat, barley, rye, peas, boards, codfish, horses, sheep, swine, goats, asses, lead bullets, and a general barter currency were used, in common with a limited amount of copper, silver and gold coin as money, all circulating together, according to law. In China, some 1400 or more years B. C., the shell of the cowry, of the small variety denominated *Cypræ moneta*, was hoarded as money by the miserly, and no doubt passed current. In some parts of India, and in the Indian islands and Africa, these same cowry shells have long been used in the place of small coin. In 1851, it is stated, more than a thousand tons of cowry shells, were shipped from India to Liverpool, England, to be exported to the African coast, in exchange for palm oil. In Bengal, about a century ago, 2500 cowries were reckoned at one rupee of the value of from forty-six to fifty cents. In 1875, 3200 cowries were to be had for the rupee.

The author of "The Coins of the Jews," Mr. Madden, writes that: "In the British West India Islands, pins, a slice of bread, a pinch of snuff, a dram of whisky, and in the central part of South America soap, chocolate, cocoa-nuts, eggs, etc., were current articles used as money. Adam Smith states, that sugar was regarded as money, in some of the English West India colonies. At the great International fair held annually at Nizhni Novgorod in Russia, the price of tea has to be decided and made known, before the prices of other commodities are established and advertised. In this manner, tea is made the standard of value, by which all exchanges of merchandise are regulated. In A. D. 1662, the accounts of the

New Netherlands, Dutch colonies in America, were kept in beaver skins and Indian shell beads. In Virginia, about the beginning of the 17th century, and for some time thereafter, tobacco was used as money, and even when coin came more freely into use, large transactions were generally settled by the transfer of receipts issued for tobacco deposited in the public warehouses. Thus these valuable documents, always redeemable in tobacco, which was money, passed from hand to hand for value received, just as a Treasury note or Bank bill now circulates.

One of the most remarkable of the primitive forms of money was the currency of the *Algonkin* or *Algonquin* North American Indians, which from time immemorial to a late date in the last century, was used by the natives of the Atlantic coast, and by the *Hodensaunee Konoshion*, or *Iriquois* Confederation, commonly called "The Five Nations," or as later organized, "The Six Nations," and by other interior tribes, westward to the Mississippi. This currency consisted of beads made from various shells, varieties of the *Buccinum* and others, and was called by the Dutch colonists in America *Zewant*, by the French *Porcelaine*, and generally known among the English settlers as *Wampum*.

The Indians themselves called their money *Sewan*, of which there were two kinds. The first and most valuable, was of a dark violet, purple color, and was made from the dark part of shells of the common round hard-shelled clam, *Venus Mercenaria*.

In 1628, Roger Williams, the founder of religious liberty in Rhode Island, a man of great truthfulness, kind hearted, and very intimate and influential with the Indians of New England, gave the following account of their current money: "It is of two kinds—white, which they make of the stem or stock of the *periwinkle*—after all the shell is broken off. Of this kind, six of the small beads are current, with the English penny. The other kind is the purple, which is made of the shell of a fish, which is called *Hens-poquahock*; and of this

description three are equal to an English penny." The Indian word *Hens-poquaheck*, being almost unpronounceable by Englishmen, was rendered through corruption of language as "Pequonuck" or "Poquonuck," and also by variation of dialect as "Quahaug" or Quohaug."

The Indians used no salt in their cookery, and preserved their meats and fish by drying and smoking; at the seashore, between the Delaware and Massachusetts bays, they dug, boiled, strung and dried clams, which were used to season their insipid fare. The shells of the Quahaug, as the round clam is still called in New England, after being emptied and their contents saved for food, were broken in pieces, to secure the black or purple "eye" of the shell. From this the dark purple beads were made, which were called *Suckauhock*, or *Suckanhock*, by the Indians. From around the mouth of Delaware bay, northward, along the coast of New Jersey, Long Island and New England, are to be found numerous heaps or small mounds of shell, all in a fragmentary condition, and lacking the dark portion. The completely broken state of the shell, distinguishes the shell heaps of Indian origin, from the numerous small piles of more or less perfect shells, created through the bivalve consuming tendencies of the more modern "palefaces" from Europe.

The second and much less valuable sort of the *Sewan*, was white, being made in most cases from the stem of the shell of the periwinkle *Littorinæ*. This white kind of the *Sewan* was called *Wampum*, a word derived from an Indian, *Alyonkin* or *Alyonquin* root signifying white. This name was varied by the Indians, according to the forms into which the beads were wrought, but by the whites at random, indifferently, appearing as *wampam*, *wampampege*, *wampampeuge*, or *peage*, in the same public colonial document. The vicinity of Hackensack, N. J., and the shore of Long Island, N. Y., was the great center for the manufacture of these shell beads. Long Island was called by the Indians *Sewan-hacky* (*sewanland*), and the circulating medium there issued was very ex-

tensively used as money among all races upon the eastern part of the North American continent. Another famous place of manufacture, was at Cape May Point, New Jersey, at the mouth of Delaware bay.

In making these beads, the Indians first broke the different shells, so as to secure the portion they desired, and then by chipping the fragments of shell with a sharp chisel of flint, they formed them into cylinders a little larger than the stem of a common clay pipe, and as long as the nature of the material would admit. Through the center of the cylinders, and on a line with their length, a small hole was bored, about the sixteenth of an inch in diameter. This hole was required to run straight from end to end, and to be round and smooth internally.

The Indians knew nothing of iron and steel and therefore made all their tools of wood and of stones such as flint, quartz, and obsidian, a kind of natural glass, of volcanic origin. Of these they not only made axes, spear heads, arrow tips, and similar things, but also formed knives, so keen that they were used to skin and dress game, or even as razors, to crop and trim their hair. Of such material was the drill originally used upon the shell beads. This drill was operated by means of a bow in precisely the same way drills made of steel are now used in certain cases by jewelers, watchmakers and other civilized mechanics. With such drills the Indians not only bored beads and short cylinders from various colored shells, but also manufactured from steatite or soap stone, thin tubes as large as a man's finger and six or eight inches long. Whether they had anything like the turning lathe for the outside finish of such work is uncertain, but relics have been found in the Southern States of what must have been a potter's wheel of the aboriginal time. The Indians were very accurate of sight, and when exempt from the curse of rum, exceedingly steady of nerve. The squaws, especially the old women, were very industrious, and from their hands came the beads, and the articles of clothing, upon which they were used

as ornaments. The Indian women were not deficient in the keen-sighted dexterity peculiar to their race, but the manufacture of shell beads by the means they used, must have taxed to the utmost their skill and patience.

The drilling was the most difficult part of the operation; when this was successfully accomplished, the cylinders were ground into a true form by rubbing them on sharp gritted stones, and then carved into globular or semi-cylindrical beads, which were carefully finished and nicely polished.

Sometimes much larger pieces, of an ornamental character, were made from large fine shells, bored in the same way as the soap-stone tubes. These have been found as long and big as the forefinger of a full-grown man. For such, the Indians were willing to pay four or six good well-dressed deer skins. They were very constant and steady in their estimate of the value of their currency, yet at one time paid Massachusetts two hundred fathom of the same, an amount which even if all *Wampum*, must have been worth a thousand Massachusetts silver shillings.

The work upon which *Wampum* was used as an ornament, was often quite artistic and handsome. Aside from their color, the Indians criticised the beads as to form and finish, the usages of aboriginal commerce requiring that they should be of uniform size and regular shape, smoothly bored in the center. When a quantity of beads had been made, they were strung upon threads or strings, made from the sinews of the deer, or woven into various kinds of belts. To test the shell beads, the Indians drew the strings of *Sewan* deftly across their noses; if they found them smooth, uniform, and well strung, they passed for full value. The imperfect beads, or those worn and abraded by use, were refused or accepted at a large discount.

In making payments of *Sewan*, small amounts were counted in loose beads, one of the violet purple *Suckauhock*, being considered equal in value, to two of the white *Wampum*. In making large payments the reckoning was by the fathom of

strung *Wampum* or *Suckauhook*, the same being measured by the spread arms of an Indian. A fair fathom of *Suckauhook* was worth ten shillings, and one of *Wampum* five shillings. The *Sewan* of the North American Indian was a true money, though of savage origin. The *Suckauhook* served the same purpose for which gold coin is used, while the *Wampum*, less in value, was as currency, of the nature of silver. The units of value were the beads, which counted one by one, measured in strings by the fathom, or tendered in quantity as wrought into belts, effectively represented a money of account, which was for an unknown time, the comparatively accurate measure of value for a very considerable amount of commerce.

The *Sewan* was not used as money alone, but as an ornament, for which it was wrought in various forms upon articles of Indian clothing, and also used for ear-rings and necklaces, armlets, bracelets, belts, etc. It was used in all treaties and on all public occasions, a string or belt of the vari-colored beads being given to bind each article of a compact, or treaty, and a broad "treaty belt," called by the Indians *Wampur-pague* or *Wampumpege*, being delivered as a solemn ratification of the whole. On these treaty belts, elaborate figures were wrought, in beads of different colors, the form and design of which, was not arbitrary, but systematic, and arranged so as to form a record of an event, or the terms of a contract, in hieroglyphs and designs that could be read. The Indian money was so convenient, that in the urgency of their circumstances, the Dutch, French, and English American colonies, adopted it as a medium of exchange, and in one case as a money of account, for in 1662, the records of the New Netherlands colony "were kept in *Wampum* and beaver skins."

In 1637, it was ordered in Massachusetts, that *Wampumpege* should pass "six a penny," for any sum under twelvepence; of which, and subsequent legislation upon the same subject, an account may be found in this work, under the head of the *Colonial Silver Coinage of Massachusetts*. The New Netherlands accepted *Sewan* in trade, the better sort being as current

as silver for a long time. In 1640, *Wampum* was voted "to goe six a penny" in New Haven. The *Sewan* was the currency of New Netherlands in 1641. At New Amsterdam, now New York city, "four beads of good black, well strung *wampum*, or eight of the white," were reckoned of the value of one *Stuyver*, a Dutch coin worth about a cent. In 1650, "there being at present no other specie," *Sewan* was made lawfully current, at the rate of three black or six white beads of "commercial *Sewan*," or four black and six white "of the base strung," for one *Stuyver*—the rate ordered "to goe" in New Haven. By this financial arrangement, the drain of "specie" into New England is said to have been checked. The Dutch Commissary Hudde, of Fort Nassau, a Dutch trading post on Delaware bay, now Gloucester, New Jersey, complained in 1648, that the Indians made trade too much against the New Netherlands Company, which he represented, as they invariably, when paid for furs, selected very long-armed Indians to measure the fathoms of strung beads required.

Josslyn, an early writer of Indian history, declared that the makers of *Wampum* wrought so cunningly that "neither Jew nor Devil could counterfeit" their work. However, the Dutch at Albany, N. Y., by use of lathes, drills and turning tools, made and sold a great deal of a very superior kind of *Sewan* in their extensive trade with the Five Nations or Iroquois Confederation. There were at one time, sixty or seventy shops in Albany, where *Sewan* was made, and the Indians called the town *Laophanacking*—i. e., "the place of stringing *Wampum*." *Sewan* was also made in other places by poor people. As late as 1756, Jacob Spicer, a merchant of Cape May, New Jersey, advertised that he was ready to buy *Wampum* (*Suckauhook*), and offered a reward of five pounds, to the person who should manufacture the most of this article. The merchant secured a quantity of the *Suckauhook*, and before sending it off to a market, at Albany, weighed a shot bag full of silver coin, and counted the same shot bag full of the Indian currency, and found the latter most valuable by ten per cent.

These imitations of the Indian currency, being made with the superior tools of civilized men, were generally an improvement upon the original. They were not as has been stated *counterfeits*, in the sense in which that word is properly used to describe base or illegal coinages which reproduce the appearance of the authorized metallic currency of a nation. Any Indian who could find the shells of the periwinkle, or dig those of the clam, and who had a squaw skillful enough to make good beads, could without offence start a mint on his own responsibility, and go on making any form of Indian money without hindrance, so long as there was no lack of material or any refusal to labor. The making of shell beads was merely a form of industry, and when the whites introduced machinery in aid of the art, the Indian was very ready to accept the improved product; he grew rapidly rich for a time—in *Sevan*—but presently, as may be surmised, found himself suffering, in his peculiar way, all the evils which follow a superabundant inflation of the currency of any people. Just as the Indian had a natural right to make beads, so the spirit of the law allows any citizen of the United States to make coins of any material—the prohibition is against trespass upon what is like a trade mark, the form and design of legalized coin. To counterfeit or imitate these, as a whole or in part, in any metal, is felony.

The Narragansett and Pequod tribes of Indians, inhabitants of Connecticut, Rhode Island and Massachusetts, who, as well as the Long Island Indians, were able to produce *Sevan* on their shores, kept themselves rich and powerful by the use of it, until long after their contact with white men. The Cape May Indians, the Delaware, or *Lenni-Lennape* tribe, held similar advantages, and the accumulated refuse of their work, shows they were not careless of their opportunities. The Indians of Long Island owed at last their enslavement or severe subjugation by the Mohawks, to their facility for making beads; being cruelly overrun, robbed, and compelled to pay their plunderers, conquerers and taskmasters, a heavy annual tribute of *Sevan*.

The most primitive forms of money of which there is any evidence on the American continent, have been exhumed from aboriginal graves and mounds in the Ohio and Mississippi valleys; it being the custom of the pre-traditional mound builders, as well as the red Indian proper, his successor, to bury the treasures of the dead in the grave with them.

The specimens of money found with the bones of the Aborigines, were composed of lignite, coal, bone, shell, terra cotta, mica, pearl, carnelian, chalcedony, agate, quartz, jasper, lily-encrinite and native gold, silver, copper, lead and iron, all fashioned into forms manifesting a considerable degree of skill in the rudimentary lines of art. In 1838, a great quantity of *Lignite* and *Coal* money, was found in a small oblong oval mound, on the banks of the Miami river, in Ohio; the largest of which was about an inch in diameter, the size of the old cent of the United States, but much thicker than that copper coin. Some of these pieces were perforated with sixteen small holes. The faces of others were inscribed with from five to eight parallel lines, and on one specimen the lines were crossed, forming diamond-shaped figures. This lignite and coal money, when brought to the surface, soon crumbled to disintegration, and the signs of inscriptions upon it were too indistinct to be of value to the archeologist.

A part of the specimens of *Bone* money were strange indeed in their material. They were about the same size as the pieces of lignite and coal just described, and were wrought out of the interior and exterior tables of the human skull; also of the bones of the thigh, the shoulder blades and the knee-pan of human subjects—probably relics of enemies slain in battle or of prisoners subsequently offered in sacrifice, or tortured to death, relics of superstition, or symbols of revenge, a sentiment which was esteemed an exalted virtue among North American Indians, and also, probably, by the mound builders who held the land before them. Some of this bone money was made from the tusks and ribs of the gigantic mastadon,

the enameled portions of the teeth of the alligator, and from the bones of the gar and the catfish.

Pieces of *Shell* money may be found in every aboriginal mound; they were made of different shells, from that of the fresh water clam, up to that of the huge Sea Conch. Their colors were quite various, and they made beautiful samples of aboriginal work. They were generally about the size of the coal and bone money already noted, with eccentric lines carved upon them, and in some cases bearing figures. Some pieces of the shell money were found as large as two inches and a half in diameter.

The *Terra-Cotta* money was formed from clay, tempered with bone dust, and also from ferruginous matter. Some of its varieties were of a beautiful red color. The devices upon these pieces were numerous, and generally on one side, but occasionally upon both. They consisted of birds, frogs, snakes, and many other curious figures; but, above all, of the heart and the extended hand.

The emblem of an open hand has been used by various races from prehistoric times in widely separated parts of the earth. It was known in India, is found on the old monuments of Egypt, may be traced to Phœnicia, and is inscribed on the cyclopean architecture and gigantic idols of the ancient Mexicans. The *Quadran*, an ancient Roman coin, bore the figure of an open hand; it was a symbol of primitive Christianity; the mound-building Indians made use of it, as is shown by their relics, and the wild tribes of North America still stamp the open hand upon their tanned buffalo skins and the coverings of their habitations. The open hand was adopted by the primitive Christians as a symbol of the first person of the Trinity, having from time immemorial, been used as an emblem, as an ideographic sign, or as a hieroglyph, to denote life, power, impartation, providence and the like attributes of Divine character. The open hand has in the same way been borne upon military standards, as the ensign of an assumed heaven-derived political authority. Among the Dakota tribe

of Indians, the impress of an open hand upon the garments or the sides of the wigwam of an Indian, is a mark of honor due his virility and courage; when struck in red, it signifies that he has suffered a wound from the enemy; and when in black, it shows that he has taken the life of an enemy. The meaning of the open hand upon the pieces of money taken from Indian graves, and from aboriginal mounds, may not be defined, yet the wide-spread use of this emblem is significant and probably indicates former intercourse and a measurable community of ideas between the ancient races and nations who employed it in Asia and Europe and the Aboriginies of America.

The hand, in one or another form and degree of extension, was very anciently a symbol and gesture of the phallic system, the type of reproductive powers of generation derived from the Infinite life. Either from adoption of a foreign symbol, or perhaps by natural suggestion and selection of such an image, the Indian may, in expression of a similar sense, have used the open hand as the hieroglyph of his *totem*, significant of the name of his ancestor, his supposed guardian spirit, and that of his tribe. It would be a prolonged and complex labor to follow the subject of this symbol through all its far-reaching ramifications and correspondences; its suggestions are of overwhelming interest to the antiquarian, to the ethnologist and the student of religion; the topic is, however, but one of the many of like nature which present themselves to whoever intelligently undertakes the researches of the numismatologist.

The *Stone* money occurs in great quantities in the aboriginal mounds. The pieces were composed of carnelian, jasper, agate, quartz and chalcedony; also of common sandstones and slate. The size of the stone money varied from half an inch to eight inches in diameter, being in many instances very highly polished, and occasionally figured over with hieroglyphics and other devices. Some of the pieces bore the ancient rock alphabet of sixteen right and acute-angled single strokes used by the Pelasgi, the supposed aboriginal inhabitants of Western Asia, the first known people of the Greek peninsula.

The *Lily Encrinite* money was also found in great quantities. This animal petrification is formed of long-jointed stems, composed of calcareous divisions or plates closely fitting each other; they are generally found separated, and it is these divisions of the stem which are denominated fairy stones or St. Cuthbert's beads. In this wonderful result of nature, the Aborigines had a money properly fashioned and beautifully ornamented, without labor in design or workmanship, it being a natural, round piece, bearing a star surrounded by many fine rays. From the care with which it was preserved, they must have valued it highly.

The *Lead* and *Iron* money was also found in large quantities in and about the small mounds in the valley of the Mississippi. The pieces were variously ornamented, some with dots and lines, and others with an arc surmounted by a short, stubby cross. The Egyptians used this hieroglyph to denote life, and in the Coptic churches it was frequently substituted for the Cross. How the Aborigines of America, the ancient Egyptians and the Copts came to use this emblem in common, will perhaps remain a secret forever.

Of the *Copper* money, the aboriginal mounds contain large quantities—in one grave at Grave Creek Mound, sixty pieces of this copper money, beads, or sections of small copper tubes, were exhumed. These copper beads, or money, resemble open or unsoldered oblong tubes, half an inch to two inches in length, with no inscription or design whatever.

The *Silver* money found in Perry County, Ohio, was a circle of irregular shape, and in diameter about three-fourths of an inch. It bore a device of waving, parallel lines, about four in number. On some pieces were rude designs of human figures and birds, as well as snakes and other reptiles.

Specimens of *Gold* money were occasionally found in the form of small lumps or balls, slightly flattened, and irregular on their edges. Several have been found in Louisiana and Mississippi. In 1845, a mound was opened at Old Fort Rosalie, near Natchez, and one of these gold balls, slightly flattened,

weighed upwards of two pennyweights. A similar specimen of very fine gold was found in Ross County, Ohio, lying in the palm of the hand of a skeleton. Another gold piece was found in Perry County, Ohio; the face of it bore two figures roughly shaped—a man and a bird, besides four footprints of the latter.

The Hebrews who had no coin of their own until the time of the Maccabees, who ruled in Judea from 166 to 63 B. C., had a jewel money—a currency of precious stones, a very portable form of wealth, of which the diamond is to-day the costly example. Though almost everything of value has, as herein described, been used as money, yet in all cases where a proper currency has been established, men have been compelled, by what seem irresistible reasons, to value money composed of metals, above all other mediums of exchange or commodities whatever. Different metals have been used as money, of which iron among the Mandingoes of Africa, copper among those of Barnoo, in the center of the same continent, with lead, iron, copper, silver, and gold, among the former inhabitants of North America, have already been noticed. The metals were first used in various forms as articles of barter, but gradually assumed the character of a general medium of exchange. In an age when the only wealth of importance was cattle, the almost imperishable and ever useful products of the mine, came to be highly esteemed on account of the facility with which they could be accumulated and preserved. The primitive forms of metallic money were rude bars, without any stamp or coinage, like those from which the Mandingoes derived their money of account, as has been herein described.

“Iron was the common instrument of commerce among the ancient Spartans, about 870 B. C., copper among the ancient Romans, about 753 B. C., and gold and silver among all rich and commercial nations.” Timæus, an ancient historian, as reported by Pliny (Plin. Hist. Nat. lib. 33, cap. 3), wrote that till the time of Servius Tullius, about 550 B. C., the Romans had no coined money, but instead made use of unstamped bars

of copper, to purchase whatever they had occasion for. Rude unstamped ingots of good copper, or bronze, generally spoken of as brass, were long current money among the ancient Romans. These ingots were somewhat of the form of a brick, and were cast to weigh an *as*, a *libra*, or *pondo*, a Roman pound each, and were denominated by either of these three Latin words, which signify a pound. The *as*, *libra*, or *pondo*, was the Roman money of account—a pound of copper, as with the negroes of Barnoo. The British money of account, the pound sterling, in the time of Edward I, surnamed Longshanks, king of England from A. D. 1274 to A. D. 1307, signified an English "Tower" pound of silver, of standard (sterling) fineness or purity. This "Tower pound" was so named, because the money was weighed at the Tower of London. It was somewhat heavier than the Roman *as*, and less than the pound of Troyes. The French money of account, the *livre*, in the time of Charlemagne, A. D. 768 to A. D. 814, signified a pound Troyes weight of silver of standard fineness. The fair held at that epoch, at Troyes, in Champaign of France, was frequented by representatives of all the nations of Europe, hence the weights and measures of so famous an international market were widely known and extensively used. The Troyes pound was introduced as the standard weight of the British mint, in A. D. 1517, the eighteenth year of Henry the VIII, and as the "pound Troy" is now used in general for weighing the precious metals, jewels, drugs and other of the more valuable commodities. The shilling was originally a name for a weight; an old English law of the time of Henry III, fixes the *wright* of a loaf of bread, at "eleven shillings and fourpence." History fails to inform us when gold and silver were first used as money.

In the Hebrew Scriptures, Gen. XIII, 2, we read that Abraham returned from Egypt, some 2000 years B. C., "very rich in cattle, in silver, and in gold." In Gen. XVII, 12, we find the expression: "He that is born in the house or bought with money of any stranger." In Gen. XXIII it is recorded that

Sarah, the wife of Abraham, being dead, he bought from Ephron a field in Machpelah as a burial place for her, and that he "weighed to Ephron the silver which he had named in the audience of the sons of Heth, four hundred shekels of silver, current money with the merchant." It is to be observed, this current money was weighed, not counted, being pieces of silver supposed to be cut to certain weights, such as shekels and talents, but unstamped, as was the practice in that age.

Before the introduction of coin into Greece, about 800 B. C., there was a money current there which consisted of "spits" or "skewers," of which six formed a *drachm*, or *drachma*, which word signified a handful. This money is supposed to have been a kind of nails of iron. The *drachma* was the unit of the Grecian money of account, and it, and the divisions and subdivisions of the same, were subsequently represented by silver coins. In certain parts of Africa, purchases are made from the negroes for strings of beads of various kinds, or coils of brass wire, which they use as money and for ornaments. One color of beads, or one kind of wire, will pass freely and others be refused, much according to the fancy or conceit of the natives. At Bonny, in the gulf of Guinea, the British traders paid out copper in the form of open rings some three inches or more across, made of round copper rods, some half an inch in diameter. These rings were so forged that when the open ends were brought in contact, they fitted end to end by a chamfer, forming an armlet, or anklet, in complete circular form. They were shipped from England in casks, but among the negroes clasped for security on wooden poles, or linked into chains, when not worn upon the person of the owner. This copper ring money is of comparatively recent use at Bonny, and has proved a great convenience in the commerce of the blacks of the coast with the sable nations of the interior. Adam Smith states, that about A. D. 1776, in a certain town of Scotland, Great Britain, it was customary for workmen to carry nails as money to the bake-shop and the ale-house.

One of the most entirely primitive forms of record is the *tally*, to make which unlettered men mark numbers, quantities and events, by cutting notches or "scores" on a convenient stick. Hence, an account is sometimes spoken of as a score. From prehistoric times the accounts of the Saxon kings of England were kept upon such notched sticks, which under the name of "Exchequer tallies" were kept in use by the English Exchequer until A. D. 1783, and are remarkable in connection with the subjects of money and finance. For many years before the disuse of the tallies noted, the English Exchequer checked its accounts by them in the following manner: A store of hazel, ash, or willow wands was kept for the use of the Treasury; when thoroughly seasoned and prepared, they were inscribed on the one side with notches, and on the other with Roman numerals, both the notches and the numerals being made to record and signify exactly the same sum of money, in any amount which the business of the Treasury required it to make a promise of payment.

The date of the deposit or credit, and that when payment would fall due, and the name of the person having the claim upon the Treasury, was also inscribed upon the tally. The Deputy Chancellor of the Exchequer then split the tally stick, by use of a knife and a mallet, through its middle in such a way as to divide the cheeks, so that each piece bore a half of the Roman numerals, and a half of each one of the notches. One part of the wand was then given to the creditor of the Exchequer, and the other half stored in the vaults of the Treasury. The notches on the tally differed in breadth and manner of cutting; one stood for a penny, another for a shilling, a pound, twenty pounds, one hundred pounds, a thousand pounds, and so on, according to their dimensions, the notches being read as easily and accurately as the Roman or any other kind of numerals which could have been used for the same purpose.

When the obligation of the Treasury, of which the tally was an acknowledgment, became payable, he who held the

tally in possession, presented it at the office of the Exchequer and demanded his money, as figured thereon. Then the piece of the tally presented was matched with the corresponding part in the Treasury, and being found to fit and form the complete record, the money was paid and the reunited halves of the tally stored away together, for ready reference in proof of settlement.

In 1697, while the old metallic currency of England and the realm, was being wholly recoinced and brought up to standard weight, the scarcity of currency caused extreme embarrassment to both the government and the Bank of England. The credit of the government and that of the bank sunk very low, and in the crisis, the king's Exchequer made an issue of Exchequer tallies, for various sums to the amount of hundreds of thousands of pounds sterling. These public securities, evidences of indebtedness on the part of the government, circulated as money, of which they were certainly an unique variety. Unfortunately the currency of Exchequer tallies soon depreciated to some forty per cent. of their nominal value; meantime the bank's bills were at 20 per centum discount. A bold expedient was used. The bank advertised new capital to the amount of £1,000,000, offering to take 80 per centum of the same in the discredited Exchequer tallies, and in Treasury orders of no more value. The consequence was, the government was relieved of £800,000 outstanding promises to pay, which became due the bank, which was an easy creditor of the king; and those who bought stock in the bank were made responsible for its business.

At the union of England and Scotland, a store of hazel rods for Exchequer tallies was sent to Edinburgh, but were never made use of there. The use of these tallies being abolished by act of Parliament (Geo. III, C. 82, 1783), the great quantity of them which had accumulated in the Treasury, stored there generation after generation, were ordered to be destroyed (4 and 5 Will. IV. C. 15). The destruction of the Houses of Parliament by fire, in 1834, is supposed to have

been caused by the overheating of the flues of the furnaces in which the old Exchequer tallies were being burned. Such was the end of that form of money. Troublesome and cumbersome as it was, the wooden Exchequer tally, for all its simplicity, seems to have been a more reliable check upon forgery and fraud, than any of the more elaborate and convenient devices since made use of in England.

Ancient and extensive as the use of money has been, in all its numerous forms and varied materials, it for the most part merely represented a value, property which had been created by human industry and preserved by the organic action of society. In fact, however convenient money has been found, and however primitive the forms of the same, there is something still more essential, in a formless consideration, the true original value, expressed only by the free tender of equivalent service. Commodities of any and all kinds, derive their value solely from the fact, that they can be made directly or indirectly to sustain, improve, or comfort human existence.

Human Life is the one priceless incomparable possession; life is sustained and made better by industry. Labor helps to live; service in any form, is the single absolute primitive consideration, universal tender, perpetual equivalent and sole creator of wealth. This rule is fundamental, and all forms of society, each plan of government, every scheme of finance attempted in ignorance or defiance of the natural law involved, must first become an engine for the enslavement and oppression of the people, and finally be reorganized with more intelligence and justice, or perish by righteous rebellion in the convulsions of bloody revolution.

It has been found possible, and even tolerably convenient, to supply the wants of a vast and dense population, to develop a high degree of social order, to support an elaborately magnificent system of religion, and thoroughly conduct, over immense territories, in peace or war, a comprehensive and painstaking imperial government, all without any but the rudest currency, the most primitive method of exchange.

Ancient Egypt, "the land of monuments," contained a population of from five to eight millions, a people who founded most enduring institutions, with imperial dynasties, continuing one after another for thousands of years in succession; a most industrious and skillful nation, supreme in architecture, grand in sculpture, remarkable in painting, and practised in vocal and instrumental music, scientific, philosophical and profoundly religious. The early Egyptians carried on an extensive commerce with neighboring nations, having a most advantageous position for the great traffic which enriched their country with slaves, cattle, gems, valuable metals and rare objects of curiosity. The rich products of India and Arabia, age after age, passed through Egypt on the road to Europe. Under the earlier dynasties, the chief occupation of the nation was the rearing of cattle, the cultivation of various kinds of grain, and the development of architecture.

The Egyptians became a wealthy and luxurious people, indulging in banquets, fishing, fowling, and hunting for pleasure, and exercising themselves at a variety of games of mingled chance and dexterity. The nobility lived in splendor and power, each one of their establishments containing all the officials, artificers and facilities necessary, completely organized for its regular maintenance. Art was cultivated in such places, science and philosophy developed, there they gathered the wonders and wealth of many strange lands, and arranging them in museums, collected rare animals of foreign nativity, which were also kept for ostentatious exhibition.

How all this was done, without money, is not evident, but such seems to have been the case, unless perhaps certain rings of gold of given weight, may possibly have formed a sort of currency; the precious metals were mentioned by pounds *mana*, and by ounces *kat*. "Money, in the form of coin, was first introduced into Egypt by the Persians," when that nation made the conquest of the land of the Nile, under the lead of their most bloody and ferocious tyrant Cambyses, some 529 to 522 B. C. The Persians held the country of Egypt till the

fall of their king Darius III, 336 to 329 B. C., by which time the use of coin had been made common in many nations.

The *Toltecs* and *Aztecs*, cotermporaneous tribes of the *Nahualtec* or ancient Mexican nation, the earliest known people of this continent, and their successors, supposed to have been settled in Mexico from A. D. 1200 or earlier, the ruins of whose architecture and monuments are evidence of immense populations, endless industry, complete organization and high civilization, almost of enlightenment, seem to have left no relic which could be considered the proof of any varied and extensive coinage.

In their traffic, this race used the bean of the cacao nut (*Theobroma cacao*), a bag of which of certain size, was supposed to represent eight thousand units of their money of account. They also used feathers, the quills of which were filled with a quantity of gold dust, which represented four hundred units of value. Besides, there was an Aztec copper coin, of a form somewhat like a crucifix, or like the letter T. By such exceedingly simple means, the whole business of the ancient Mexicans and their descendants or successors seems to have been very successfully managed.

The *Aymaras*, the earliest known inhabitants of the Andine valleys of south-eastern Peru and north-western Bolivia (a race who claimed descent from the *Colluwas*, who at a very remote period were said to have emigrated from the north), constituted the sacred island in the great lake Titicaca, the center of their government, the site of wonderful temples dedicated to their religion. Though distinct in language from the more modern *Quichuas*, the race of Indians governed by the Peruvian Incas, the *Aymaras* resembled them in physical form and features. To the *Aymaras*, the people of the Incas were indebted for a part of their religious rites and the knowledge of the arts. The *Aymaras* were successful tillers of the soil; they built vast temples of Cyclopean masonry, and other edifices; they wrought with skill in gold and silver; they were proficient in sculpture and painting, and some-

what versed in the science of astronomy. Their poetry and religion were spiritualistic; their priests were bound to celibacy, and the dead were held in religious veneration. Of the Pre-Incarial era of Peruvian history, the age of the *Aymaras*, comparatively little is to be known, yet the abiding remnants of their civilization attest the superiority of the race. Their Cyclopean architecture was copied by the Ineas, and the sentiments of their philosophy were revered by the generations which followed them.

The religion of the *Aymaras* was a pure Theism. The name of God with them was *Pachacamac*; that is to say, "The Creator of the world"—an invisible and mysterious Deity. The vast ruins of Tia Huanaeu, 12,930 feet above the level of the sea, situated in a region which is generally a frozen desert, at an altitude where the air is so rare as to be hurtful to the human constitution, are the remains of the capital of the *Aymara* government—the sacred city of their religion. The *Aymaras* were succeeded by the *Quichuas*, who made themselves the dominant race in Peru under the government of the Incas. The origin of the name of Peru is unknown; *Manco Capac*, the first Inea, is reputed to have come into the government about A. D. 1062. The *Quichuas* were a gay, cheerful and energetic people. They were a nation of industrious workers, labor being enforced upon all, that each might be provided for and the commonwealth preserved. The public industry was divided for three objects. The people worked the first part of their time, upon lands, the produce of which was set apart and devoted to the support of their religion, the worship of the Infinite Creative Life, which they considered symbolized in the form and functions of the Sun. The second part of the time, the people tilled their own fields, or were otherwise employed for their own support, and the rest of the days were spent in labor for the Ineas or upon public works.

The *Quichuas* were assiduous cultivators of the land; Indian corn and other grains raised in the vicinity of the temples at Titicaca, were sent as sacred presents to all parts of the

great empire. The Inca, though regarded as an embodiment of divinity himself, a "child of the sun," tilled the ground, giving an example of labor, in honor of agriculture. When the time came for the service of the Inca, the people labored all together and in great style, with gladness. They dressed themselves upon such occasions in their best clothes and went to the temples and sang hymns, at the rising of the sun. They received rations when in the public service, and the season was made a patriotic feast and festival. Under the wise sway of the Incas, the *Quichuas* rose rapidly in civilization and became skilled in many of the arts. They spun and wove the fleeces of the llana, vicuna, and alpaca, they worked the mines of gold and silver and created a wonderful system of public improvements.

The immense stores of gold and silver found in Peru by the Spanish invaders, were taken from the mines by Indian industry and skill, and represented the accumulations of centuries among a people who used the precious metals only for purposes of ornament and decoration. The country of Peru still contains vast mineral and other natural wealth, but the energy and cheerful patience of the *Quichua* miners is uncommon among the present population of the country. The amount of silver bullion produced by the Peruvians from 1630 to 1803, has been carefully estimated at \$1,232,000,000. After the independence of Peru from Spain, the production of the precious metals decreased. In 1859, Peru is said to have exported but \$1,000,000 worth of gold and silver, including the value of all plate, jewelry, and other similar articles sent abroad. Subsequently, the amount of precious metals mined in Peru increased to an average of \$5,300,000 a year, and in 1873, the quantity of silver bullion raised was valued at \$5,000,000. Owing to the introduction of modern machinery and the construction of railroads by Englishmen and citizens of the United States, the yield of silver may still be much enlarged and perhaps even rival the treasure which excited the cruel cupidity of Pizarro and his avaricious associates.

The houses of the *Quichuas* were built of adobes or sun-dried brick, and were planned with gables, niches, arches and similar features. Their temples were of these brick, or of stone. If stone was used, the blocks were cut and finished with an accuracy and smoothness that cannot be surpassed. Peru, which to-day has an actual population of about two and a half millions, under the Incas was the happy home of thirty millions. To provide for these multitudes, vast tracts of arid, desert lands were redeemed and made productive by irrigation, the water for this purpose being obtained by a wise and extended system of *azequias* and aqueducts, and also by excavating until water was found. Some of the canals and aqueducts connected with this system of public water works were between four and five hundred miles long. In the grand days of the great Inca *Capac Huyana*, a national road twenty feet wide and between fifteen hundred and two thousand miles long crossed his territories. To complete this work, which was for foot passengers and pack llamas only, the people having no horses, galleries were cut for leagues in the solid rock, rivers were crossed by suspension bridges formed of plaited osiers, which it was death to destroy; precipices were ascended by massive stairways cut in the stone, and the valleys were crossed at a level on causeways of solid masonry. The road bed was of broad flags of freestone, many of which still remain where they were laid, to attest the thoroughness of the work of which they formed a part. Over this road, from station to station built beside the way, the runners of the government passed to and fro, at an average speed of about one hundred and fifty miles each day.

The *Quichuas* invented no alphabet, had no books, but kept memoranda or even full historical records by means of the *quipu*, a twisted woolen cord, upon which strings of different colors were tied, and in which knots were formed. These *quipu* could be read by educated persons, and thus the history of the nation was preserved. The people of the Incas failed to gain a knowledge of astronomy as complete and accurate as

that of the *Nahualtecas* or ancient Mexieans, yet they cultivated poetry, had dramas, and were singers of many sweet and touching songs, which won the admiration of the Spanish conquerors of the country. After the invasion of Peru by the Spanish, A. D. 1516, and the enslavement of the nation, the art of reading the *quipu* was concealed and eventually lost, hence we have no knowledge of previous events, except from tradition and a study of relics and various architectural remains and monuments.

Neither the *Quichuas*, nor the *Aymaras* who preceded them, had current coin. What system of exchange they used is uncertain, but one thing is obvious, they solved the problem understood only by the most advanced statesmen and philosophers of Europe and America. They discovered that an industrious life was the honorable condition of existence; they made labor the corner-stone of the State, and accepted it as a legal tender in payment of all dues to the temple and the government. The revenues of the ancient Saxon kings of England, were paid, not in money, but in kind; that is, provisions of all kinds. William the Conqueror introduced the rule of paying taxes in money. This was, however, for a long time received at the Royal Exchequer only by weight, and not at all by count of the pieces. While English taxes were still payable in kind, and not of necessity in money, military or other personal service was accepted by the crown in satisfaction of all claims, for any kind of tax whatever. Money, in the form of a sound currency, is the representative of labor. Capital is the work of the past, manifest in accumulation.

Labora Omnia Vincit.

ANCIENT COINAGES.

Metallic money, in the form of bars, ingots, rings, and pieces of various shapes, and different kinds, was, in very ancient times, found a more convenient medium of exchange than any other article of barter. Still, great as the improvement was, the use of metals in bulk, as common currency, was an annoying and unsatisfactory method of commerce. The two things necessary to determine regarding every piece of metal offered in payment of any due, were, firstly the weight or quantity, and next the fineness or purity of the same.

The process of weighing, even when applied to base and cheap ores, must be conducted by the careful use of proper scales, with precise notes of the results. In the precious metals gold, silver and their high grade alloys, a very small variation in the weight, makes a great difference in the value. As to weighing small amounts, of copper for instance, the probable deviation would subject no one to serious loss, at any one time; yet to measure out the value of cents, pennies and the like in this manner, one at a time, would make their reckoning and disbursement, cost as much, or more, than the metal itself was worth; moreover, this expense would have to be met in full by time and trouble, every time such payments were made.

The process of assay, by which alone, the degree of fineness or purity of metals can be determined, is exceedingly difficult and very tedious, and, unless the metal to be tested be fairly

melted in the crucible, with proper solvents, and the whole operation skillfully conducted, any result obtained is inconclusive, and all inferences therefrom, quite uncertain. Before the invention and use of coined money, every one who accepted metals without assay, even when they were carefully weighed, was subject to the grossest frauds and most arrant imposition. Instead of pure or standard metal, gold, silver or copper, the merchant might receive, in exchange for valuable goods, a base composition, an adulterated compound of the coarsest and cheapest materials, a mere imitation and counterfeit of the genuine currency.

In a primitive state of society, where flocks, herds, crops of grain and other personal property were almost the only forms of wealth, the natural tendency and disposition of men to accumulate riches, led them, as stated on a previous page, to fix a special value upon the metals as a durable and always available kind of estate. When the value of metals came in this way to be generally recognized, the revenues of kings and other potentates, were collected in part, or wholly, in that form of money. Then the government, to facilitate public business, stamped the various pieces of metal, with their weight and quality, as they were received at the Treasury; and according to these stamps and marks, the same pieces were paid out of the Treasury, and so circulated among the people at an authorized fixed value. The next step was, to reduce current pieces of metal, to a uniform size, shape, quality, value and denomination, and make them by special enactment, a legal tender for the payment of all taxes or public dues. Thus a legalized currency of coined money was created, and the exchangeable value of the various metals used for the purpose, fully established, to the great convenience of the world at large.

Coinage created a new demand for the metals; it made them indispensable in a department of political and commercial relation, for an office which up to that time, had been filled by agricultural and other produce, constituting "payments in

kind. So it came to pass, that every year, each citizen, needed a certain amount of coin, to pay the king's dues, or the government taxes, and would sell his surplus cattle, grain, or other commodities, for a quantity of coins he could preserve forever—which were accepted in payment of taxes, and with which, he could buy either the goods, or the labor of his fellow citizens. The invention of coin did not, however, put an end to trade by barter, it merely supplemented that form of commerce, even the taxes of the most advanced nations were still collected, partly in provisions or paid in personal service; and men of the highest civilization, when settled as colonists in new countries, have, until very recent dates, been compelled for want of money in measure of their property and production, to revert to a currency of goods, and the most primitive forms of traffic.

Coinage having been originally established by kings, or by national authority, monarchs and governments have ever since, claimed as one of the highest prerogatives of the supreme power of the State, the right of absolute control over "the current money of the realm." Hence it has been assumed that: "The king can fix the value of a coinage," and parliaments and republics have acted upon a similar supposed principle; unfortunately, not always to the benefit of the people. The establishment of mints, and the issue of current coin, has, quite generally, been the work of governments themselves; all imitation of the money thus created, being severely punished as a felony. In modern times, the metallic currency, has in commercial nations, been complemented by an equal, or larger, nominal amount, of paper money, in the form of Treasury notes, or the bills of banks. The control of paper money, as of coin, is retained by the government of the country where it is made use of, but, within more or less definite limits, the privilege of issuing, in common with the government, redeemable notes or bills, for circulation as money, has, by enlightened and commercial nations, been extensively conceded to banks and private corporations.

While the manner in which the coinage of money originates, has been made manifest in history, again and again, there is no knowledge of the aboriginal invention of coin. In the absence of any record, or even any respectable tradition, the people of classical antiquity, attributed the art of coinage to a revelation from the gods, making their mythical and poetie fancy, a graceful confession of their ignorance. The Chinese claim to have had coins, or at least pieces of cast metal, silver, copper or iron, used as money, over four thousand years ago, their supposed primitive coin having been called *Merchandise Money*, which was coined (cast), of silver some 2853 B. C., as is described in the chapter on China, in its proper place in this Encyclopædia.

The poems of Homer make no mention of coin, but of commerce by barter, the objects of trade including the precious metals. Not to discuss antique fables, of an assumed religious character, the classic Greeks, who used coin some 800 B. C., attributed its invention to the Lydians, who as related by the ancient historians Herodotus and Xenophanes, were the first of mankind who coined and used gold and silver money (Herod. I, 94, Xenoph. ap. Poll. l. c.). The other and more popular tradition was, that Pheidon king of Argos, first coined both copper and silver money, at Aegina, and was the first to establish a system of weights and measures. The date of Pheidon, as recorded by the Parian marble, is 895 B. C., but the ablest writers place him 783 or 770 and 744 or 730 B. C.

The invention of coinage, has been accredited to the wife of Midas, a legendary king of Phrygia, he of whom it was said, that his touch turned everything into gold. Phrygia was a division of Asia Minor, now embraced for the greater part, in the Turkish villayet of Khodavendighiar. Lydia was a country in Western Asia Minor, now comprised in the Turkish villayet of Aidin. Asia Minor and Greece had rich mines of the precious metals. The river Pactolus in Lydia, an affluent of the Hermus, carried an abundance of gold in the sands it washed toward the sea, and the ledges of the Timolus and

Spyllus mountains, contained rich veins of gold-bearing rock.

The earliest gold coins of Asia Minor, were of *electrum*, a compound of native gold and silver, smelted together as they came from the mine, or the sands. The oldest specimens are declared by some well-informed writers, to indicate a greater antiquity than any pieces of the whole Greek coinage, which was, at first, of silver. The Chinese assert that their most recent coin, the brass or native bronze casting, called *tsien* or cash, which bears the inscription of *tung pan*, which signifies "current money," had its origin about 1120 B. C., at the commencement of the Chan dynasty. The Romans, for nearly five hundred years, from the foundation of their city, had no coin of their own, the first being struck for them, as stated, by Servius Tullius, who reigned in Rome 578-534 B. C. The Romans ascribed the invention of coins to the gods Janus and Saturn; the mint was at the temple of Juno, and the treasury in the temple of Saturn. There is, however, historical evidence, that the Romans not only procured coin, but learned the art of coinage itself, from the Etruscans, a peculiar, ancient, yet artistic and considerably civilized people, natives of the country, known as Etruria, or Tuscia, a division of ancient Italy, embracing modern Tuscany and some adjoining territories. These Etruscans were called Etrusci, or Tusei, by the Romans, and, and Tyrrheni, or Tyrseni, by the Greeks: their origin is supposed to have been Asiatic, and they may have brought the skill to work metals and to make coin, as well as their excellence in pottery, from the country of their ancestors.

It may well be supposed, that the art of coinage is older than Roman or Greek history—the various pretended inventors whose names have been given, were doubtless but persons of enterprise, who simply introduced coined money among their own countrymen. The history of mankind even in recent generations, is made dubious by misstatement and perversion; a few centuries back, the record was made up of fact, fable, and myth, in varied and confusing measure; still

more ancient, are the great poems, like those of Homer and the Sanscrit literature, of remarkable beauty, replete with suggestion, but in their pretended chronicle of human events, full of romance concerning imaginary places, ideal heroes, demigods and deities; behind these, stand the monuments and repose the relics; the order of events is lost amid the remnants of the distant past; the course of time is wrapped in oblivion, and only the geologic strata and the rolling stars indicate to us what must have been, when men were not, as yet, on earth.

While other noble arts have been lost, that of coinage has been preserved. All conclusions as to original invention and first use of weights, measures, and coin, are of necessity, no more than speculative inferences. Asia was "the cradle of the nations," India "the mother of the gods"; from Asia, and from India, has come the advance of the human race; an emigration has encircled and populated the earth. Men first appear in history, hard at work, building civilization, urging progress, using the arts and appliances inherited from their ancestors, whom they knew as heroes and worshiped as gods. Somewhere in Asia, sometime in unchronicled antiquity, these ancestral gods invented coin, and made use of money. The really primitive coinage of the world, was perhaps made before the foundation of the Chinese empire, and the *Merchandise Money* of the *Yü* dynasty, or the *tsien*, struck when the Chan family began imperial rule, may neither of them have been at all the oldest or most perfect antique specimens of a truly exceeding ancient art.

A coin derives its name from the French word *coin*, which signifies a die, or stamp, and is properly and strictly a piece of metal, generally gold, silver or copper, impressed with certain devices or marks, indicating the origin of the coinage, the quality of the metal used in the same, and its value as money, for which it is intended to be kept in circulation. The materials used for money must have an intrinsic, or at least generally conceded value, the more uniform the more desirable;

they must be durable to resist friction and abrasion, and non-corrosive under ordinary agents; they must be easy to divide, portable and admitting of ready operation, both in smelting and combining with alloys, and in the mintage by which they are divided into uniform sizes and marked with the devices, designs, and inscriptions, they are required to bear. Gold, silver, and copper, in various degrees of fineness, have been found to best serve the purpose of practical coinage, and in consequence these metals, together, or separately, have formed the body of nearly all successful coin currencies. There have, however, been exceptions to this rule, so important as to demand notice, and the composition of some issues of the mints, has been so peculiar, as to be worth remark as a curiosity.

The *Tao* or knife coins of China, made current 2453 B. C., were made of cast iron. The *Pu* coinage of the same country 2085 B. C., was of the same metal. Iron being abundant in Laconia, and in the countries along the shores of the Euxine sea, the ancient Spartans or Lacedæmonians, about 800 B. C., and the Megarians or Byzantines, some 650 B. C., coined money of it, and Aristotle reports (*Econ.* II, 2) that the same metal was used for a like purpose by the people of Clazomenæ. There is also reason to believe that iron was coined and used as money in Rome, during the early ages. Lysurgus the Spartan ruler and great lawgiver, about 825 B. C., banished gold and silver from Sparta, and made a Lacedæmonian currency of iron, of which an amount equal in value to one hundred modern dollars, is said to have been a load for a cart and two oxen. When the Roman conquerer Cæsar landed in Britain (55 B. C.), coins of brass and iron were found in use among the natives. There are no specimens of ancient iron coins known to be extant; the material of which they were composed being very liable to rust, they must have totally disappeared.

Coins of Lead are frequently mentioned by the classical poets, and a number of pieces struck from that metal, are preserved; a leaden *stater*, is one of the curiosities of the British

Museum. Leaden coins were current, a short time since, in the Burman empire, but good authorities consider the ancient coins of lead, not likely to have been a true money, but rather, proof pieces, medallets, or mere tokens, like the leaden coinage, which for many years, previous to A. D. 1700, some of the tradesmen of London, England, were in the habit of issuing, and which circulated as money, instead of the copper currency.

The tyrant of Syracuse, Dionysius I, who ruled from 405 to 367 B. C., coined money of tin, but beyond the record of this fact (Aristot. *Æcon.* II, 2, Pollux, IX, 79), there is no notice of this tin money of Syracuse, except that a law in the Digest makes reference to spurious coin of that metal. Tin has been used for coinage at various dates in modern history, as may be noted in the introduction to this volume, but of the ancient tin coin none remain extant.

The primitive coins of Rome (578 to 534 B. C.), were of copper or bronze, the first coinage of Greece, supposed to be about 800 B. C., was of silver, and the earliest historic money of Asia Minor was in pieces struck from native gold or *electrum*, as has already been stated.

The Carthagenians had a kind of leather coin or money—currency at least, and Numa Pompilius the second king of Rome, who, according to traditional legends, began his reign 791 B. C., made use, it is said, of both wood and leather for coinage. Leather money, or currency, was also stamped and used by the Spartans, and shells were an extremely ancient substitute for coin. Leather, wood and paper have been coined in modern times, and, in certain countries, have had an extensive circulation, yet the true character of the ancient pieces of like material remains undecided, very respectable authorities assuming that they were not legitimate coin, but rather a sort of counters, mere tokens of value. However this should be settled, pieces of base metal, wood, or leather, when coined or stamped in significance of the *fiat* or authoritative regulation of imperial, or other power, seem to have been current at va-

rious places and times from the earliest historical dates, and whether, strictly speaking, coin and money, or not, they filled more or less completely, the office of a medium of exchange—possibly somewhat as irredeemable paper money has been used in modern times.

In States where, as in Rome, a coinage has been developed and perfected within the historical period, the progress of the art of the mint, has been progressive from a mere figure struck upon a mass of metal, to designate its weight, whatever that weight might chance to be, onward to forming pieces of money of certain definite sizes and shapes, of a predetermined weight. The next step in improvements upon coin, has been the decoration of the piece, by expressive ornaments, symbols and natural figures, such as animals, men, birds, plants and flowers, or other and artificial objects. The first coins were but ingots of metal, stamped in but one place, with a single die. After these ingots had been reduced to a uniform size and form, and had for some time been in use, marked only with their weight, and with some figure as an ornament, it was found necessary to add to the inscription and device, some other mark, to indicate the fineness of the metal bearing the impression. On such pieces, the device or symbol was a mint-mark, proving the character of the authorized coin.

The primitive coins were oblong, irregular masses, stamped only upon one side, as has been described. These were succeeded by pieces formed as oblate spheres, balls of metal, like bullets, but more or less flattened at the poles, thus forming plane surfaces opposite each other, constituting the obverse and the reverse of the coin. Later still, these balls were hammered or cast into thin disks or plates, of an irregular, erratic circular outline or circumference. Afterwards, the body of the coin was made more perfect and the edge reduced to a true circle. With the introduction of the ball-like pieces, began the practice of stamping coin on both of its opposite sides. The die bearing the figures denoting the weight of

the coin, the fineness of the metal, the locality of the mint executing the work, and the authority for the coinage, such as had formerly been used alone, on the oblong ingots, was impressed upon the obverse. The simple devices first stamped upon coin, were subsequently improved in form and execution, and to them were presently added many others, figures of gods, genii, river and wood sprites, nymphs, and similar mythological representations. Portraits of men and women, so universal upon the coinage of modern times, were not used upon the money of former ages. The first reported instance of portraiture upon coin, was the use of a likeness of Archelaus of Macedon, from 413 to 399 B. C.; there are, however, doubts that the face upon the coins of Archelaus is a portrait, and some insist, that no human head was ever stamped upon a coin, until after the death of Alexander the Great, when, he being regarded as somewhat of a divinity, his effigy was, upon that pretense, impressed upon money like that of other gods.

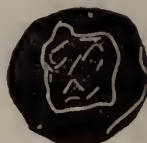
The impression appearing upon the reverse of the very ancient coins, was for sometime, nothing more than a rude punch mark or indent. The process of coinage in the first place was as follows: The die for the obverse of the piece, having been engraved, so as to properly present the religious or national symbol used for a device, and whatever else was to be impressed upon the coin, was fixed immovably in an anvil or pedestal, face upwards. The lumps or balls of metal having been made of a fixed and uniform weight, and nearly an oblate sphere in form, were seized in a strong and peculiar pair of tongs and laid as fairly as might be, upon the upturned die. A second operative, then placed a punch or wedge, squarely and steadily upon the ball of metal. This punch was then driven down, with blows from a hammer, until the metal beneath it, had been forced into every part of the die, and thus a good and perfect impress secured therefrom. By this time, the punch would be deeply imbedded in the back of the lump of metal, and being withdrawn, the reverse of the coin, would show a rough depression, corresponding to the

shape given the end of the punch. The use of the punch enabled the workman to strike the coin without driving it about on the face of the die. The most noticeable improvement in the early stages of the art of coinage, is that made from time to time in the character of the impression by the punch upon the reverse of the coin. Beginning as a mere dent, cleft, or rough irregular hole disfiguring the piece, punch marks have developed into geometrical forms, these forms have been combined with figures, and the whole wrought into artistic design, until by degrees, the punch itself became a die, making the reverse of each piece upon which it was used, equal in every respect to the obverse, of which it was the opposite. This perfection of the reverse, was however, secured at the expense of the effectiveness of the punch for its original purpose. The striking of coin between two dies, which were required to accurately oppose each other, was an operation requiring great dexterity, and not at all certain. The artisans at this stage of the work hit upon the expedient of using both the obverse and reverse die, in a ring, of such a size and depth, as to be a guide to each of them. Moreover, the balls or disks of metal, being heavily struck inside the ring, between the dies, were forced to assume an even thickness, and a circular form, corresponding with the inside of the ring. When the ring had been used in this way for some time, it was engraved upon the inside, and the coins produced were not only completely circular, but stamped upon their edges. Thus was produced the perfect coin, and though the introduction of machinery has secured uniformity in the result, and saved an immense amount of labor in striking vast sums, the artistic beauty of some of the antique specimens has not been surpassed.

The names or denominations of Coins, have generally been derived from terms which signified weight or measure, and the primitive coinage was of the full weight the denomination implied. The word *Stater*, derived from the Greek, means a standard of weight, and in the first Greek coinages, which

were of silver, was applied in particular to the principal coin, the *didrachm*. When Greece began to coin gold, the principal gold coin received the name of a Stater. The word *Stater* may in general be understood to mean a gold piece twice the weight of an Attic silver *drachma*, twenty drachmas in value.

One of the very oldest coins in existence is the Gold Double Stater of Miletus in Ionia.



GOLD DOUBLE STATER OF MILETUS.

The representation of this coin shows as its type on the obverse the figure of a lion's head, derived from the symbols of the Bacchanalian worship of Cybele or Rhea, the wife of Chronos or Saturn, the mother of the highest of the gods and goddesses. The reverse of the Stater is impressed with the rude punch mark peculiar to a primitive coinage.



GOLD STATER OF SARDIS.

The Gold Stater of Sardis is thought by some to be even older than the Stater of Miletus. The illustration here presented bears upon the obverse, the type of the lion and the bull, two objects prominent in ancient symbolism, here supposed to represent the triumph of the king over all opposition. The reverse shows the ancient punch mark.



PERSIAN GOLD DARIC. ACTUAL SIZE.

The Persian Gold Daric was a coin of very ancient date, resembling the Staters, and sometimes classed with them; it was called by the Greeks *the Stater of Darius*. The figure of the kneeling archer upon the obverse was the royal emblem of the kings of Persia. The reverse shows the ancient punch mark, which is struck deeply upon these pieces. It is supposed by some that the daric was coined before Darius, son of Hystaspes, but the weight of authority seems opposed to the conclusion. The Persian Gold Daric had a great circulation, not only in Persia, but in other countries, especially in Greece, before the coinage of gold was begun there. Specimens of this coinage are, however, rare, as the Persian gold coin was melted down in great quantities, to make the coins struck in the name of Alexander the Great of Macedonia.



MACEDONIAN STATERS.

The Macedonian Stater was of the coinage of Philip II and of Alexander the Great. It was made of very fine gold; the standard of the coinage was the Attic *didrachm*. Specimens of this coin are very numerous, it having been in circulation in Greece during modern times, where it was valued at about twenty-five shillings sterling. Its actual value is estimated by good English writers at £1, 3s, 6d, .0672 farthings.

The advance in the art of coinage is illustrated in the silver pieces, first struck by the Greeks at Ægina, an island about nine miles long and about seven miles wide, some twelve miles S. S. W. of the Piræus, in what was the Saronic gulf, now the gulf of Ægina. The oldest silver coins now in existence were coined on Ægina. The type of this coinage is a tortoise, and the pieces are of three distinct periods. In the first period rude coins were made, the figure of the tortoise on the obverse being but a rude suggestion of the type, and

the punch mark nothing but four irregular clefts. During the second period, the punch mark became more symmetrical and regular. On the coins of the third period, the type of the obverse is elaborated and the punch mark upon the reverse assumes the nature of a device.



SILVER COIN OF ÆGINA. THIRD PERIOD.

The next improvement in coinage was to give the end of the punch a finish showing a higher degree of design, though still but a rude conception wrought into an imperfect geometrical figure, an instance of which occurs in the coins struck by the Corinthian and Dorian colony which, emigrating to Sicily under Archias of Corinth, founded the city of Syracuse 734 B. C.



COIN OF SYRACUSE.

The next step was a bold innovation; it consisted in making the punch a *fac simile* of the die—yet in reverse. In this way a coin was made bearing the design in relief on one side, with an incused concave, or sunken impression of the same in the other. Some of the coins produced in this way, are good specimens of art. An excellent example is afforded in the coins of Tarentum, an important city of Magna Græcia, founded by Greek colonists in southern Italy, the greatness of which dates from about 703 B. C. The incused coins of Tarentum were first produced as early as 600 B. C. In some

pieces of money of this description, the incused reverse varies in design from the obverse. Coins having both obverse and reverse struck in relief, were made in Magna Græcia some 510 B. C., and this form of coinage came into common use in about a century, or before 400 B. C.



INCUSED COIN OF TARENTUM.

Another form of improvement of the reverse, was to surround the punch mark with a band, upon which was inscribed some name or legend. Again, the punch was made to strike a very broad and shallow regular depression of four adjoining squares, something like a device, in the center of which was a circular space bearing a head.



IMPROVED REVERSE.

In this manner, step by step, the perfect reverse was developed, and the complete coin fully invented. One of the earliest specimens of the use of the perfect reverse, is a very beautiful medal struck at the city of Syracuse, already mentioned.

The obverse of this medal, bears the head of the deity called by the Romans Proserpina, the wife of *Παδες*, the infernal goddess of death, yet the all-pervading goddess of nature, who produces and destroys everything. The head is accompanied

by symbolic dolphins and inscriptions. The reverse represents a charioteer reigning in his four horses abreast, while the flying goddess of Victory stoops to crown him with a wreath of laurel for his triumph in the races of the Olympian games. This artistic design of the reverse appears also upon the Staters of Philip of Macedon, and was imitated in a number of coinages.



MEDAL OF SYRACUSE.

The historian Herodotus, who ascribes the origin of coin to Asia, says the Lydians were the first to coin gold, and as far as he knew, the first to coin any kind of metal. These gold coins of the Lydian kings were of electrum and are of exceedingly antique appearance, as is shown in the illustrations already presented. The date of this coinage is unknown, but it preceded that made in copper and silver by the Grecians some 800 B. C. Greek writers attribute the invention of coinage (as well as weights and measures), to Phidon, king of Argos, and suppose that Ægina was the birthplace of the art, Phidon having first coined both copper and silver on that island. The date of the earliest Grecian gold coinage is unknown. The old States of Etruria and Central Italy, peopled as is supposed from Asia, had a coinage of copper and bronze from the earliest times of which we can gain any information. The Romans coined copper or bronze under Servius Tullius 578 to 534 B. C. The historian Pliny fixes the date of the first Roman coinage of silver at 269 B. C., but other authorities assume silver was first coined in Rome about 281 B. C.

The coinage of the Persian darics, which were struck in both gold and silver, is supposed to have been begun by Darius, the son of Hystaspes, from 521 B. C. to 485 B. C. It is understood there is historical evidence of the use of coin as soon as the eighth century before Christ; within twelve hundred years, or by the fourth century after Christ, the use of coined money was common throughout the civilized nations of the world, every State having created a proper coinage of its own. To the Greeks must be given the credit of perfecting the art of coinage—at least as far as the development of the obverse and reverse are to be considered, the application of the circular matrix, or ring, by which, as has been stated, the edge of the coin was made true and circular, did not occur until sometime in the seventh or eighth century of the Christian era. The coins of the Macedonian empire, the work of Greek artists, were especially remarkable for boldness and beauty of design.

The art of coinage spread very rapidly; within a few centuries every independent nation had its own coinage, and almost every colony of Greece struck money of its own. There are more than a thousand series of the coins of self-governing cities of Greece still extant. The Grecian coinage was in general very artistic, and Grecian die-sinkers and coiners were employed in different countries. Beside the Greek, there were two other classes of coinage, the Roman and the Græco Oriental or Byzantine. Greek coins are found in the European countries of ancient Spain, Gaul, Great Britain, Italy, Sicily, Thraee, Macedonia, Thessilia, Attica, Boætia, and the Peloponnesus, also in Asia, in Ionia, Phrygia, Lydia, Caria, Cilicia, Phœnicia, Egypt, and many others elsewhere. The series are exceedingly numerous, each comprehending full varieties extending over many years, in some instances through centuries, each and all separate from the issues of the Roman empire, and its subordinate governments and colonies. The Athenian series of Greek coins was the most important and extensive, but while much of the coinage of the Greek colo-

nies was magnificent and artistic, the coins of Athens having become widely and well known from the great purity of the gold and silver used there, were, for commercial reasons, allowed to retain the original rude forms in which they had gained so desirable a reputation. The inscriptions on the earliest of Greek coins were merely single letters, the initial of the name of the city where the coinage was made. The other letters of the name, or a part of them, were added in later coinages. When inscribed in full, the name was in the genitive case. Some of the coins also bore monograms.

The *tetradrachm* of Alexander I of Macedon, "the Great" (500 to 454 B. C.), was the first coin bearing the name of a king. Coins struck by the Edonians are inscribed with the name of Getas, their king, and in addition, his royal title and the name of the people over whom he ruled. The coinages under Alexander the Great were abundant, those struck in the Greek towns of Asia, after his conquests, being very numerous. Each series of the Alexandrian coins of this time, has its own mint-mark. Those of Rhodes are marked with the figure of a rose. Those of Ephesus bear a bee, and so forth. These are minor types, the coins generally showing as principal devices, the head of Hercules on the obverse, and a figure of Zeus on the reverse. This head of Hercules, has been considered the head of Alexander himself, but authorities differ, and critics consider it more probable that his immediate successors were the first to place their portraits upon coin, which they are said to have done under a pretended descent from the gods Bacchus and Apollo. The silver coins of Seleucidæ, in Asia, and the Lagidæ or Ptolemies of Egypt, in gold, are two most beautiful and important series of Greek coins.

The Grecian coinage was, first and last, executed under three standards: the *Euoboic*, the *Aeginetan*, and the *Attic* or *Solonian*. The *Euoboic* system and the *Aeginetan*, were derived from the Orient, and were identical with *Babylonian* standards. The *Attic* standard was introduced by Solon about 594 B. C. By it seventy-three drachmæ of the old coinage,

were represented in one hundred drachmæ of the new issue. This, Solon was said to have done for the relief of debtors, in a time of general distress. The principal denomination of weight and money among the Greeks, and among the Romans as well, was the *talent*, which consisted of sixty *minæ*, each *mina* being of one hundred *drachmæ*, and each *drachma* six *obli*. Thus the *Obol* was one-sixth of the *drachma*, the *drachma* one-hundredth of the *mina*, and the *mina* one-sixtieth of the *talent*. The talent and the mina were merely denominational moneys of account not represented by any coinage.

GREEK COINS.

NAME OF COIN.	WT IN GRAINS.	VALUE.
Lepton,	-	\$0 00.0466
Chaleus, or Chalehus,	-	0 00.3260
Dichaleus, or $\frac{1}{4}$ Obol, in Silver,	2.7706 $\frac{2}{3}$	0 00.6520
Hemiobolum, or $\frac{1}{2}$ Obol, "	5.541 $\frac{1}{3}$	0 01.3050
Obolus, or Obol, "	11.0833 $\frac{1}{3}$	0 02.6100
Diobolum, or Diobolus, "	22.1660	0 05.2200
Triobolum, or Triobolus, "	33.2500	0 07.8300
Tetrobolum, — "	44.333 $\frac{1}{3}$	0 10.4400
Drachma, or Drachm, "	66.5000	0 15.6600
Didrachma, or Didrachm, "	133.0000	0 31.3200
Tetraarachma, — "	266.0000	0 62.6400
Pentadrachma, — "	332.0000	0 78.3000
Stater Aureus, in Gold.	133.0000	3 91.5000

The above calculations are based upon the Attic Solonian Standard, and the value of the Stater, counted as 25 Attic drachmæ, reckoned according to the relative value of gold and silver in the age when it was coined. Reckoned by the relative value of gold and silver at the present date, this Athenian Stater Aureus, or Chrysus, as it is sometimes called, would be worth \$5,03. There were Double Staters, Staters, Half Staters, Quarter Staters, One-Third Staters, One-Sixth Staters, and One-Twelfth Staters, all coined of gold, and of propor-

tionate weight and value. No gold coinage is supposed to have been made in Athens or Greece Proper, until the epoch of Alexander the Great, 356 to 323 B. C., or sometime after his death. The mines of Greece were rich in silver, but comparatively barren of gold, and though an abundant gold coinage was made, but ten or twelve Attic Staters are extant.

The large amount of gold coin which circulated in and about Athens from very early times, was imported from abroad, as was the gold subsequently coined there. The pieces of foreign gold coin were also called Staters, some of which were coined in adjacent Hellenic districts, and others derived from distant countries. The Stater of Cræsus, the immensely rich king of Lydia, about 568 to 554 B. C., seems to have been the earliest gold coin known to the Greeks. The Stater of Cræsus was of about the same weight as the Attic Aureus of 133 grains, being coined of pale native gold or electrum, bearing some silver, but worth about twenty-five Attic drachmæ of silver, or according to the old ratio of metals, \$3,915. An antique coin in the British Museum of 248½ grains, bearing the figure of a kneeling man holding a fish and a knife, is supposed to be a double Stater of Cræsus. Value, \$7,83.

One of the common gold coins of Greece, which was quite abundant at Athens, was the Cyzicene Stater, or Stater Cyzicus, coined at the city of Cyzicus, one of the oldest and most important of the Grecian free cities in Asia. The Cyzicene Stater, appears to have been coined of the Euboic standard, at a weight of some 180 grains. Some specimens of this coin, however, weigh but 160 grains, others but 120 grains. About 335 B. C., the Stater Cyzicus passed in exchange for 28 Attic drachmæ of silver; calculated thus, its value would be \$4,38.5. The Stater Darius, of Persia, of which an illustration and description is given on pages 54 and 55, had, as there stated, a very extensive circulation, and was much used in Greece and Athens. It is agreed by ancient writers, that its weight was exactly equal to two Attic drachmæ—that of the Attic Stater. Some of the few specimens in existence, however, weigh but

128.4 to 128.6 grains, being somewhat worn. If of full weight, the value would be, for 133 grains, \$3,91.5. Josephus refers to this Stater daric as worth 50 Attic drachmæ—it must have been a double Stater he had in view.

Beside the above very important pieces of money, a number of other gold coins were circulated in Greece and at Athens, as follows. The Stater of Lampsacus, coined in Lampsacus, the ancient Pityusa, an Ionian colony from Phocæa and Miletus—later, an important Greek port of Mysia, in Asia Minor. The Lampsacene Staters were of very unequal weight, and may have been coined of the Euboic and the Attic standards simultaneously. Specimens extant, weigh 129 grains, but the average may have been, when struck, of the Attic standard, intended to represent 133 grains, and in value, by the ancient ratio of metals, \$3,91.5. The type of this coin is a sea-horse. The Stater of Phocæa, coined by the Phocæans, citizens of an ancient town named Phocæa, on the shores of the Ægean gulf, in Asia Minor, originally emigrants from Athens. They removed to Corsica, thence to Rhegium, in Italy, and finally to Lucania of Magna Græcia, in southern Italy. The Phocæans were described by Herodotus, as the first Greeks to make extensive sea voyages. The type of their coin was the *phoca* or seal, said to have been taken from the circumstance that seals followed their ships during one of their early voyages of emigration. The Stater of Phocæa is said to have followed the standard of the Stater daricus, and must, therefore, be reckoned of the weight of the Attic didrachma of silver, 133 grains. Value, \$3,91.5.

The Stater Philipicus and the Stater Alexandrinus, were coined in Macedon by Philip II, 359–336 B. C., and by Alexander III (the Great), 336 to 323 B. C., after the standard of the Attic didrachm of 133 grains. The gold of this Macedonian coinage was very fine. One of the Staters of Alexander, upon assay, gave 133 grains pure gold and 18 grains of silver, the combination being supposed natural and the metal electrum—the pale native gold already described. This Stater, at

the ancient ratio of the metals, was intrinsically worth £1, 3s, 6d, 0.672 farthing British, or \$5,71.8-. Staters of Philip and Alexander are numerous, and not long since the Stater Philippicus was current in Greece for about 25 shillings sterling, or \$6,08-. For an illustration and description of the Macedonian Stater, see page 55, preceding. The later Macedonian kings, and the States of Epirus, Ætolia, Acarmania, Syracuse and others, coined gold after the manner of the Macedonians. The Macedonian Stater, though sometimes rated higher, is said to have been generally valued in exchange at twenty Attic drachmæ of silver, which would make it worth at the present value of silver, about 16s, 3d, British currency, or \$3,96-. Others rate the Attic, and hence the Macedonian Staters as exchangeable for twenty-eight Attic drachmæ, worth, at the ancient ratio of metals, \$4,38.5. A Corinthian Stater, or gold piece, worth, according to Pollux, ten Aeginetan, or twelve Euboic Obols, was used in Sicily.

The Oldest System of weights, measures and coinage, used at Athens, was the EUBOIC STANDARD, so called because derived from the island of Eubœa, in the Aegian Sea, where it was used, being an adaptation of the Babylonian system, having been imported from Chaldea by the way of Phœnicia, after the time of Homer. The Euboic, like every other Greek system of weights, measures and coinage, was based upon four denominational units, which always bore the same relation of proportion to each other, whatever the actual value. These were the *Talent*, the *Mina*, the *Drachma*, and the *Obol*. Six Obols made one *Drachma*; one hundred *Drachma* made one *Mina*; sixty *Mina* made one *Talent*. The Euboic and so called "Old Attic" standards were identical.

The AEGINETAN STANDARD was the one most extensively used in the greater part of Greece at a very early date; it was the system said to have been invented by Phidon, or Pheidon, king of Lydia, but which, like the Euboic standard, was really derived from Babylon or Chaldea, and merely introduced into Lydia by Phidon, who as is supposed, struck coins under it

about 1200 B. C., but not of necessity on the island of Aegina.

THE NEW ATTIC, or SOLONIAN STANDARD, was used in Athens after the establishment of the laws of Solon, about 594 B. C. By the Solonian standard, 73 of the old Attic or Euboic drachmae, made 100 drachmae of the new coinage. The Aeginetan, and even the Euboic didrachmae, are said to have passed as Solonian tetradrachmae at times, but by the actual provision of the law, debtors saved somewhat more than a fourth of every payment, as was intended by the great Athenian lawgiver for relief of the public distress. The reason for the precise and peculiar ratio adopted by Solon, seems to have been a desire to bring Athenian exchange into a definite mathematical relation to the popular Aeginetan standard, which was approximately accomplished, the proportion of value expressed in a numerical ratio being as follows: Aeginetan, 1200; Euboic, or Old Attic, 1000; New Attic, or Solonian, 730, or in practice even less.

The Talent (money of account only), was computed variously at from about \$1186,21 to some \$1216,62.5. The Mina (also money of account only), was computed at from about \$19,77 to some \$20,81.4. It is to be understood that from the intrinsic difficulties of the subject, all computations of the current value of ancient coinages in their time must be somewhat indefinite, and hence held subject to revision, being regarded at the best, but as an approximation to a correct general statement. These difficulties arise, firstly, from the length of time during which, from (as supposed), 1200 B. C., or less, to about 476 B. C., the technically so called "ancient" coinages were issued; secondly, from the numerous kinds of coin struck under different standards, and the many wide-spread and distant localities where mints were established; thirdly, from the debasement of legalized coin and the multiplicity of counterfeits. However, the statement made gives a clear conception of their relative worth. Their intrinsic value, at the present ratio of metals, can be determined by actual assay of specimens, but even so the ancient coin varied exceed-

ingly and was sometimes excessively debased and degraded. As to the fineness of Athenian silver, the coins of the early ages contained one-twentieth part, or five per cent. of alloy; or, as we now state the matter, were 950 fine—*i. e.*, nine hundred and fifty parts in a thousand of pure silver. The silver money struck at Athens at a later date, was celebrated for purity, containing but one-sixtieth part, or 16.666 per cent. of alloy, being $983\frac{1}{2}$ fine. The latest of the ancient Athenian coinage of silver has twelve per cent. of alloy, and therefore was 916.667 fine, the early silver coinage of the United States having been struck of silver, 916 $\frac{2}{3}$ fine, a very slight difference. Athenian gold coin was of almost perfect purity—at least was so considered. The Lepton and Chaleus were coined of copper bronze or brass. The dichaleus or quarter obol, the hemiobolus or half obol, the obolus or obol, the diobolus and tetrobolus, were coined variously, first of silver, but at a later date, also of copper, bronze and brass. The drachma, didrachma, tetradrachma and pentadrachma, were coined of silver only.

The false coinage of the numerous ancient Greek counterfeiters was extensive and of good artistic workmanship—many of the pieces made by them, in imitation of genuine money, are still extant and in as perfect a state as the specimens of the original. The earliest coins of Athens have the figure of an owl upon the obverse, that bird being regarded as the symbol of the goddess Athene. Subsequently there was a change of type, the head of Athene herself being presented upon the obverse, and the owl appearing upon the reverse of the piece. For an illustration of this, see representation of the Athenian Drachma.

With this comparatively brief survey of the ancient coinage of Greece, a vast and most interesting field of study and research, must be left for those who have leisure, means and the disposition to make prolonged investigations. An outline statement of the matter has, however, been presented, and a good general idea of the subject may be had from the few

pages devoted to the same. Whatever speculations may be indulged as to prehistoric events, our actual knowledge of coin begins with Grecian specimens and records since the uncertain date of Homer. Behind the Greeks is the region of conjecture and of inference from ruins; they stand in the dawn of historical time, and the glory of their courage, their civilization, culture and art, fills with splendor all the succeeding ages.

The system of money most intimately connected with that of Greece was the coinage of Rome, some account of which will now be given.

The conception of the idea of weight, must have been one of the primitive experiences of the human mind. The art of mensuration began, when the first man took his first stride. The science of mathematics started with a count of the fingers; to sum up the number of all the fingers and toes a person had, was once a mighty problem to the ablest—is so still to whole tribes of men.

To weigh—to measure—to count, this was the probable order of progress; coinage was a brilliant invention, made long, long after weighing, measuring, and counting, had not only been in use for ages, but reduced to a combined system, and through the art of letters and figures made a matter of record.

As has already been stated, the first coins were mere rude masses of metal, upon which was impressed or inscribed some word, sign or figure, in token of the weight of the piece. The first coinage was indicative of weight only, regardless of the quality of the metal, but as the art of alloying began to be practised, and processes upon metals multiplied, the stamp was made to signify both weight and quality, at once, and in some cases by a single figure or device.

The early types upon coins, figures of gods, or patriotic emblems, were considered sacred, and by their appeal to the devotional sentiments or national feelings of the people, inspired confidence in the money made legally current among them.

The Romans, emerging from semi-barbarism, used copper ingots as money. They are supposed to have acquired the art of coinage from the Etrurians, which people have already been referred to as occupying a territory adjacent to Rome, being, perhaps, emigrants from Asia and descendants of the Pelasgians, a somewhat mythical race, coterminous with the Phœnicians, and the supposed original (?) population of western Asia. The Pelasgians were regarded by the Greeks as very early inhabitants of the Greek peninsula, and Homer sang of them as the aborigines of that country.

The first type used in Roman coinage, was the figure of an ox or bull; the same type was used upon the most antique money of Greece, and was first struck on Grecian coin in the island of Eubœa, from whence, as related on a preceding page, the Euboic standard, derived from Babylon, took its Grecian name. The Euboians are imagined to have chosen the type of an ox or bull for their coin, in reference to the name of the island.

Considering that the Euboic standard was derived from Babylon, and that weights, measures, and coinage, were probably imported thence together, it may well be assumed that the typical ox of Rome, Etruria, ancient Athens, and Eubœa, were derived from each other, and originally were but the symbol of the Babylonian and Assyrian deity Bel, or Belus, identical with Baal, the principal god of the Chaldeans, Carthaginians and Phœnicians. Baal was the representative of the sun, as Astarte was of the moon, and by the mystical fructifying relation of these two, nature was revived and reproduction maintained, to the continuance of life. In the symbolism of the oldest and universal systems of religion and phallic worship, the bull, as the embodiment of power and vitality among animals, was a prominent type of deep sexual significance, and hence the form of the bull, variously modified, was extensively used in architecture, upon coins, and in other conspicuous ways of presentation. The image of Bel, or Baal, was in the figure of a man, but with the head of

a bull. This image held in its arms the form of a young child.



COIN OF EUBOEA.

The Romans had a currency of copper which passed by weight, from the time of the foundation of their government. Some attribute the first coinage to Numa Pompilius, the successor of Romulus, while others ascribe it to Servius Tullius (578-534 B. C.). As copper circulated in Rome by weight, the original unit was the *Pondus*, *Pondus* or *Libra*, the pound of that metal. The full Roman pound is calculated to have been 4989 grains, or otherwise estimated as 5040 to 5053.635, or 5053.28 grains. One of the most reliable estimates of the Roman *pondo* is based upon the contents of a metallic vessel known to have once held a certain measured weight of water, but the calculation is made uncertain by the fact that the vessel has become enlarged upon the inside by oxydation.

The Roman measure of quantity, the *Amphora*, was made to hold eighty pounds of wine or oil. The *Congiarium* held a *Congius*, or ten pounds of fluid, spoken of as water, but which may have been either wine or oil. The metallic vessel, upon which calculations have been based, is the *Congiarium* of Vespasian, A. D. 75. Being one-eighth of the capacity of the *Amphora*, this *Congiarium* shows the *Congius* to be about six pints liquid measure. This vessel was measured by Auzout in 1630, and as the result of his calculations, he concludes the Roman pound must have been 5146.32 grains. It was also measured by Dr. Hase, in 1721, and he states as a result, that the Roman pound was 5203.79. The variation may be due in some measure to the continued enlargement of the interior of the vessel by corrosion during over eighty years.

The second method of estimating the Roman pound, has been

an examination of the numerous ancient weights which have been preserved in the various museums. These weights, with their parts and multiples, upon inspection and comparison, are found to vary exceedingly—as much as two ounces or more in the pound. This is what might have been expected, from the well known carelessness of the Romans regarding conformity to their standards of weight, measure and money. Hence, the estimate of the exact value of the pound derived from these irregular weights, is nearly valueless.

The third method by which an attempt has been made to accurately determine the value of the Roman pound, is by estimates based upon calculations from existing Roman coins. In this, the authorities are Hussey, who fixes upon 5040 grains to the pound, and Wurm and Böckh, who allow 5053, or more, grains to the pound. The Romans began to make light coins at an early date, hence the result of 5040 grains is supposed too small, being made from the actual weight of the ancient pieces, and 5204, or 5053.635, or 5053.28 grains, is considered by experts and antiquarians, the nearest approach to a statement of the actual weight of the Roman pound.

The old English pound was derived from the weight of 7680 grains of sound wheat, from the middle of the ear, and well dried. The pound sterling, was originally a pound weight of silver, divided into 240 pence. In 1532, the French *avoirdupois* pound was introduced by king Henry VIII. In 1588, a pound weight was made by order of queen Elizabeth and deposited in the Treasury for safe keeping. Upon examination in 1758, this pound was found to be $1\frac{1}{4}$ grains too light, and was discarded, the pound Troy, of 5760, being substituted, as the standard, in its place, and is now used by the British mint. The pound Troy was one-sixteenth heavier than the old English pound. In 1834, this pound weight was burned, but the English standard in commerce is still the *avoirdupois* pound of 7000 grains. The relation of the *avoirdupois* pound to the pound Troy is nearly as that of 17 to 14. The ounce *avoirdupois* contains $437\frac{1}{2}$ grains, and Dr. Arbuthnot estimates the

Roman Uncia, or twelfth of the Pondus, to have been of the same weight; this would make the Roman pound 5250 grains, which is more than is generally conceded.

The estimate from the Congius, or some six pints of liquid weighing ten Roman pounds, contained in the Congiarium, is made uncertain, because we do not know the exact size of the vessel before it was corroded, and are ignorant of the specific gravity of whatever liquid, "wine" or "oil" or "water," it originally was intended to measure; neither are we informed as to the temperature of the liquid when weighed and measured, or of the altitude and barometrical pressure at the place where such weighing was accomplished. All of these are elements of variation of the most important character, yet by a general comparison of evidence we may, perhaps, come very near the truth. On the whole, the Congius may be supposed to have been of say 5,200 grains—within 50 grains of the estimate of Dr. Arbuthnot, which enables us to state the weight of the Roman pound as from $11\frac{1}{2}$ to $11\frac{3}{4}$ ounces, or somewhat roughly, as $\frac{3}{4}$ of the pound avoirdupois of 7000 grains, that now used for commercial purposes in weighing coarse goods, in England, the United States and elsewhere.

The Roman name for copper was *Aes*; the rude ingots, of brick-like form, first coined for money, were called *As*, or *Asarius*, *Asse*, *Aeries*, *Aenei*, or *Aerii* in the plural. After the reduction of the standard of Roman coinage, the full pound of copper was designated as *Aes grave*, or as *As librales*. Subsequently, the term *Aes grave*, was used to signify a full pound of copper, coin or otherwise. Copper being an obdurate and intractable metal, either to cast or forge, the ancients very early sought to modify its character by admixture of other and more tractable materials. The result of these experiments was the production of a composition which was called *aes* by the Romans, as copper had been named before. This *aes* has been described as "brass," but was really a bronze. No ancient coin contains zinc, which is one of the principal components of brass, nor is zinc to be found in any ancient work of art,

except in such small percentage as makes it entirely probable that its presence is due to accident, or the existence of the material in native ores.

Tradition refers the discovery of copper to the island of Eubœa, and the town of Chalcis was said to have been named from a mine of copper. In the beginning of history, copper is said to have been imported exclusively from the island of Cyprus, and is supposed to have derived its name from the source of the world's supply. The original invention and the working of bronze (*æs*), was ascribed by the ancients to the *Idaen Dactyli*, who were mythological personages, said to have inhabited Mount Ida in Phrygia, or another mountain of the same name in Crete. In the first place, there were three of the *Dactyli*, viz: *Celmis* the smelter, *Dammeneueus* the hammer, and *Aemon* the anvil. The name *Dactyli* signifies fingers, and subsequently their number is said to have been increased to ten, five males and five females, and after this there were fifty-two males and one hundred females. The *Dactyli* were also the original discoverers and workers of iron—the primitive miners, metallurgists and smiths. The fable may be understood to teach, for those who could understand, that after the invention of the furnace, the hammer, and the anvil, the human fingers were inspired to execute the work of the founder and smith.

The Phœnicians were the first men known to have executed works in bronze; from them the art was doubtless imparted to the Greeks, and by the Greeks made known to the Romans. The date of the first bronze work of the Phœnicians, is uncertain and really prehistoric, as was that of the development of the same art among the Greeks. The process for smelting ores was, however, certainly well known in Greece at the time of the poet Homer. The original composition of the *æs* was very carefully studied, the proportions being found much the same in all the various really ancient specimens examined, whether they were from Greece, Rome, or elsewhere. The composition of the *æs* was originally as follows: in 100 parts

87.46 parts of copper and 12.54 parts of tin; or, by a separate assay, 88 parts of copper and 12 parts of tin. After this combination of metals had been extensively used for some time, a change was made in the composition, new forms being introduced for special purposes. All of these bronzes were called *aes*, though an affix was sometimes made to the word, expressive of supposed qualities or places of manufacture. Thus the *Aes Corinthiacum* was said to be made of silver, tin and copper, in various proportions, or with the metals combined in equal parts. This composition has been written of as "Corinthian brass," but it was probably nothing but an improved and more refined *aes* or bronze. Another celebrated fine bronze was called *Orichalcum*, or *Aurichalcum*, and some of the more valuable coins were struck of the same.

The improvements made in the manufacture of bronze, were in consequence of great progress in the arts in which it was used. An immense amount of bronze was cast into statuary and ornamental work. The wealth and importance of famous cities was estimated by the number of such works it contained. Athens once had over three thousand bronze statues standing within its walls at once. Bronze was considered a sacred metal, and supposed to have the power of driving away evil spirits. It was upon bronze coins only, that the Romans inscribed the legend *moneta sacra*—meaning sacred money. An assay of various samples of ancient bronze coins gives the following results:

Coin of Alexander the Great, 335 B. C., Copper, 86.72; Tin, 13.14. Coin of Ptolemy IX, 70 B. C., Copper, 84.25; Tin, 15.64; Iron a trace. Old Attic Coin, Copper, 86.46; Tin, 10.04; Lead, 1.05. Roman Coin, 500 B. C., Copper, 62.04; Tin, 7.66; Lead, 29.32.

The *Assarium*, or *As*, was, strictly speaking, a denomination of weight, signifying about three quarters of a pound avoirdupois, nominally divided into twelve parts. The term

for coined money was originally *Assarius Nummus*. Various words used in connection with money were derived from *as*, or *aes*, thus *aes alincum* was the phrase for debt, and *aera* meant the pay of soldiers, etc., etc. The standard of the Roman weights and measures, and hence of coinage, was the contents of a vase called the *amphora quadrantal* or cubic amphora. The word amphora was the common name of certain vases, or urns, having handles on each side of the neck, the bottom of the vase forming a sharp point, which was intended to be stuck into the ground to keep the vessel upright when in use. The name amphora was also applied to various vessels of earthenware and metal, or in some cases of basket-work of wood. The *amphora quadrantal*, was properly the contents of the square vase, the *Amphora Capitolina*, which was kept for safety in the temple of Jupiter at Rome. This standard vase held five gallons and six pints of wine, English measure. The *As* was divided as follows:

As,	12 ounces.
Deunx,	11 "
Dextans,	10 "
Dodrans,	9 "
Bes,	8 "
Septunx,	7 "
Semis, Semissis, Semi-As,	6 "
Quincunx,	5 "
Triens, one-third As,	4 "
Quadrans or Teruncius,	3 "
Sextans, one-sixth As,	2 "
Sescunx or Sescuncia,	1½ "
Uncia,	1 ounce.

As has already been noted, the Roman uncia was very nearly the same as the ounce avoirdupois.

Besides the above divisions and subdivisions of the *As*,

there were multiples of the same, of which the names were, the

Dussis, or Dupondius,	Two Ases.
Tressis,	Three Ases.
Quadrussis,	Four Ases.
Decussis,	Ten Ases.
Centussis,	One hundred Ases,

and others after the same manner of derivation.

Of the denominations of the as named in the two preceding tables, there have been coined, the *Uncia*, *Sescunx*, *Sextans*, *Quadrans*, *Triens*, *Quincunx*, *Semis*, *Dodrans*, *As*, *Dussis*, *Dupondius*, *Tressis*, *Quadrussis*, *Decussis*, *Centussis*, etc., all in aces, as will be related. For coined money the Romans used the term *As Nummus*, or *As Numus*. The *As Nummus libralis*, or ingot of good copper, of full weight, was soon made lighter, and as seen from the result of an assay of an old Roman coin, as already given, was presently grossly alloyed and debased. About the time the weight of the as had become reduced to that of nine ounces, the form of the coin was changed from that of an ingot or brick, to a round disk. Neither the original as, or the round coins which succeeded the same, were stamped, but were cast in moulds called *Forma*. These *forma* were made of a kind of stone capable of resisting the effects of heat. They were in two parts, one for the obverse and one for the reverse of the coin. The *forma* was constructed to cast some seven of the circular coins at once, in moulds connected by channels, so that when the work was done, all the pieces came out together. In the British Museum there are four ases joined together as they were taken from the *forma*.

The historian Pliny (II. N. XXXIII, 3. s. 13), states that in the time of the first Punic war, (B. C. 264-241) to meet the expenses of the government, the full measure of the pound was diminished, and ases were struck of the same weight as the *sextans* of the former coinage, which is to say, two ounces,

or one-sixth of the first weight of the as. There were other reductions in the weight of the as, and whether the change was made under pressure of military or financial necessity, or because of the increase in the value of copper or aes, the coins continually became lighter and lighter, until the as weighed no more than an uncia of the original standard. There are ases in existence of almost any weight, from the as libralis of twelve full ounces, down to but a single ounce. Moreover, there are copper coins of the Tarentian family, which show that the as was finally reduced to one forty eighth and even one-sixtieth of the ancient weight. Though the weight of the as was thus reduced, it remained the monetary unit of account, was made to retain its nominal division by ounces or twelfths, until it actually weighed no more than a quarter of an ounce, or about 103.5 grains.



THE ROMAN AS.

The first circular copper coin cast in Rome is illustrated in this cut, which is but half the diameter of the piece, it represents. The two-faced type upon the obverse, was called *Janus bifrons* by the Romans, that god being famous for taking a double view of circumstances. The figures upon the reverse are intended for the prow of a galley, and above that the numeral one. The rudeness of the reverse, in comparison with the two-faced Janus, is striking, and suggests a stage of the art of coin making when the reverse of the piece was considered of minor importance. The devices here presented are the prominent types in the coinage of the as, though others

were made use of at different times. The size of the first circular ases, was 40, according to the American standard of measurement of coins, that is, forty-sixteenths of an inch, or two inches and a half in diameter, and it was thick enough to make its weight 4000 grains, or 9 unia and $62\frac{1}{2}$ grains.

The coins in representation of the multiples of the as, such as the dussis, dupondius, tressis, quadrussis, scussis, centussis, etc., were coined after the values of the as had been greatly reduced. Some of these coins are not extant and others are very rare. The dodrans was coined only in one series by the Cassian family, they being authorized so to do.

In most cases the specimens of the as show upon the edge where the sprue was cut off, and the pieces severed from each other after being cast and taken from the forma. Under the Roman empire, after Julius Cæsar, the right to coin copper was retained by the Aerarium or common Treasury of the State, and was under the jurisdiction of the Senate and could be exercised only *Senatus consultum*, which is to say, under authority of the Senate. The right of coining silver and gold was at the same time entrusted to the emperor. While the old States of Etruria, Central Italy and Rome possessed a copper coinage from very early times, the coinage of the governments, free cities and other authorities of Southern Italy, and the coast as far as Campania, made use of silver money. The northern nations who finally established themselves on the ruins of the Roman empire, are supposed to have had silver money from the commencement of their settlements, and not to have known the use of either gold or copper coins, for a number of generations. In Rome, one who was very much in debt, was always said to have a great deal of other people's copper.

There were three different series of Roman coins, which were called the Republican, the Family, and the Imperial Coinages. The Republican coinage began, as has been stated, at an early period of Roman history, and was continued until about 80 B. C. The standard metal of this series was aes.

The Family coinage began about 170 B. C. In the first place, certain families which held through successive generations offices connected with the public mints, acquired through legislation in their favor, the right to inscribe their names upon the coin of the commonwealth, and afterwards had permission to use symbols of events in their own families, as devices upon the same. The Family coinage is sometimes called Consular money, since the Roman Consuls were in course of time conceded the right of coinage in the same manner. The same privilege was also extended to many families, both noble and plebian, and was exercised at numerous places quite outside the boundaries of Italy, in various parts of the vast Roman dominions. The Roman Family coins bear many distinguished names, and commemorate numerous remarkable events, thus forming a valuable adjunct to history, which they verify. About 80 B. C., the family coins had entirely superseded the national mintage: the early types of the series were gradually changed for portraits of ancestors, and with these the series was merged into the coinage of the empire. The Family coinage was of gold, silver and copper.

The Imperial coinage of Rome began with Julius Cæsar, B. C. 45, and lasted over five hundred years, or until A. D. 476. The coins of the empire were of gold, silver and copper, the latter, as already noted, being coined under control of the Senate. After the time of Augustus, the copper coins bore the record of their origin, in the letters "S. C." or Ex S. C. for *EX Senatus consulto* inscribed upon them. The obverse of the imperial coins, bears the portrait of the successive emperors as its type, or sometimes that of the empress, or some member of the imperial family. The reverse commemorates social or military events of importance during the emperor's reign, occasionally representing the same in an allegorical manner. The obverse also bears the name of the emperor, and his title, which is in some cases continued over and concluded on the reverse. Near the close of the third century of the Christian era, the exergue of the reverse of the coins of that period, was

occupied by the name of the town where the coin was minted.

The coinage executed under the emperor Augustus and that of Livia, Antonia and Agrippina the Elder, is of much artistic merit. The workmanship of the sestertii, coined under Nero, is very beautiful. The conquest of Judea is recorded by various types and devices upon the coins of Vespasian and of Titus. The type of the sestertius of Vespasian, is the Colosseum of Rome. The coins of Trajan are noted for types of an architectural character. The journeys of the emperor Hadrian are commemorated by the devices upon his coinage. The coins and medals struck under Antonine, Marcus Aurelius the philosopher, and the two Faustinae, with those of Commodus, are well executed. There is a remarkable medallion of the period of Commodus, the impress and device of which is derived from events in the conquest of Britain. From the time of Commodus, the character of the Roman coinage as to design rapidly degenerated. Base silver was extensively used for coinage in the reign of Caracalla, and Gallienus coined money of copper, washed or plated with silver. The imperial coinage was a superb series, the work in general of Greek artists.

The colonial and provincial coinages under the empire were much inferior to those of the city of Rome. In the coinage of the provinces formed out of the territories of the Greek empire subjected to Rome, which is called the Imperial Greek, the type of the obverse is the emperor's head, while the reverse generally presents a view of the chief temple of the gods in the city where the coinage was made. The obverse also bears the name and title of the Roman emperor, but the inscription is in Greek characters. The imperial Greek coins of Alexandria, bear such devices as the heads of Jupiter Ammon, Isis and Canopus, the sphinx, the serpent and the wheat ear. The Roman colonial coins, most of which were made in Spain, where silver was abundant, form a distinct class, upon which may generally be found the abbreviation of "Col." for

colonia. The Roman colonial coinage was at first distinguished by the type of a team of oxen; afterwards, those coins bore as a device a number of banners, by count of which could be ascertained the number of the Legion from which the colonists had been drawn for the occupation of the country where the money was coined and circulated. After the time of Gallienus, the imperial Greek and the Roman colonial coinage came to an end, except at Alexandria Diocletian introduced a new coin called the *folles*, which was made the most important coin of the lower empire. The Roman money before the reign of Augustus, which began 44 B. C., when the denarius was one-seventh of an ounce or about sixty grains was of the following denominations:

ROMAN "COPPER" COINS BEFORE AUGUSTUS.

NAME OF COIN.	W'T IN GRAINS.	VALUE.	
		Cts.	Decimals.
Sextans,	70.138883	00	.29535
Quadrans or Teruncius,	105.208325	00	.44303
Triens,	140.277777	00	.59070
Semissis,	210.41665	00	.88606
As,	420.833333	01	.77212
Dupondius,	841.666666	02	.15442
Sestertius,	1683.533332	04	.30385

ROMAN SILVER COINS BEFORE AUGUSTUS.

NAME OF COIN.	W'T IN GRAINS.	VALUE.	
		Cts.	Decimals.
Teruncius,	.9375	00	.26930
Sembella,	1.875	00	.53860
Libella,	3.75	01	1.07722
Sestertius,	15.	04	4.30885
Quinarius,	30.	08	8.61776
Denarius,	60.	17	17.23552

ROMAN GOLD COINS BEFORE AUGUSTUS.

NAME OF COIN.	W'T IN GRAINS.	VALUE.		
		\$	Cts.	Decimals.
Aureus Nummus,	130.1	4	29	.87416
Value of the Aureus Nummus in U.S. Cur'cy,	5	14		.02405
Serupulum,	18.06	86		.177
Sestertium or Mille Nummi (of Account),	43	31		1845

In the preceding calculation of the weight of Roman copper coin, the as is estimated to have been reduced to the weight of the original uncia, about three-fourths of an ounce avoirdupois. There were originally ten silver denarii to the pound, but when the as was reduced to the weight just noted, the denarii was made sixteen to the pound. The as was afterwards made no more than half an uncia was at first, but the denarii were still made sixteen to the pound. Finally, after Augustus, when the sestertius became the unit of account, the as was made smaller and smaller, even as low as one-fourth or one-fifth of an ounce.



ROMAN UNCIA.

Though not mentioned in the table of Roman copper coins of the period before Augustus, the uncia or twelfth of the pound was one of the early Republican copper coins, and was probably issued with the other fractional coins of the as soon after the coinage of copper began in Rome. At first its weight should have been over 420.833 grains, exactly that given the as in the table, but its value decreased with the reduction of the standard, until, if coined at all, it would have been but

some seven or ten grains. The uncia generally bore upon the obverse, the head of Minerva, the virgin goddess of reason, art and skill, and a small knob, indicating one uncia, the weight or value of the piece. The reverse of the uncia bore the same design shown upon the reverse of the as, with the addition of one small knob, indicative of the value of the coin, as one-twelfth of the as. The uncia also sometimes bore heads of Pallas, Roma, Diana, and representations of frogs, ears of barley, etc.

The uncia was a unit applied by the Romans to all kinds of magnitude. It was subdivided into 2 semi-uncia, 3 duella, 4 sicilici, 6 sextula, 2½ serupula and 14½ siliqua. The sextula was the smallest denomination of Roman money.



ROMAN SEXTANS.

The Sextans at first weighed about 841.66 grains. The specimen from which the above cut was taken weighs 779 grains. As the standard weight of Roman coin was reduced, some of the minor subdivisions of the as became very small indeed, and must at last have been too minute for practical coinage and circulation. Meanwhile, when the weight of the as fell to four ounces, circular pieces of five, ten, and twelve ases came into circulation.

The Sextans bears upon the obverse the head of a caduceus, a staff borne by ambassadors and heralds in time of war, as modern combatants display a flag of truce. Beside this sign of peace, the coin bore on the obverse the figure of a strigil, an instrument used by the Romans to rub or scrape their bodies with when at the bath. On the same side there were also two round knobs, indicating two uncia, as the value of the sextans, it being one-sixth of the as. The device upon the reverse of the sextans was the figure of a cockleshell.

The Quadrans or Teruncius was originally of three full ounces, and bears three knobs, indicating its value as three-twelfths or one-quarter of the as. The quadrans was first coined of about 12625 grains. The devices upon this coin were variously, an open hand, a dolphin, a strigil, a star, grains of wheat, heads of Hercules, Ceres and the like. It is stated by Pliny that the quadrans, and the next larger coin, the triens, bore the figure of a ship; it may have been somewhat as described upon the reverse of the as and the uncia.



TRIENS.

The Triens bears upon the obverse, a dolphin, a strigil, and four knobs, indicative of the value of the coin, four-twelfths, or one third of the as. On the reverse, there appears a thunderbolt and four knobs. The original weight of the triens should have been about 1633.3 grains; the specimen from which the illustration was taken weighs 1571 grains.

An exceedingly rare Roman copper coin, not in the preceding table, is the quincunx, a piece of five ounces, bearing five small knobs, indicative of its value, five-twelfths of the as. The Semissis, semis, or semi-as, the piece of six uncia, bears the head of Jupiter, Juno, or Pallas and the figures of strigils. The semissis is always marked with the letter S, the initial of the name of the coin, indicative of its value. The dodrans, coined only by the Cassian family bore an S, and three balls to indicate its value as nine uncia or nine-twelfths of the as. The dupondius was one of the coins issued after the reduction of the as, and was two ases in value.

The Sestertius was a coin which properly belonged to the silver coinage of Rome; it was originally one-fourth of the

denarius, or two and a half ases in value. When the as was reduced so that sixteen of them went to the denarii, instead of ten (except in the payment of soldiers, taxes, etc.), the sestertius was made of four ases and coined of silver and of orichalcum. This orichalcum was a composition finer than the common aes, and being really a sort of brass, was much esteemed on account of its golden color and lustre. Orichalcum was said to have contained gold, silver and copper, and such a costly bronze may have been made, but the sestertii were coined of a compound metal containing zinc, a most uncommon part of Roman bronze. The zinc was not obtained as a separate metal, the Romans being ignorant of the same, but zinc ore was added to copper, and the two fused and smelted together.



ROMAN DENARIUS—ACTUAL SIZE.

The Denarius being the principal among the silver coins of Rome, became, after the reduction of the as, the only reliable standard of money. Estimating the weight of the denarius of sixty grains, which was the average for sometime before Augustus, we find that the teruncius, being but one-fortieth of the denarius, was so light as to make it almost incredible that so small a piece was ever coined. It is known, however, that the teruncius, otherwise the quadrans, was coined in copper, as has been described, and it has been mentioned among silver coins by respectable authorities. It is very improbable the teruncius was coined in silver after the as was made a sixteenth of the denarius. The Sembali was one-twentieth of the denarius.

During the last century B. C., the libella, one-tenth of the denarius, seems, according to Cicero, to have been the smallest coin in Rome. Any small sum of money was, however, called

libella, and it is argued that the term was used only to indicate the tenth of a sestertius. There are no specimens of the libella extant.

The name of the sestertius, one-quarter of the denarius, is an abbreviation or contraction of the phrase *semis tertius*, signifying two and a half. The symbol of the sestertius was II. S. or I. I. S., indicating two pounds and a half—*i. e.*, two ases and a half.

The quinarius, one-half of the denarius, was called victoriat⁴us as well, on account of a figure of victory which was inscribed upon it as a device. These coins were first imported from Illyria, but the coinage of them began in Rome about B. C. 177.

The denarius, which, as its name implies, was at first equal in value to ten ases, was coined at the beginning of the Roman silver coinage, five years before the first Punic war, or B. C. 269. Originally a Roman pound of silver was coined into 84 denarii, but subsequently, the change being supposed to have been made in the reign of Nero, A. D. 54 to 68, no less than 96 denarii were made out of that quantity of silver. The denarius was the type of the Roman silver coinage, and originally about 966 $\frac{2}{3}$ fine. Silver, which was at first the universal currency of Greece, had been imported into Rome in drachmæ, and circulated there, long before the Romans undertook to coin it. The Greeks, from first to last, coined but little copper, the country and its islands having rich silver mines. There were silver mines in Greece, in Siphnos, Thessaly, Attica and elsewhere; besides the exceeding rich mines of Laurion, belonging to Athens, which were worked as late as A. D. 200. Rome coined a great quantity of copper, but as their conquests extended, the Romans imported silver from the colonies. Most of the silver used in Rome was taken from the old mines in Spain, which, before the Romans, were worked by the Phœnicians and Carthaginians, and though subsequently abandoned for the rich placers of Mexico and Peru, are not yet exhausted.

The denarius was coined upon the standard of the Greek drachma.



ATHENIAN DRACHMA—ACTUAL SIZE.

The type of the Athenian drachma was, in the earliest times, an owl, symbol of Minerva, known also as Athene. Afterwards the head of Athene, was placed upon the obverse and the owl upon the reverse of the piece. The Romans, who laid violent hands upon the institutions and property of their neighbors, also adopted their gods. Roma, Athene and Minerva were the same divinity. By comparison of the two preceding illustrations, it will be seen the only special difference in the type of the obverse, is in the wings which appear in the Roman coin upon the head of Roma. The denarius and the drachma were moreover supposed to be of an equal value, but aside from the fact that the Athenians were more careful than the Romans to preserve the purity of their coinage, ancient specimens of the drachma and denarius show the drachma to be one-ninth most valuable; the subsequent falling off of the drachma made these Roman and Greek coins so nearly equal, that they were probably interchangeable and current together.

The early types of the denarii, generally bear upon the obverse the head of Roma, wearing a helmet; otherwise, the Dioscuri, or a head of Jupiter. On the reverse appear chariots drawn by two or by four horses. Chariots with two horses were *bigae* and the coin bearing such device *bigati*. Four horses were *quadrigae* and the coin bearing that device *quadrigati*. Some of the denarii had their edges notched like a saw, to show the quality of the coin, or as a guard against mutilation. Such coins were called *serrati*. Many denarii, as

in the preceding cut, bear upon the obverse a cross or letter X, indicating their nominal value of ten ases.

ROMAN GOLD COIN BEFORE AUGUSTUS.

The standard Roman gold coin before Augustus, was called aureus nummus, or denarius aureus, being named from the Latin words aurum, which signifies gold, and nummus, which means money; or from denarius, ten ases, and aureus, gold.

The aureus nummus, according to Pliny, was coined 40 to the pound, until under Nero they were made 45 to the pound. At 40 to the pound, the aureus nummus should be as much as 130.1 grains, while those made 45 to the pound should weigh 115.64 grains. The heaviest aureus nummus known is one coined under Pompey, which weighs 128.2 grains. The aureus was reckoned double the weight of the denarius, and may have averaged a little heavier. As the denarius is stated to have been of 60 grains, this would make the aureus to consist of 120 grains. The aurei in the British Museum are specimens of the earlier and heavier coinages; they average 121.26 grains. It is argued that as the later aurei were made lighter than the older mintages, the assumed 120 grains average weight is probably a very close calculation.

Almost the only method of purifying gold known to the ancients was the grinding of the ore, or of the metal, and then carefully roasting the dust. While this process could not be relied upon for chemical perfection, it gave a very good product. The art of mixing metals was not thoroughly understood by the Romans, and their purpose seems to have been to make gold coin of perfect purity. From the nature of the ores however, and from the character of the process, as described, a certain percentage of silver was contained in all the aurum coined into Roman gold coin. The average fineness of the Roman gold coin before Augustus is 966.66, or one part in 300 of alloy, that is 299 parts pure gold, and one part native silver.

The aureus nummus was reckoned equal in value to 25 de-

narii of silver, or about \$4.31, according to the ratio of ten or twelve of gold, to one of silver, which was common in Rome before Augustus. According to the modern ratio, of about fifteen of gold, to one of silver, the value of the aureus nummus would be nearly \$5.13.75. Dr. Arbuthnot reckons the value of the aureus nummus, according to the proportion of gold to silver mentioned by Pliny, and finds it to be \$5.89.6. According to the proportion which now obtains among us, he makes the value of the aureus \$5.03. According to the decuple proportion of one to ten, mentioned by Livy and Julius Pollux, he finds the value of the aureus nummus would be \$3.13.2. According to the proportion mentioned by Tacitus, making the aureus nummus exchangeable for 25 denarii, he calculates the aureus worth \$3.91.5. As has already been stated regarding the calculations of the value of ancient coins, the changes in the respective values of metals, and the fluctuations in the standards of coinage, make the problem difficult and results uncertain. Still the figures given may be relied upon as tolerably accurate approximations to the facts.

Pliny states that the coinage of silver began in Rome 269 B. C., and the coinage of gold into the aureus nummus commenced 62 years later, or 207 B. C. Other authorities place the date of the earliest Roman coinage of silver at about 281 B. C., and state that the first gold coinage issued from the mint of Rome was made about 90 B. C., and consisted of the scrupulum, equivalent to 20 sestertii, and of double and treble scrupula, respectively equivalent to 40 or 60 sestertii. Without entering upon the criticism requisite to warrant a decided expression upon the subject of these several dates for the same event, it may be stated that the scrupulum, or more properly the scripulum or scriplum, was the smallest denomination of weight among the Romans, representing the twenty-fourth part of the uncia, or the 288th part of the as, poudus, or libra. It was about 17.5 or 18 grains avoirdupois.

In the same way that the word as, was used to signify a unit of any kind divisible into twelve parts, so the word

scrupulum, was made to denote the 288th part of any whole. From scrupulum we derive the term scruple, the third part of a dram. Though the scrupulum was the smallest actual Roman weight, there were such divisions of the same mentioned as the obolus or half scruple, the semi-obolus or quarter scruple, and the siliqua or one-sixth of a scruple, originally like the old English pound, the average weight of a certain number and kind of seeds.

The British Museum contains Roman gold coins of one scrupulum, weighing 17.2 grains; two scrupula, 34.5 grains; three scrupula, 51.8; and four scrupula, 68.9 grains. The value of these pieces, according to the Roman standard and ratio of metals, was: one scrupulum, of 20 sestertii—from \$0.78. 20 to \$0,86.6177; two scrupula, of 40 sestertii—from \$1,56. 40 to \$1,73.2354; three scrupula, of 60 sestertii—from \$2,34. 60 to \$2,59.8531; four scrupula, of 80 sestertii—from \$3,12. 84 to \$3,46.4703. These pieces are marked respectively XX, for 20 sestertii, XXXX, for 40 sestertii, as in the engraving here presented, for 60 sestertii; and the largest piece, as in the engraving, but with an additional X, for 80 sestertii.



TRIPLE SCRUPULUM.

The Scrupulum and the double, treble, and quadruple scrupula, were of the same design, except the inscription denoting their value. They all bear the head of Mars upon the obverse, and on the reverse an eagle standing defiant, wielding a thunderbolt in midheaven. On the illustration given, a star may be seen abreast of the eagle. The meaning of the allegory expressed by the type and device of this coin is obvious: "Mars, the god of war, protects the commonwealth of Rome, whose eagle wields the thunderbolt of power, supreme amid the stars of fate and destiny!"

ROMAN MONEY OF ACCOUNT BEFORE AUGUSTUS.

The nature of a money of account has been described in this volume in the Chapter on the **THE ORIGIN OF MONEY**. Money of account is a denominational unit of value not necessarily represented by a coin or any correspondence of money. The Roman unit of value before Augustus was the *as*, originally a pound of copper, subsequently of *aes* or bronze. The grand or principal money of account in the Roman commonwealth or republic was the *sestertium*, which signified money to the value of a small fraction over \$43,10. The *sestertium* was derived from the *sestertius*, of which it was the multiple, 1000 *sestertii* being accounted a *sestertium*, and considered by some authorities to have originally represented $2\frac{1}{2}$ pounds of silver (*sestertium pondus argenti*).

The *sestertium* was never more than a mere money of account, having no coin to represent its denomination. After Augustus, the *sestertius* was the denomination of Roman money almost always used in reckoning any considerable sum. The *denarius* was the coin in which large payments were made. The term *sestertius* was used not only to express $2\frac{1}{2}$ *as*, $2\frac{1}{2}$ pounds of silver or the thousandth part of a *sestertium* of money whatever the value of silver, but was also applied to any measurement always meaning two and a half of any given unit.

ROMAN COINS AFTER AUGUSTUS.

During the reign of Augustus, from B. C. 44 to A. D. 14, the *as*, which, since prehistoric times, had been the monetary unit of Rome, was diminished to an half ounce and less in weight, and becoming of quite uncertain value, was virtually superseded in circulation by the copper *sestertius*, the piece called by numismatists the first bronze. The first bronze was about the size of an English penny, and the *as* still remained a constant unit of value, and all minor accounts were kept in *ases*, as larger amounts were reckoned in *sestertii* or the *sestertium*. The *sestertius*, as has been stated, derived its ratio

from the silver denarius, being at first of $2\frac{1}{2}$ and afterwards 4 ases value. The dupondius, half of the sestertius, is called by numismatists the second bronze. The half of the dupondius was called the assarium, an old name of the as. The assarium is known to numismatists as the third bronze.



AUREUS OF AUGUSTUS.

After the reign of Augustus, when the denarius had been reduced to one-eighth of an ounce or 52.5 grains, the standard Roman coins were of the following denominations:

NAME OF COIN.	METAL.	W'T IN GRAINS.		VALUE.	
				Cts.	Decimals.
Sextans,	Bronze,	35	or less.	00	.159713540
Quadrans,	"	52.5	"	00	.238046375
Triens,	"	70	"	00	.319427083
Semissis,	"	105	"	00	.479140625
Assarium (As),	"	210	"	00	.95828125
Dupondius,	"	420	"	01	.9165625
Sestertius,*	Orichalcum.	840	"	03	.833125
Sestertius,	Silver,	13.125	"	03	.833125
Quinarius,	"	26.25	"	07	.66625
Denarius,	"	52.5	"	15	.3325
Aureus Nummus,	Gold,	120.0	"	\$4,13	.36525
"	"	Present ratio of metals,		5,14	.024062495
Sestertium or Mille	Nummi (of Account),	38,01		.99312499	

In the table of Roman Coins After Augustus, the assarium as the unit of the copper coinage, is estimated at one-half an uncia, or one twenty-fourth of the as, or pondus of 5040 grains Troy. Of the copper sestertius, there is in existence a magnificent series, from Augustus B. C. 44 to Gallienus, A. D. 268.

After Gallienus, the first bronze, or the sestertius, disappeared from the coinage of Rome. The second bronze, or the dupondius, was not issued after the reign of Diocletian, A. D. 284-305, and about this time the third bronze, or the assarium, was reduced to one-twentieth of an uncia, or about 21 grains Troy. From the time of Commodus, A. D. 180-192, there was a rapid falling off in the general character of the Roman coinage, and in the reign of Caracalla, from A. D. 211 to 217, base silver was extensively used in the Roman mints. Gallienus, during his wretched rule, coined copper coins and washed or plated them with silver, after the manner of other counterfeiters of the present day. The colonial coinage became even worse than that of Rome, though there was great variety. With the establishment of Christianity as the Roman religion, A. D. 312, a few Christian types were placed upon the coin. The assarium, or third bronze of Constantine, bears the *labarum*, the military standard of Constantine, adopted by him in remembrance of the vision of the cross in the sky, which he pretended to have seen October 12, A. D. 312, during his march against Maxentius. The *labarum* represented the cross and the "monogram of Christ," I. H. S.; also, in later times, the Greek letters Alpha and Omega. In the time of Constantine, large medallions called *contorniatii* were minted. They were encircled by a deep groove, and seem to have been intended as prizes to be awarded the victors in the public games. Upon the accession of Julian the Apostate to the imperial throne of Rome, A. D. 361-363, the ancient pagan types were reproduced in the coinage; after his time, the assarium, or third bronze, disappears, and the ancient coinage of Rome is at an end.

There were many counterfeit ancient coins, both Greek and Roman. The Greek counterfeiters were very skillful, and many specimens of their work exist in first-class condition. The Roman counterfeit money was mostly cast. In modern times, the counterfeiting of ancient coins, has been a regular art, some of the genuine specimens of the old series being of

great value. At this business have been employed such experts as Giovanni Cavino and Alessandro Bassiano of Padua, Benvenuto Cellini, Devrieux and Weber of Florence; Carteron of Holland; Congornier of Lyons; Laroche of Grenoble; Caprare of Smyrna and others, their productions commanding high prices, even when known to be imitations. Almost all kinds of rare coins are counterfeited successfully, and nothing is more common in this way, than the alteration of the dates of common pieces, to resemble such as are scarce, and, therefore, at a premium.

§ On the death of Theodosius the Great, A. D. 395, the great Roman empire was permanently divided. The eastern part, with its capital at Constantinople, was bequeathed to the elder son of Arcadius, of the same name, who was the first of the Byzantine emperors. The territories governed by the young Arcadius and his successors, was called the Byzantine empire; the Roman empire of the East; the Eastern empire; the Greek empire, and the Lower empire. The line between the Byzantine empire, and the Roman empire of the West, commenced a short distance above Pesth, a central city of Hungary, 135 miles E. S. E. from Vienna, capital of the empire of Austria, and followed the rivers Danube, Save and Drina, and was continued on a line from Scutari, running near the Adriatic sea toward the Greater Syrtis off the coast of Cyrenacia in Africa.

Under the empress Pulcheria, the first woman who was raised to that dignity, the Byzantines, though ably governed, were compelled to pay Attila, the king of the Huns, a tribute, which at first was 400 pounds of gold a year, but was afterwards raised to 2,100 pounds of gold a year, although a province south of the Danube was at the same time ceded to him. It was Marcian, the husband of Pulcheria, who persuaded Attila to push his warlike enterprise to the regions of Italy and the west, rather than desolate the Byzantine countries. The Byzantine empire attained the summit of its glory, under Jus-

tinian I, A. D. 527-565. During this long reign, industry flourished, the culture of silk was introduced into Europe, civilization advanced, while scholarship and thought were protected and developed. The code of law drawn up at this time has ever since been the leading authority among jurists of all civilized nations.

Afterwards, the Byzantine empire was weakened, and fell into disorder through theological and religious controversies, about "the personal will of Christ," and other abstract questions, out of which grew persecutions and bloodshed by assassination and otherwise. After a varied and warlike history, the Byzantine empire ended with the conquests of the Turks, from A. D. 1453 to 1461, and with its fall, perished a power which, through the dark ages, had preserved civilization and fostered art and literature, when all western Europe was trampled under the feet of barbarian hordes.

The money coined by the Byzantine empire, for about a thousand years, forms the connecting link between ancient and modern coins. The chief piece among Byzantine coins, was the gold *solidus*, or *nomisma*, which was long famed for its great purity, and had an extensive circulation all over Europe. The general type of Byzantine coins, is the head of the emperor or empress on the obverse, which, after the tenth century, is supported by some supposed protecting saint. The reverse, at early dates, bore the representation of victory, and a cross; afterwards, entirely Christian designs were presented, among them Christ, or the virgin Mary, the last being sometimes represented as upholding the walls of Constantinople. The inscriptions upon the first Byzantine coins were made in Latin; those of a later date were in either Greek or Latin; afterwards, the Greek language alone was used upon this coinage. The term *solidus* is a Latin word, meaning solid. The Roman emperor Alexander Severus, A. D. 222-235, coined pieces of one-half the gold aureus, which were called *semissis*; also pieces of one-third the aureus, which were called *tremissis*. From this time the aureus was called the *solidus*. Constantine

the Great, up to A. D. 332, coined aurei of 72 to the pound, or 70 grains each, at which standard the solidus was nominally coined until the partition of the empire and the establishment of the Byzantine government in the east of Europe.



COIN OF CONSTANTINE.

Originally worth about five dollars, the aureus, whether coined by that name, or as the solidus, like all other ancient coins, was of variable weight, fineness and value, even when the attempt was made to coin it of a certain standard. Moreover, the standard was changed from time to time, the weight was diminished, the aurum or gold was more and more alloyed with cuprum or copper, and thus by double means the value of the coin was decreased. The *solidi* formerly in use in Italy, were lineal historic representatives of the once famous and noble Byzantine solidus, and finally the same coin appears in modern times, in the degenerate form of the French copper coin the *sol* or *sou*, worth less than a cent of the currency of the United States. During the period called the Middle Ages, from the fall of the Roman western empire, A. D. 476, to the discovery of America, A. D. 1492, the most important coin of Europe was the silver *denier* or penný, derived from the Roman denarius. The half of the *denier* was called the *obole*, which was at first coined of silver, but afterwards of billion or soft white composition, a kind of spelter. This kind of coin was set in circulation in the German empire, in France and in England; it was also coined by the Scandinavian states, and often in various places by ecclesiastical princes and feudal lords, who thus assumed the prerogative of sovereigns, with-

out due authority. The workmanship of much of this debased and irregular coinage, indeed that of the states themselves, was little if any superior to that which has been illustrated on a former page, bearing the tortoise emblem of Aphrodite, and struck by the earliest mint-masters of primitive Greece, centuries before the Christian era.

The regal coin of the early middle ages, has in general as the type, upon the obverse, the bust of the sovereign, the reverse bearing the figure of a Greek cross, and the name or title of the king, with the place of mintage, or the name or mark of the master of the mint. The practice of stamping the arms of the country upon a coin, with the Greek cross, began in the 12th century, but was superseded for a time afterwards. During the 13th and 14th centuries, coins were first issued by free imperial cities, or municipal corporations. The most notable piece of money of this period, was a thin piece called a *bracteate*, struck in relief on one side, while hollow or incused on the other, after the manner of the coins of Tarentum, which have been described on page 57.

The bracteate were a very inferior coinage, some of them bearing no inscription, many but a letter or two, or an abbreviation of a legend, and very few having the same inscribed in full. The mediæval coins down to the 14th century, are struck with but a slight impress of the die, making the design very light in relief; the pieces are quite thin and the art degraded.

§ It is to be understood, that the present writing makes no pretense of anything like even a glance, over the whole field of ancient coinages. Those who desire full information, must devote much study to many authors in various languages. The only effort here made, is to give in a popular manner, a general idea of the most remarkable series of old coins, as representations of the most common standards of money in bygone ages; the work intended, is mainly with the commercially circulating coins of the present era of the world, to

which this sketch is part of an introduction. To the merely curious and critical, an interesting subject of study is presented in the Hindoo or Indian coinage of a very early origin. The ancient Hindoo coins are of copper, and square in form, bearing a legend in the Pali language. It is conjectured that they were struck about 300 B. C., but the date is quite uncertain—the antiquity of India is old indeed!

Though Abraham was one of the first of men mentioned in history, as making use of money, and the most famous financiers of the present age are among his descendants, yet there is no absolute proof, that the Hebrews had a coinage of their own, until the time of the Maccabees, or, more properly, the Asmonæans, when, about the year 139 B. C., Antiochus VII, Sidetes, the son of Demetrius I, king of Syria, among other privileges, granted the Jews, then subject to his power, conceded "to Simon the High Priest and prince of his nation," the right of coining money. This was in the hundred and seventy-fourth year of the Seleucidan era.

As extensive concessions had already been made the Jews by Demetrius, it is more than probable that Simon the Asmonæan aforesaid, had begun a coinage before the formal permission so to do had been given by Antiochus. The reign of Simon Maccabæus, was but eight years, from B. C. 143 to B. C. 135, when he and his two sons, Judas and Mattathias, being on a journey, with his wife, were treacherously murdered at the fortress of Doeh, in the middle of a feast, by his son-in-law Ptolemy, governor of Jericho.

The coins, made under the government of Simon, were struck during three years and the commencement of a fourth. These coins are dated as of the first, second, third, or fourth year, but whether the "first year," was the first of Simon's reign, or the first year, of the coinage, is unknown; they are of four different years, but whether coined during the first or the last years, during which Simon led and protected the Hebrews, is uncertain. Thus the first Hebrew coinage, and the only one made by them of silver, may be considered to have

taken place, either from B. C. 143 to B. C. 139, or, from B. C. 139 to B. C. 135. The denominations were, the shekel, half shekel, quarter shekel, and the sixth of the shekel.



HEBREW SHEKEL—FIRST YEAR.

Obverse: A cup or chalice ("Pot of Manna"), above which is inscribed a Hebrew letter, signifying one; meaning either the first year of Simon's reign, or the first year of the Hebrew coinage. Legend: *Shekel Israel*, "Shekel of Israel."

Reverse: A trefoil, triple lily, or hyacinth ("Aaron's rod"). Legend: *Jerushalem kedoshah*, "Jerusalem the Holy." Silver.



HEBREW HALF SHEKEL—FIRST YEAR.

Obverse: A cup or chalice ("Pot of Manna"), above which is inscribed the Hebrew letter, signifying one. Legend: *Chatzi ha-Shekel*, "Half-Shekel."

Reverse: A triple lily or hyacinth ("Aaron's rod"). Legend: *Jerushalem kedoshah*, "Jerusalem the Holy." Silver.



HEBREW SHEKEL—SECOND YEAR.

Obverse: A cup or chalice, above which two Hebrew letters

are inscribed, in an abbreviation for *Shenath Shethaim*; meaning the "year two." Legend: *Shekel Israel*, "Shekel of Israel."

Reverse: A triple lily or hyacinth. Legend: *Jerushalaim ha-kedoshah*, "Jerusalem the Holy." Silver.



HEBREW HALF SHEKEL—SECOND YEAR.

Obverse: A cup or chalice, above which is inscribed, in an abbreviation, *Shenath Shethaim*; meaning the "year two." Legend: *Chatzi ha-Shekel*, "Half Shekel."

Reverse: A triple lily or hyacinth. Legend: *Jerushalaim ha-kedoshah*, "Jerusalem the Holy." Silver.



HEBREW SHEKEL—THIRD YEAR.

Obverse: A cup or chalice, above which is inscribed, in an abbreviation, *Shenath Shelosh*; meaning the "year three." Legend: *Shekel Israel*, "Shekel of Israel."

Reverse: A triple lily or hyacinth. Legend: *Jerushalaim ha-kedoshah*, "Jerusalem the Holy." Silver.

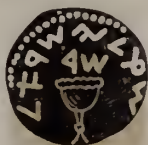


HEBREW HALF SHEKEL—THIRD YEAR.

Obverse: A cup or chalice, above which is inscribed, in ab-

breivation, *Shenath Shelosh*; meaning the "year three." Legend: *Chatzi ha-Shekel*, "Half Shekel."

Reverse: A triple lily or hyacinth. Legend: *Jerushalaim ha-kedoshah*, "Jerusalem the Holy." Silver.



HEBREW SHEKEL—FOURTH YEAR.

Obverse: A cup or chalice, above which is inscribed, an abbreviation for *Shenath arba*; meaning the "year four." Legend: *Shekel Israel*, "Shekel of Israel."

Reverse: A triple lily or hyacinth. Legend: *Jerushalaim ha-kedoshah*, "Jerusalem the Holy." Silver.

There are both silver and copper coins extant, which bear the types and legends of the Hebrew shekels of the fourth year, but of these, the copper pieces, are by some considered counterfeits. It is supposed, as history gives no information upon the subject, that the Jews, who were at that time, under very heavy war expenses, may have been compelled to strike copper money to meet financial emergencies; but it is regarded as quite unlikely, that they should strike both silver and copper shekels during the same year. The silver shekel of the fourth year is the last coin of that metal struck by the Hebrews until the first and second revolts, A. D. 60 and A. D. 115.

As to the legend "Jerusalem the Holy," upon the coins already described, it refers to a title given Jerusalem at a very early time. *Demetrius Soter* (Demetrius the Savior), king of Syria, B. C. 162, decreed the city should be "holy and free." It was common for many Greek cities, in particular those along the Mediterranean, exempt from taxes, to be described as holy and inviolable. In the gospel of Mathew, Jerusalem is called "the holy city," and the Arabs still call it by the name *El-Kuds*, "the holy." The Greek cities inscribed the title of Holy, upon their coinage, and in the same way "*Jeru-*

shalaim ha-kedoshah" upon the coins of Simon Maccabæus, was not a case of pretentious self-righteousness, on the part of the Hebrews, but an assertion of the guaranteed freedom and independence of their capital. However, as the Hebrew government was ideally Theocratic, the political affairs of the people acquired a certain religious importance and significance. The types of Hebrew coins are taken, either from the utensils of the temple, or from the plants, fruits and flowers of their country, emblems of religious faith or of material prosperity and happiness. In later times, Roman and other types were blended on a coinage not purely Hebraic.

The copper half shekels, quarter shekels and sixths of shekels, coined in the fourth year only, are of different types and varieties from the preceding silver coinage of the same series, and may be described as follows:



HEBREW HALF SHEKEL—FOURTH YEAR.

Obverse: Two bouquets of branches and leaves (*Lulab*); between them a citron (*Ethrog*). Legend: *Shenath arba Chatzi*. "In the fourth year—one-half."

Reverse: A palm tree, on each side of which there stands a basket full of dates and fruits of other kinds. Legend: *Ligullath Zion*, "The redemption of Zion." Aes or copper.



HEBREW QUARTER SHEKEL—FOURTH YEAR.

Obverse: Two bouquets of branches and leaves. Legend:

Shenath arba Rebia; meaning, in indication of the date and value, "in the fourth year—one-quarter."

Reverse: A citron or *ethrog*. Legend: *Ligullath Zion*. "The redemption of Zion." Aes or copper.



HEBREW SIXTH OF A SHEKEL—FOURTH YEAR.

Obverse: A cup or chalice. Legend: *Ligullath Zion*. "The redemption of Zion."

Reverse: A bouquet of branches between two citrons or *ethrogs*. Legend: *Shenath arba*. "In the fourth year." Aes or copper.

Under John Hyreanus, B. C. 135 to B. C. 106, the Hebrews struck a large number of coins, which were aes or copper only. The obverse bears an inscription, *Jehochanan Hakkohen Hagadol vecheber Hajehudim*, "Johanan High Priest and the Confederation of the Jews," enclosed by a wreath of laurel or olive. The reverse displays two cornua-copiae, with a poppy head between them. The inscription on the obverse varies upon the coins of this series at different issues, but the general purport is the same. The type of the double cornua-copiae originated in Egypt, and was probably adopted by the Hebrews in imitation of the coinage of Syria, and may have been intended as an emblem of the prosperity of Judea under the rule of John Hyreanus.

Judas Aristobolus succeeded John Hyreanus, taking the title of king; he reigned from B. C. 106 to B. C. 105, only one year; his coinage is of the precedent type, except the necessary change of name on the obverse.

An anchor; an eight-rayed star; an urn; covered vessels; (of the temple?) on stands; tripods; common five-pointed stars; helmets; the *Tau*, or *crux ansata*—the Assyrian sign

of life; Macedonian shields; the winged caduceus; pomegranates with leaves; the prow of a galley with a trident; galleys with oars, and others with oars and sails; bunches of grapes, and grape leaves, are successive types of the Hebrew coinage under Alexander Jannæus, B. C. 105 to B. C. 78; his wife Alexandra, B. C. 78 to B. C. 69; Hyrcanus II, B. C. 69 to B. C. 65; Aristobulus II and Alexander II, B. C. 65 to B. C. 49; Hyrcanus II (the restoration), B. C. 47 to B. C. 40; Antigonus, B. C. 40 to B. C. 37; Herod (the Great), B. C. 37 to B. C. 4, and by their gradually increasingly Roman or foreign character, indicate the encroachments of Roman conquest and the growing subserviency of the kings of Judea.

A small copper coin exists supposed to be Hebraic, and to have been struck under Alexander Jannæus, or Alexander II, which bears upon the obverse a human head, and on the reverse an eight-rayed star. No legend is visible. If this coin is really Hebraic, it is the earliest violation, in the making of Jewish money, of the Mosaic commandment: "Thou shalt not make unto thyself any graven image or any likeness of anything, etc," though another instance may be noted hereafter. Under Alexander Jannæus, the coins at first bore inscriptions in modernized Hebrew; afterwards Hebrew and Greek inscriptions were struck together, after which Greek inscriptions became general and were used exclusively.

Under the Herod Philip II, B. C. 4 to B. C. 34, the coinage for the Hebrews bore the head of Tiberius, the Roman emperor, on the obverse, and a view of a tetrastyle temple on the reverse. The coins bear various inscriptions in Greek, and the date. The name of the emperor is inscribed upon one specimen. As has been already stated, the placing of the figure of any human being, or even an animal, upon the Hebrew coin, was a violation of the Mosaic law, which must have been exceedingly obnoxious to the Jews of "Jerusalem the Holy." But the mintage was not always done at Jerusalem, and as in the case of all the better Roman coins, the artists were Greek, while Herod doubtless much preferred to

flatter the head of Rome, and thus secure his own position, rather than observe any law whatever. In keeping with this, the tetrastyle temple on the reverse of his coinage, was supposed to be a representation of one built by Herod I, and dedicated to Cæsar.

A fringed umbrella; threefold heads of wheat; the figure of Fortune; *quadrigæ* or four-horse chariots; victory flying; clasped hands; scenes of sacrifice, and an eagle, are the types used for the reverse of Hebrew coins, with the heads of the emperors of Rome upon the obverse, until Agrippa II ascended the throne as king of the Jews, to reign under Roman protection, from A. D. 48 to A. D. 100. This Agrippa, was the last prince of the Herodian line, the one before whom Paul had his trial, and to whom he made his great speech in defense of Christianity. Agrippa II placed his own likeness upon the Hebrew coin, A. D. 58, but was doubtless promptly forbidden so to do by the Romans, as in A. D. 59, and afterwards, up to A. D. 95, his coins either bear the emblem of the town where they were minted, a female head, or the head of the Roman emperor, with other types and inscriptions characteristic of a Roman colonial coinage.

The copper coins struck in Judea by the Roman Procurators, from A. D. 6 to A. D. 65, were designed, according to the orders of the Roman Senate, with respect for the Hebraic national law and popular sentiment, and hence bore as types, only such objects as ears of corn; palm trees; bunches of dates; an altar; vases; urns; the lituus (a short, crooked staff used by Roman augurs and astrologers in divining); the cornucopie and poppy head, and shields.

The Jews revolted against the Romans A. D. 66, but were again subjugated, and Jerusalem destroyed by the Romans under Titus, A. D. 70. The Eleazars, High Priests, with Simon son of Gioras and other leaders of faction, as well as the Synhedrium or Supreme Authority at Jerusalem, during the revolt coined both silver and copper coins, to which they restored the *Lulab* (bunch of branches and leaves), and the *Eth-*

rog (citron), which had been the prominent types of the glorious reign of Simon Maccabæus. Palm trees; lyres; bunches of grapes; grape leaves; urns; pitchers; cups; chalices and temples were also stamped upon this coinage of the revolt, all suggestive to the Jews of the ancient glories of their religion, and calculated to inspire them to most desperate efforts for the independence of their country. Some of these coins bear such legends, in Hebrew or Samaritan, as: *Elezar Hakkohen*, "Elezar the High Priest"; *Shenath Achath Ligulluth Israel*, "First year of the redemption of Israel"; *Lacheruth Jerusalem*, "The deliverance of Jerusalem"; *Schin Beth Lacheruth Israel*, "Second year of the deliverance of Israel," etc., etc., according to the authority by whose orders they were coined and the date of their issue.

The Roman coins struck during the reign of Vespasian, to commemorate the capture of Jerusalem by Titus, were minted in Judea and in Rome; those struck in Judea had for an obverse, a laureated head, and on the reverse was a palm tree, supporting a shield, whereon victory was making an appropriate inscription. These pieces were of aes or copper. The coins of this series struck at Rome, were of gold, silver, aes or brass. The obverse bore the emperor's head and titles; the reverse a Roman trophy, and Judea, represented as a captive female, sitting on the ground. Underneath the device is inscribed IVDAEA, "Judea."

On the reverse of some of these coins, the captive sits at the foot of a palm tree, her hands bound behind her back. Some have the captive standing, the hands being tied before her, and the legend IVDAEA DEVICTA. On some pieces, she sits beneath the palm, her hands being free, while a Roman soldier stands guard over her. On others, a Jew and Jewess are near the palm, his hands tied behind him as he stands, while she sits weeping, the legend being, IVDAEA CAPTA, "Judea Captive."

Similar coins were struck under the Roman emperor Domitian, until A. D. 85 or somewhat later. There are coins com-

memorative of the conquest of Jerusalem, whereon Judea is seated at the foot of the palm, the legend being, IVDAEA NAVALIS, though the Jews never were a naval power. Also, one of Titus, his foot on the prow of a vessel, victory in one hand, a spear in the other, and Jews suppliant before him.

In the year A. D. 115, began the second revolt of the Jews, while Trajan was engaged in a Parthian expedition. The revolt was suppressed A. D. 135. During its continuance, Simon Bar-cochab, the leader of the Jews, re coined silver and copper money, striking over Grecian and Roman designs, the types, symbols and legends of the coinage during the first revolt and that anciently done under Simon Maccabæus, with the additional device, in some cases, of trumpets, such as were used in the armies of Israel.

The imperial colonial coins struck in Judea during the time of Hadrian, from A. D. 136, and those issued under his successors down to A. D. 251, are of Roman types, though a few under Hadrian refer to the suppression of the second Jewish revolt.

The series of ancient Jewish coins, closes with the copper money struck at Jerusalem by the conquering Arabs.



ARABIC COPPER COIN STRUCK AT JERUSALEM.

Obverse: The standing figure of a Caliph, facing front. Supposed to be the effigy of Abd-el-melik, *circ.* A. D. 695, or Mnawiyeh. Legend: In Cufic characters: "Mahommed apostle of God."

Reverse: The crescent upturned above the letter M. Legend: In Cufic characters: "Palestine" and "Ælia."

The type of the crescent above the letter M, much resembles

the device used upon the contemporaneous coins of the Byzantine empire.



ARABIC COPPER COIN STRUCK AT JERUSALEM.

Obverse: The standing figure of a Caliph, facing front.
 Legend: Wanting in part on the specimen, and in the illustration, but was doubtless the same as on the preceding piece, as described, viz: "Mahommed apostle of God."

Reverse: The crescent upturned above the letter M. Legend: "Palestine." Inscribed in Cufic characters on each side of the device.



ARABIC COPPER COIN STRUCK AT JERUSALEM.

Obverse: Inscription in Cufic characters: "Mahommed apostle of God."

Reverse: A five-branched candelabrum.

The legend upon the obverse of this and the two coins already described, should be read: "Mahommed is the apostle of God"; a most orthodox Moslem statement. The candelabrum of five or more branches was, however, part of the furniture of the Hebrew temple; it was inscribed on monuments of the Roman time, as well as upon these coins, where it may have been placed as in some manner an allusion to, or recognition of, the religion and institutions of the children of Abraham, between whom and the sons of Islam, there was not only, through Hagar, an affinity of blood, but, as both were iconoclasts, Theists and Unitarians, a correspondence, in degree, of religious sentiment also. In a corresponding manner the Mo-

hammadans acknowledged the prophetic character of the Old Testament, and speak and write of Jesus as a brother of the divinely inspired founder of their own religion.



ARABIC COPPER COIN STRUCK AT JERUSALEM.

Obverse: Four trees equidistant from each other, across the field.

Reverse: A seven-branched candelabrum. Legend: Mostly obliterated, and quite undecipherable on the only known specimen.

The coinage of Judea, as has been noted on preceding pages, was mostly of copper; the current silver was principally derived from the cities of Phœnicia and Syria. The Grecian drachma was in use at Jerusalem, and is mentioned in the original Greek New Testament, Luke xv, 8: "Either what woman having ten (*drachmæ*), pieces of silver, if she lose one piece, doth not light a candle and sweep the house, and seek diligently till she find it." Every male among the Hebrews paid, according to the ancient law, Exodus xxx, 13-15, a half-shekel of silver yearly to the Lord as a ransom for his soul. This offering to the Temple was quite distinct from the tribute exacted for the Roman emperor, which was a denarius or one Attic drachma. The half shekel of silver, ransom for the soul, had, by the first years of the Christian era, been converted into the payment of two Attic drachmæ; four of which, according to Josephus, made the equivalent of a shekel of Israel, which was the Jewish *stater*, or standard of money. The shekel of Israel, described by Josephus as four Attic drachmæ, as a coin, is estimated to have weighed on an average some 220 grains. The Jews, when dispersed throughout the world, still continued to pay the half shekel, or two drachmæ, for the use of the Temple, or the support of their

religion, and while under the Roman yoke, were ordered by Vespasian, wherever they might be, to pay the like amount to the temple of Jupiter Capitolinus, which last tax was sternly exacted under Domitian afterwards, and continued to be paid as late as Alexander Severus, A. D. 226.

In the account of the miracle given, Matt. xvii, 24-27, we read:

“24 ¶ And when they were come to Capernaum, they that received tribute-money, came to Peter, and said, Doth not your master pay tribute?

“25 He saith, Yes. And when he was come into the house, Jesus prevented him saying, What thinkest thou Simon? of whom do the kings of the earth take custom or tribute? of their own children, or of strangers?

“26 Peter saith unto him, Of strangers. Jesus saith unto him, then are the children free.

“27 Notwithstanding, lest we should offend them, go thou to the sea, and cast a hook, and take up the fish that first cometh up: and when thou hast opened his mouth, thou shalt find a piece of money: that take and give unto them for me and thee.”

According to the Greek text, the coin referred to was a stater. The didrachma, having fallen into disuse, the silver currency of Palestine at this time, consisted of Greek Imperial tetradrachmæ, or staters, of the same weight as the Jewish stater or shekel; and the Roman denarius of one-fourth the value. Consequently, the best authorities conclude that, doubtless, the piece of money said to have been taken by Peter from the fish, was a tetradrachma of the cities of Syria, such as is here illustrated:



SYRIAN CITY TETRADRACHMA.

The tax to the Temple could, it is true, be paid only in

Jewish money, a half shekel of Israel for every male, but as there were many kinds of coin brought by the Jews from foreign countries, there were persons who, as "money changers," Matt. xxi, 12; Mark xi, 15; John ii, 15, sat in the porches of the Temple, and for an obolus or so of commission on each piece, sold half shekels of Israel for foreign coin. To those money changers, Peter must, according to every probability of the narrative, have had recourse, and it would seem that their business thus far, could have been managed without offense to the august dignity of the place where it was conducted. One would hardly suppose Jesus would have availed himself of their services and afterwards have driven them forth from their places with blows and indignity, as he is said to have done. (Mark xi, 15). It may have been that the money changers abused the privilege granted them for the accommodation of the pilgrims, and made the porches of the Temple a place of general exchange, brokerage and barter, usury and fraud—"a den of thieves," trebly infamous on account of the place they disgraced, and well deserving the castigation and expulsion described.

The "Mite," two of which the widow is said to have cast into the treasury, Mark xii, 42; John ii, 14, 15, was derived from the Greek Lepton, one-seventh of the Chalchus, according to the Attic standard, and originally the smallest Greek copper coin. The Lepton, supposed to have formed part of the Greek Imperial coinage, was represented in the Jewish currency by a series of small copper coins, presumably of Alexander Jannæus, though the exact date of their issue is uncertain. There were other small copper coins of semi-barbarous workmanship, considered as belonging to a later time, which may have passed as of the same denomination. The weight of these *lepta*, or mites, was from 15 to 20 grains, according to specimens, 18 grains being the most common amount of copper in a piece. These coins were common in Judea B. C. 69 to B. C. 40, but at the time of the Evangelists are said to have nearly gone out of circulation.

The Greek Imperial, or Græco-Roman coins, and the money struck at Rome, circulated together in Palestine, in the time of Augustus and that of Tiberius, emperor of Rome, A. D. 14 to A. D. 37. The lepton and the quadrans are both mentioned in the Greek version of the New Testament, Mark xii, 42, but commentators and critics disagree as to the proper translation of the text. The term "farthing" is merely a transcription of the Latin *quadrans*, and some have it that Mark thus made the quadrans equal to *two* lepta. Enthymius Zigabenus, an ancient commentator, concluded the *lepta* equaled the *quadrans*, in which theory the numismatist, Cavedoni, concurs; but Frederic W. Madden, M. R. G. L. of the British Museum, said to be the best authority on Hebrew coins, while waiving the question of translation in favor of Biblical critics, accepts the conclusion that "*two lepta* went to the *quadrans*" and that "two distinct coins are meant."

After the reign of Augustus, the denarius being one-eighth of an ounce, or less, the quadrans may be estimated as worth one-quarter of a cent, United States currency, or making the calculation according to the ancient ratio of metals, .2376-220 of a cent. Then, if *two lepta* went to the *quadrans*, the value of the "widow's mite" would have been about the eighth of a cent, or, .1188110 of the same—a very small donation indeed, in comparison with the rich offerings of the proud, and, after all, graceless and, spiritually considered, illiberal Pharisees.

The "penny" mentioned in the New Testament (king James' version), was the Roman denarius. Under the empire, the type of the denarius on the obverse, was the head and title of the reigning Cæsar. It is written, Matt. xxii, 19-21, that when the Pharisees sent a penny unto Jesus to tempt him, they were met by the question: "Whose is this image and superscription?" and they say unto him, Cæsar's. Then saith he unto them, "Render unto Cæsar the things which are Cæsars, and unto God the things which are God's." The Cæsar Augustus of the time this is recorded as having taken place, was Tiberius, and the denarius of Tiberius here illustrated, is

supposed by Biblical critics to have been the coin and type actually presented to Jesus.



ROMAN DENARIUS OF TIBERIUS.

The denarius was the poll tax demanded of each man of the Jews, aside from the two Attic drachmæ they were compelled to pay to the Temple of Jupiter at Rome, just as they voluntarily paid the half shekel, of the same value, to their own Temple at Jerusalem. The object of the Pharisees is represented to have been to induce Jesus to commit himself, in opposition to the payment of taxes to the Romans, for thus they could have secured his death for inciting to insurrection. The answer said to have been given, could have given them no ground for such a complaint against him, yet it is recorded that before Pilate, Luke xxiii, 2, "forbidding to give tribute to Cæsar," was one of the grave offenses charged against Jesus.

§ The Romans introduced their money into Britain when they made the conquest of that country, a work which commenced under Cæsar Augustus, B. C. 55, was not completed even in England and Wales, until more than a century after, or at about A. D. 33. Constantine, emperor of Rome from B. C. 306, or B. C. 308 to B. C. 337, is supposed to have had a mint in London. The Romans, who had never been able to subjugate and hold that part of Britain north of a line from the frith of Clyde to the frith of Forth, abandoned the country before the middle of the fifth century of the Christian era, when the Britons became independent and made a bold stand, through the help of the Saxons, against the invasions of the Scots, the country meantime reverting to heathenism for a period.

The Roman currency continued to circulate for a time after

the country had been abandoned to the Britons. The first independent English coinage, was not derived from Roman types; it consisted of two small coins, the *skeatta* of silver, and the *styca* of copper, both belonging, as is supposed, only and entirely to the Saxon kingdom of Northumbria. The art of these Saxon coins, is of the most primitive kind; the types are birds, rude profiles and several unintelligible symbols. They bear no inscriptions or anything of the nature of a legend.

The earliest coins of the other six kingdoms of the English heptarchy, were silver pennies, which were at first struck 240 to the pound, or were intended so to be made. Afterwards, half-pennies were occasionally issued, and as the *skeattæ* and *styce* in time passed out of circulation, the penny and half-penny, became the sole currency of England, and so remained down to the time of the reign of Edward III, A. D. 1327-1377. These pennies of the heptarchy, bore the name of the king or of the mint-master, on the earliest types; after the introduction of Christianity, the cross was sometimes used as a type; in later times, the obverse bore the rudely executed device of the head of the king or queen. The pennies of the Saxon and Danish kings of all England, from Egbert I, about A. D. 827, are somewhat similar in character. The earlier coins of king Alfred, A. D. 871-901, bear as the device of the obverse a grotesque portrait.



PENNY OF KING ALFRED OF ENGLAND.

Obverse: Grotesque portrait, very rudely executed. Legend: *Alfrd Rex*, "Alfred king."

Reverse: Monogram of the city of London.

In the later coinage of Alfred, a cross and circle occupies

the place of the head upon the obverse. Edward III, A. D. 1327-1377, issued silver pennies, half-pennies, and farthings, groats and half-groats, the coinage showing a great advance upon the work done under his predecessors. The reign of this king belongs to the middle ages, and some account of his coin, and that of other potentates of his time, will be given on succeeding pages, in connection with the description of the commercially circulating coins of the several countries once included in their respective dominions.

BRITISH COLONIAL COINAGES.

BERMUDA OR SUMMER ISLANDS.

It is to the Bermuda islands, we are indebted for the earliest coinage intended for America. History gives but one notice of this coinage, that in a history of Virginia, New England and the "Summer Isles," by Capt. John Smith, of Virginia, published in London in 1624. Smith considers the islands to have been named from a Spanish ship, the Bermudas, which was wrecked upon them. This ship was carrying, as is reported, a quantity of hogs to the Spanish West Indian colonies. What became of the Spaniards is uncertain, but the "black hogges" swam ashore, and running wild, became, by breeding, very numerous. The first Englishman in Bermuda, whose name is mentioned, was Henry May, wrecked there December 17th, 1592.

In the summer of 1609, Sir Thomas Gates and a company of one hundred and fifty persons, part of an expedition to Virginia, were wrecked on the Bermudas, where they subsisted for nine months on the wrecked stores of their ship, wild fruits, and the over-abundant flesh of some five hundred black wild hogs. Two cedar vessels were constructed, and Sir Thomas Gates and his company, reached Virginia in May, 1610; thence, Sir George Summers returned to Bermuda for provisions, where Sir George died, as is reported, from an excessive eating of fresh pork. In 1612, during the early days

of July, Master Richard More and sixty colonists of the Virginia Company, landed on the Bermudas, where they settled on "Smith's Island."

In May, 1616, Captain John Smith appointed Master Daniel Tucker Governor of Bermuda. This Governor enforced labor, and under him, Smith states, the colonists had "beside meat, drink and clothes, a certaine kinde of brasse money, with a hogge on one side, in memory of the abundance of hogges was found at their first landing." Gov. Tucker ruled about two years, and in 1624, Smith published an account of the "brasse" (copper) "money" as something which had been, in the past.

Though coined in Europe for Virginia, or the Bermudas, somewhere about 1615, the exact time, place and circumstances of the production of the "Hogge money" are impossible to discover. It had, it would seem, a limited circulation, both as to time and quantity, and the pieces which now represent the issue, are almost unique.

But two denominations are known—the shilling and six-pence.



BERMUDA SHILLING—("HOGGE-PENNY").

Obverse: Device—A hog, standing, facing left, above which are displayed the Roman numerals "XII," the whole surrounded by a beaded circle. Legend: SOMMER ★ ISLANDS ★ around which is a beaded circle like that enclosing the device.

Reverse: Device—A full-rigged ship under sail to the left,

a flag flying from each of her four masts—enclosed in a beaded circle, the beads larger than on the obverse. Copper; size, 19; weight, 177 grains.

But two of these pieces are known, and in 1875, belonged respectively to William H. Appleton and Sylvester S. Crosby, of Boston.



BERMUDA SIXPENCE.

The design of this piece is similar to that of the shillings, but has the numerals "VI" above the hog. Legend: SOMMER ✠ ILA NDS ✠

The only known specimen of this sixpence, was dug up in a garden in Bermuda, twenty-five years ago, and in 1875, was owned by Benjamin Betts, of Brooklyn, N. Y.

As the first coin struck for American circulation, these pieces are remarkable and excite peculiar interest.

VIRGINIA COMPANY.

Although in possession, by virtue of royal grant, of the right of coinage, and much inconvenienced for the want of a medium of exchange, the Virginia Company, aside from the Bermuda shillings and sixpences, made no attempt to create money for nearly forty years. The people of the colony made their bargains with tobacco as a financial basis, a pound of that article being regarded as the unit of valuation. By reason of variation in the value of the tobacco, and finally of overproduction of that article, great fluctuations in property took place, and much trouble was caused in many directions. At one time orders were issued for the destruction of a large

amount of tobacco, "all of the bad and part of the good," with a view to enhance the value of the currency.

With these troubles and disorders in view, the Governor, Council and Burgesses of the Grand Assembly of Virginia, at a session begun at James City, November 20th, 1645, passed an act to provide a more convenient medium of exchange. The first paragraph of this "Act XX," recites the state of affairs inducing the enactment, "to prevent the further miseries," fixes the value of foreign coins, declares for a local copper coinage, and prohibits, under penalty of confiscation of goods, the "trading for tob'o," the property confiscated to be divided between the informer and the state.

The paragraph in relation to the coinage reads as follows:

"The quoine to be erected after this manner, 10000lb. of copper to be bought by the publique at the rate of 18d per lb. which amounts to £750 sterl. which to be paid in tob'o. at the rate of 1d. 1-2 per lb. 120000 of tob'o. which being collected per pole accounting 5000 persons in this collony it comes to 24 lb. of tob'o per pole evry pound of copper to make 20s. and to allow for the mintage 12d. per pound soe there will remaine £9.500 sterl. The mintage allowed and deducted. The stocke to be Equallie divided amongst the adventurers to be quoined in two pences, three pences, sixe pences and nine pences. And if it shall happen at any time hereafter that the aforesaid quoine be called in and become not currant, Yet the republicke shall make good the quantity of so much (vizt.) £10000 to be levied per pole, And that it may be provided that this quoine may not be counterfeited and brought in, Besides the inflicting of capitall punishment vpon these who shall be found delinquents therein, That vppon every peece of coyne there be two rings, The one for the motto, The other to receive a new impression which shall be stamped yearly with some new ffigure, by one appointed for that purpose in each county, And that the hon'ble Sir William Berkeley, Knt. Gov'r, shall have the disposall and placing of such and soe manie officers as shall be necessariye required for performing

and finishing the aforesaid service, Onely Capt. John Upton is hereby confirmed Mint Master Generall: we reposing much confidence in his care, ability and trust for the performace of the said office."

There is nothing to prove that the part of the above law which provides for a coinage, was ever carried into effect. No specimens of the coin described are mentioned in history; none exist in the cabinets of the numismatists, or are known by them. Virginian legislations for a full generation after 1645, are directed to the relief of just such "miseries" as the want of a local curreney had entailed, the whole being aggravated by the reduction of tobacco to a mere commodity in law—and finally, Thomas Jefferson, writing in 1782, declared (works, vol. I, p. 136), that, "In Virginia coppers have never been in use." As to the coins commonly designated "Virginia Half Pennies," they are of uncertain origin, and though showing a considerable number of dies, are doubtless an unauthorized issue—mere tokens, and could never have been in any extensive circulation in the territory from which their name has been given them.

COLONIAL SILVER COINAGE OF MASSACHUSETTS.

The want of a proper and sufficient curreney, was an evil which afflicted all the American colonies during the early period of their existence. Massachusetts, one of the oldest and most enterprising of these incipient states, most sharply realized the want of a supply of money, and was the first to make an effective movement in establishing a local and original curreney.

The primitive legislation of Massachusetts in this direction, was in the form of orders emanating from the General Court of the Colony, fixing the value of commodities made current by custom or by law. In 1627, the Dutch settlers at "Manhadoes," now the city of New York, introduced in Massachusetts the use of the Indian "Sewan," of Suckauhoek, Wampum or Wampumpeage, as a current article, which was

adopted and subsequently recognized by legislation. But the first enactment upon the subject of small currency was made March 4th, 1634-35, as follows, in part: "It is ordered that hereafter farthings shall not passe for currant pay."

"It is likewise ordered, that muskett bullets of a full boare shall passe currantly for a farthing apeece, provided that noe man be compelled to take above XIIId att a tyme in them."

In a community exposed to war at any moment's notice, this order may be considered to have been as much a military precaution, as a financial provision—more of an arrangement for the distribution of ammunition, than a discrimination against the little "brass" or copper English coin, of itself a far better currency than heavy balls of lead.

The value of the Sewan, Suckauhock, or Wampum, was first fixed by order of the General Court, November 15th, 1637; according to the record, "It was ordered that Wampampege should pass at 6 a penny for any sune vnder 12d.:"

In 1639, there was a failure of the crops, and in consequence the currency of "Corn," as the cereals in general were called, became very scarce, and hence both it and the Indian currency, were enhanced in value. Therefore, on October 4th, 1640, it was ordered "that white Wampampege shall passe at 4 a penny and blewe at 2 a penny, and not above 12d. at a time except the receiver desire more.

On June 2nd, 1641, "It is ordered that Wampampege shall pass currant at 6 a penny for any sune under 10l. for debts hereafter to be made." On September 27th, 1642, "It was ordered for the payment of the rate," that farm produce should be received at certain fixed prices, and "in these at these prices, or in beaver money, or Wampam pay is to bee made." On October 17th, 1643, an order was passed, continuing the legal-tender quality of the "Wampam," but modifying the former act as to amount. The record is mutilated at this point.

In 1648, the crops were plentiful, and the Indian currency depreciated. On October 27th, 1648, "It is voted for tryall,

until the next Co'te, that all pasable or payable peage henceforth shalbe intire without breaches both the white, & black, without deforming spots suitably strung, in eight knoune peels the penny 3d. 12d 5s in white the 2d 6d 2½s & 10s in black." May 4th, 1649, it was "Voted that peage shall still Remyayne passable from man to man according to the lawe in force," yet on May 16th, 1649, it was "Ordered that it shall not be in the liberty of any 'Toune or pson to pay peage to the Country rate, nor shall the Treasurer accept thereof from time to time."

On October 26th, 1650, it was "Ordered that Wampam peage fifiteene dajes after this present sessions of Courte shall passe Currant in pajment of debts to the vallew of forty shillings the white, at eight a penny; and the black at fower so as they be entire without breaches or deforming spotts except in pajment of countrje rates to the Treasurer which no 'Towne nor person may doe nor he accept thereof from time to time."

On May 22nd, 1661, the law authorizing the use of Wampum as a legal tender was repealed. It however continued to circulate until the American Revolution and is still an article of Indian manufacture and use for ornament, as was long ago the aboriginal custom. A pound of the best black Indian beads (Suckauhook) was worth at the best rates ten per cent. more than the same weight of silver coin.

The fisheries of Massachusetts were extensive and profitable from a very early date; the colony also had a considerable trade to the West Indies and elsewhere. In the West Indies and the Spanish Main the buccaners and pirates were at this time numerous, and large amounts of bullion and coin captured by them from the Spaniards found its way, through the channels of trade, into the ports of Massachusetts. Thus the wealth of the people increased and enterprise was encouraged; considerable sums of various foreign coinages were put in circulation, but the variety of coins, some worn, clipped, or otherwise made light, some degraded, and very many counterfeit, was a source of boundless annoyance, and exceeding loss and hinderance to business.

On September 27th, 1642, the General Court passed an order fixing the value of certain foreign coins, and subsequently, probably late in 1651, or in 1652, a circular was issued, ordering that foreign pieces should have stamped upon them the value fixed by an Inspector of Currency. This law was not well received by the public, and remained inoperative. Under the circumstances, other measures of relief became an imperative necessity, and the magistrates and delegates, with other interested and competent persons, were compelled to take into practical consideration the project of establishing a Colonial Mint.

On the 26th or 27th of May, 1652, the General Court passed an act, establishing at Boston, in Massachusetts, the first mint ever put in operation on the territory now the United States. John Hull, of Boston, was made "master of the said mint" by this act. The standard of coinage was to be "the just alloy of new sterling English money." The pieces were to be "for forme & flatt & square," of the denominations of "12d: 6d: & 3d peeces," on one side of which was to be stamped "N. E." and on the other "the figure XIIId, VI, & III" according to the value of the piece, together with "a privy marke" to be appointed every three months, and known only to the governor and the sworn officers of the mint. The coinage was ordered to be made by weight, of three pence in a shilling "lesser vallew" than the English coin then in circulation, "viz: euery shilling weighing the three penny troj weight & lesser peeces proportionably." As the British shilling of that time weighed 93 grains, the terms of the law indicate a miscalculation. By the original draft of the law the mint-master was allowed "to take one shilling and sixpence out of evry twenty shillings which he shall stampe as aforesaid." This allowance the deputies reduced to one shilling from the same amount.

The mint was ordered to accept for assay refining and coinage "bulljon plate or Spanish Cojue" and the depositor of the same, was allowed to be present "to see the same melted Refined & Allajed and to receive a receipt for the weight of good

silver allayed as afforesaid." A responsible Committee of four men was appointed to carry this law into effect, who, on June 20th, 1652, issued an order for the construction of a "house" for the mint "sixteene ffoote square, tenn foote high." The allowance for coinage payable to John Hull, which had been reduced to one shilling in twenty, was raised to fifteen pence for the same amount of coinage, and an allowance of a penny in every ounce made for waste in melting metals. This practically restored the allowance made Hull to the original terms of one shilling and sixpence in twenty.

The Mint-house was ordered to be erected on Hull's land, his residence having been just south of the entrance to the present Pembroke Square in Boston. On June 11, 1652, the Committee prepared a form of oath, binding John Hull and Robert Saunderson, as equal officers of the mint, to the faithful performance of their general duties as such, and in particuar, that they should, by the help of God, coin every shilling "of three penny troj weight, and all other peeces proportionably, according to the order of Courte so neere as yow Cann." Under date of June 11th, 1652, the Committee also took upon themselves to modify the order of the Court that the coin should be "flatt and square," directing that the pieces should be made of a "Round forme"; they also authorized, as far as they could, the issue of Silver Two penny pieces. The doings of this Committee were approved by the General Court, on October 28th, 1652, and the operations of the mint were continued.



NEW ENGLAND SHILLING.

The N. E. shilling is a plain, thin planchet of silver. ham-

mered or rolled to the requisite thickness, an inch or more in diameter, clipped to an irregular "Round forme" and trimmed to size and weight. Obverse: A depressed field, bounded at the top by the curved border of the piece; the other sides are straight lines, about half an inch long, forming right-angled corners. Legend: N E in relief; the diagonal line of N curves under and beyond E, while the top of the right limb of N bends forward, connects with E and forms the upper part of that letter. Reverse: A depressed field, as on the obverse, but half-size and square, though struck near the border of the planchet. Legend: The Roman numerals XII, in relief. Having been made simply with a punch, the impressions described were not struck opposite each other, but at the top and bottom of each other, upon their respective sides, though frequently struck out of line in relation to each other and the center of the piece. Size, 16 to 19; weight, 72 grains; fineness, 925; value, 18½ cents.



NEW ENGLAND SIXPENCE.

The N. E. Sixpence and Threepence resembled the Shilling of the same coinage. Obverse: A small depressed field of irregular outline, conforming to the shape of the letters of the device. Legend: N E as on the shilling. Reverse: Field as on the shilling, but according to size of the planchet. Legend: The Roman numerals VII or III, according to the value. Size: sixpence, 12 to 14; threepence, about the same diameter. Weight, sixpence 36 grains; threepence, 48 grains; fineness, 925; value, 9½ cents and 4 9-16 cents respectively.

All the N. E. coinage above described is extremely scarce; the general character is as stated, but owing to the simple nature of the dies or punches used, and the entirely primitive

methods of mintage employed, as well as the rarity of specimens, no perfect account of the types and varieties can be given. The dies were not numerous, and but six or eight varieties are noted. But two genuine N. E. Threepence are known, one of which belongs to Yale College.

The plain and simple character of the N. E. currency, made it liable to mutilation, and immediately after the issue of the same, much of it was made light by dishonest practices. For the prevention of such frauds, the General Court, under date of October 19th, 1652, passed an order that, "henceforth all peices of mony Cojned as afore sajd shall have a double Ring on either side, with this inscription—Massachusetts, and a tree in the Center on the one side, according to this draught heere in the margent." A rude sketch of the proposed coin was given and the general directions of the act were carried into effect, but none of the coins subsequently struck under it, bear any inscription of the word Massachusetts spelt as provided in this law. The law designates "a tree" as the device of this coinage, and Willow, Oak, and Pine Tree coins, were minted in the order in which they are here mentioned.

THE WILLOW TREE COINS.



MASSACHUSETTS WILLOW TREE SHILLING.

Shillings: Three Types. Seven Varieties.

Obverse: An exceedingly rude representation of a willow tree—a mere mass of irregular curves and lines on some types; this device is encircled by a grained ring. Legend: "MASSACHUSETTS" or "MASSACHUSETTS IN," in varied orthography and abbreviation. Border: Another grained ring. Reverse:

1652 XII in two lines, in the field encircled by a grained ring. Legend: NEW ENGLAND, EXERGUE, AN DOM, in varied orthography. Size, $16\frac{1}{2}$ to 17; weight, 72 grains; fineness, $916\frac{2}{3}$; value $18\frac{1}{4}$ cents. Edge plain trimmed to an irregular circle and to size and weight.



MASSACHUSETTS WILLOW TREE SIXPENCE.

Sixpence: One Type and One Variety.

Similar in general to the Shilling of the same coinage except VI instead of XII on the field of the reverse. Size, 7 to $7\frac{1}{2}$; weight, 36 grains; fineness, $916\frac{2}{3}$; value, $9\frac{1}{4}$ cents.

Owing to the bungling manner in which the Willow Tree coins were struck, the inscriptions of "MASSACHUSETTS" or "NEW ENGLAND," which were attempted upon them often, appear as a mere jumble of letters. This coinage was continued but a short time and was followed by an improved mintage.

THE OAK TREE COINS.



MASSACHUSETTS OAK TREE SHILLING.

Shillings: Nine Types. Also, two slight variations of Type. Nine Varieties, and one minor Variety.

Obverse: A rude representation of an oak tree. Otherwise, as Willow Tree Shillings.

Reverse: Similar to Willow Tree Shilling. Size, 16 to 18; weight, 72 grains; fineness, $916\frac{2}{3}$; value, $18\frac{1}{4}$ cents.

Sixpence: Six Types. Six Varieties.

Obverse: Similar in general to the Shilling.

Reverse: Similar to the Shilling except VI in the field instead of XII. Size, 12 to 14; weight, 36 grains; fineness, $916\frac{2}{3}$; value, $9\frac{1}{8}$ cents.



MASSACHUSETTS OAK TREE THREEPENCE.

Threepence: Six Types. Six Varieties.

Obverse: Similar in general to the Shilling.

Reverse: Similar in general to the Shilling except III in the field instead of XII. Size, 9 to 11; weight, 18 grains; fineness, $916\frac{2}{3}$; value, 4 9-16 cents.

Twopence: One Type. One Variety. Three minor Varieties.

Obverse: Similar in general to the Shilling.

Reverse: Similar in general to the Shilling except 1662 in the field instead of 1652. Size, $4\frac{1}{2}$ to $5\frac{1}{2}$; weight, 12 grains; fineness, $916\frac{2}{3}$; value, 3 1-24 cents.

The Oak Tree Coinage was minted for about ten years, and in volume formed about one-third of all the silver currency emitted by Massachusetts colony. The whole of the Massachusetts colonial currency except the Oak Tree Twopence, was stamped with the figures 1652, the date of the establishment of the mint. This Twopence is supposed to have been struck near the last of the Oak Tree Coinage and dated with the year of its issue.

Charles II having been restored to the throne of Great Britain, became very much displeased with the people of New England. The agents of the English Court inflamed the mind of the king by their invidious reports of the disloyalty of the

colonists. Among other things, the spies accused the magistrates of Massachusetts, of having practically asserted the independence of the colony, and encroached upon the royal prerogative, by setting up a mint and creating a coinage of their own, not having the royal permission to make money, which had been conceded by charter to Virginia. The king was informed, moreover, that all this coinage bore but one date, that of 1652, stamped upon it in honor of the sovereignty of Massachusetts, assumed to have been established the year in which the mint was founded. These reports to the king were forwarded by one Edward Randolph, and were published in Boston, Massachusetts, in 1769, in a work entitled "A Collection of Original Papers relative to the history of the Colony of Massachusetts Bay." The reports of Randolph, gave occasion for an incident the following narrative of which, though once declared "a ridiculous story," proves to be historical.

In 1662, Sir Thomas Temple, who, during Cromwell's administration, resided several years in New England, was in England, to which he returned after the restoration of monarchy. The king sent for Sir Thomas, and conversed with him regarding affairs in the colonies. During the interview, his Majesty manifested great displeasure with his New England subjects, accusing them, among other things, of having invaded the royal prerogative by an unauthorized coinage. Sir Thomas, who was a good friend of the colonists, sought to excuse them, on account of their ignorance of law, as they had only made a little money they considered they had a right to create, for their own necessary use. He took a number of Oak Tree Shillings from his pocket, and exhibited them to the king, who inquired the meaning of the device. Sir Thomas stated the authorities of Massachusetts, not presuming to use the royal name or effigy upon their coins, had adopted the oak as an emblem of their loyalty, inasmuch as a tree of that kind had providentially saved the life of their king. This put his Majesty in great good humor; he called the Massachusetts people "a parcel of honest dogs," and after-

wards listened more patiently to what their apologist had to say in their favor.

THE PINE TREE COINAGE.



MASSACHUSETTS PINE TREE SHILLING.

In 1662, or thereabouts, a new variety of Massachusetts Colonial Silver Coin was produced, consisting of Shillings, Sixpences, Threepences and Twopences, bearing the device of a Pine tree and the common date 1652. The law authorizing the Coinage of this whole currency designated "a tree," as the device, and ordered a privy mark to be struck upon the coin, to be changed every three months. The kind of tree to be used for a device, being left to the option of the Mintmaster, the varieties, noted, as well as many of the changes made in the orthography and punctuation of the legends and inscriptions, or the other features of the coin, are due perhaps to the attempts made to conform to the requirement of a privy mark, to be effected by alteration, arrangement and rearrangement of details, or the addition of minor points. Thus the Pine Tree Coinage, originally called also the Boston or Bay Shilling, Sixpence, Threepence or Twopence, may have been introduced, and thus the numerous types and varieties therein may in part have been rendered necessary.

The Pine Tree Coinage, which was more elaborate in design than either of those which had preceded it, and an improvement upon them both, was minted to a very large amount for about twenty-two years. Had its issue been continuous and the law in relation to the privy mark strictly

complied with, there would have been three and a half times the variation in the types and varieties of the coinage now noted. Doubtless this provision of the law was often disregarded, in view of convenience and economy in the practical working of the mint. A like regard for the saving of labor and expense, is manifest in the manner the dies of the Massachusetts Colonial Mint were used. Primarily mere punches, used upon the rude Willow Tree Coinage, these dies gradually improved in the Oak Tree Coinage, and were made still better in the later years. However, they all were quite thoroughly used, and whatever the defect, seem never to have been thrown aside so long as alteration or repair could anyway keep them in service. This and some other peculiarities about the mint and its issues, may have been due the fact that from 1652 to 1682, or 1684, the mint, instead of being conducted directly at the cost of the state, was carried on upon the basis of a percentage, of about one in twenty, allowed the Mint-masters, John Hull and Robert Saunderson. Of course, the interest of these officers was to do the largest possible amount of coinage, at the least possible expense, and hence they must have been opposed to all costly innovations and troublesome improvements, and they resisted with great firmness and pertinacity, the frequent attempts of the Committees of the General Court to secure some modification of the contract to the advantage of the commonwealth. Tenacious of their price, these men were true to their oath, and even the officers of the British Mint testified to the uniform standard purity of the Massachusetts Colonial Coinage.

The Colonial Coins which were ordered by the General Court to be twopence in a shilling, or one-sixth less value by weight than the British Shilling, were found at the British Mint to be twopence three farthings in the shilling, or $22\frac{1}{2}$ per cent. light, a not excessive variation perhaps, considering the circumstances. This coinage was, however, rated in general at twenty five per cent. less value, according to its denomination, than the British standard money. To prevent the ex-

portation of coin, and augment the volume of the currency, provision was made by law for stamping all foreign coin, of Spain, Mexico, etc., not the product of the British Mint, with the letters NE and the true weight and fineness of the piece, to pass current for its proportionate value, with the Colonial money. The General Court took action upon this matter at different times, and yet, though attempted in different ways, there is nothing to show foreign coin was stamped in the manner proposed.

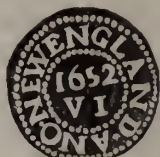


MASSACHUSETTS PINE TREE SHILLING.

John Hull and Robert Saunderson were equal officers in the "gainful business" of the mint. How much they coined in all for the colony, or the exact amount of their profits under the contract they carried out, cannot be determined. The coinage was certainly large in amount, and they, as was well understood, became men of wealth and substance. When the daughter of John Hull was married to Judge Samuel Sewall, the founder of the town of Newbury, Mass., the prosperous Mint-master gave the bride a dowery of her weight in silver. At the conclusion of the wedding ceremony, a large steel-yard was brought into the room, and the blushing bride placed upon one of the platforms of the same, while into a tub upon the other side, were poured the Pine Tree Shillings, until the steel-yard balanced.

John Hull died October 1st, 1683, about which time the operations of the mint were discontinued. After varied unsuccessful efforts to further establish a currency, and a free coinage of their own, the authorities of Massachusetts turned their attention to the prevention of counterfeiting, debasing, and

mutilating coin, and the regulation of the current value of various moneys. On June 18th, 1704, queen Anne, of England, issued a royal proclamation, reducing to one uniform rate of valuation the coins circulating in the British Colonies in America.



MASSACHUSETTS PINE TREE SIXPENCE.

The general description of the Pine Tree Coinage of various denominations, corresponds with that of the Willow and Oak Tree Coinages, except that the mintage is improved, and a pine tree substituted on the obverse as the device.

Shilling: Twenty-five Types. Twenty-five Varieties, and other pieces with minor differences.

Sixpences: Two Types. One Variety.

Threepences: Two Types. Two varieties, and other pieces with minor differences.

These coins were struck for twenty years or more, and constituted about two-thirds of the Silver Coinage issued from the Mint of Massachusetts Colony. They all bore the date 1652. The earlier Pine Tree Shillings, were of size 18, or one inch and a quarter in diameter, from which they decreased to a diameter of one inch, size 16, keeping the original weight, however, and of course increasing in thickness; this, it has been concluded, was to secure the safety and economy of smaller dies, which are more durable and less liable to breakage. The weight, fineness, and value, of the Pine Tree Coinage, was in general similar to that which preceded it. Samples of the Pine Tree Coinage may easily be secured, but some of the types and varieties are rare, very rare, exceedingly rare, or even unique, as the case may be. They have long been out of circulation as money, and are found only in the cabinets of

the numismatologists. As part of the original Silver Coinage by English-speaking people upon the American continent, they are worthy of all the attention given them.

Massachusetts Shillings have been discovered, bearing the date of 1650, but for manifest reasons, these pieces are considered modern counterfeits. There are also pieces called Good Samaritan Shillings, of the same general type and variety as the Pine Tree Shilling, but bearing upon the obverse a well-executed device, illustrating the parable of the Good Samaritan; but two or three specimens of this coin have been known, two of which are in existence and of unique varieties; they are supposed to have been pattern pieces, struck at the origin of the Mint of Massachusetts Colony, when, as appears by one of the pieces, the die of one variety was broken. This last-named piece was sometime since in the possession of the careful collector and author, Sylvester S. Crosby, of Boston, Mass. There are two old pieces in existence denominated pennies, and assumed to be of the Oak or Pine Tree Coinage. From their size and appearance, they are supposed to have been struck as Twopences of the Oak Tree Coinage, which have already been described.

There can be no authority found among the Colonial enactments of Massachusetts for the issue of a silver penny, yet such a piece was described and illustrated by Folkes, in 1763.



MASSACHUSETTS PINE TREE PENNY. (?)

The device of the obverse of this supposed coin somewhat resembles the "pine tree" of Massachusetts coins, and the date of the reverse, 1652, coincides, but if such pieces were struck, none have been preserved until the present generation.

In 1690, the colony of Massachusetts first issued paper money, for the purpose of paying off the troops employed in an expedition against Canada, fitted out with hope of a booty they had failed to obtain.

SILVER COINAGE FOR MARYLAND.

On March 27th, 1634, the settlement of Maryland began at the Indian town of Yoacomoco, twelve miles from the Potomac, on the river now called St. Marys. The Colonial Charter which had been granted to Lord Baltimore, June 20th, 1632, by Charles I of England, was exceedingly liberal, securing popular liberty, and in Yoacomoco, or the town of St. Marys, religious freedom "for all Christian sects" first became historical. From their first settlement the colonists endeavored to remedy the distress caused by the scarcity of money, by using tobacco and furs at a fixed valuation as a medium of exchange, as had been the custom in Virginia. The same evils which had afflicted Virginia, followed in due time, as the production of tobacco increased, or the cost of furs fluctuated. Soldiers were at one time paid in his Lordship's cattle, the taxes were paid in corn, powder and shot were current as cash, and were the only tender accepted for ship duties. At the suggestion of some of the principal citizens of the colony, Lord Baltimore took into consideration the furnishing of Maryland with a proper currency.

Although the right of coinage was not expressly conceded by the charter of Maryland, the terms of that concession were generally very broad, and the Proprietor, considering the allowance made to Virginia, concluded that the powers conveyed to him justified the creation of a currency, and as Cecil was ever active in all that could promote the good of his colonists, he had dies prepared in London and sample coins struck there, from which, on October 12th, 1659, were forwarded to the authorities of Maryland, with letters of advice to them, and to his brother Philip Calvert, Esq., then the Colonial Secretary of State in Maryland. Though approving the use of the coinage he thus created, the second Lord Baltimore was particular to direct, "Yet it must not be imposed upon the people but by a Lawe there made by their consents in a Generall Assembly." The adoption of this currency was postponed by the disorders in Maryland which followed the death of Crom-

well, when Governor Fendall and his party, attempted to revolutionize the government of the colony.

Philip Calvert became Governor of Maryland, November, 1660, and the following April, a "General Assembly" was convened at St. Johns. The governor favored the wishes and designs of his brother, Lord Baltimore, the Proprietary, and the Assembly, on May 1st, 1661, passed an act for setting up a mint in the Province of Maryland. This act was in part a petition to Lord Baltimore, that he would "take order for ye setting up of a mint," and the further provisions of the law were made, as stated, under the authority of the Proprietor, with the consent of the General Assembly. It was ordered that the coin should "be of as good silver as the currant coyn of English sterling money," every shilling to be above ninepence in value, by weight, of such silver, with other pieces in proportion. The penalty of death and the confiscation of all estate in the colony to Lord Baltimore, was provided for any one who should clip, seale, counterfeit, wash, or in any way diminish the coinage; and further, the Lord Proprietary of the province, was to accept said money, in payment of all dues accruing to him as such.

The record of these proceedings was forwarded to Lord Baltimore, and he prepared to send a sufficient amount of coin to supply the wants of the colonists. To set this currency in circulation at once, an act was passed by the General Assembly, on April 12th, 1662, which provided that "every Householder and Freeman in the Province, should take up Ten Shillings per. Poll of the Said Money, for evry Taxable under their Charge and Custody, and Pay for the same in good Casked Tobaceo, at 2d. per Pound, to be paid upon Tender of the Said Sums of Money, proportionably for evry such respective Family." There were about five thousand taxable persons in the colony, and according to this law, each of these was to exchange sixty pounds of tobacco, for ten shillings of the new currency, which, if all conformed to the law, would have relieved the colony of 300,000 pounds of tobacco, and

have set in circulation £2500 Maryland currency of the actual value of £1875 sterling. The new issue was a great convenience and doubtless quite popular, but many of the public dues were still payable in tobacco, which continued to be an article of exchange, especially current in large transactions. The amount of the new coinage in circulation at any time after its first introduction, or when that kind of money fell into disuse, is unknown.

There are reports that a mint was actually established in Maryland, but whether they were based upon anything more than an inference from the enactment authorizing the mint, and the subsequent coinage, is doubtful. The coinage was originally done in England, under the supervision of Lord Baltimore, whose apprehension for having "made and transported large sums of money," was ordered October 4th, 1659. As the Shilling contained but seventy-five per cent. of its nominal value in silver, and as there is no record of any other proceedings against him, or injunction upon his work, it may be supposed the Proprietary continued to make and transport large sums of money to Maryland, and to import large amounts of colonial tobacco in return. If the Maryland Mint had an actual existence in the colony, and was subsequently used, it is certain "it was never made much use of."

The Coinage of Lord Baltimore for his colony of Maryland, consisted of Shillings, Sixpences, Groats and Pennies, to be described as follows:



MARYLAND SHILLING.

Maryland Shilling. One Type. One Variety.

Obverse: A profile bust of Lord Baltimore, facing left

slightly draped. Legend: "CÆCILVS: DNS: TERRÆ-MARLE: &C. ✠" Mint-mark: A Cross patec or formee, as in the legend.

Reverse: An Escutcheon with the Baltimore arms—a lozenge shield, surmounted by a crown. To the left of this, the Roman numeral "X"; to the right "II," the shield dividing thus the figures denoting the value of the coin. Legend: "CRESCITE: ET: MVLTPLICAMINI." Border, milled; Edge, plain. Silver; size, 17; weight, 66 grains; fineness, 925; value, 16.73 cents.

The Maryland Sixpence. One Type. One Variety.

Obverse: A profile bust of Lord Baltimore, facing left, slightly draped, as on the Shilling. Legend: "CÆCILVS: DNS: TERRE-MARIÆ: &C. ✠" "

Reverse: Similar in general to that of the Shilling, except in size. Legend: "CRESCITE: ET: MVLTPLICAMINI" the period being omitted. The numerals VI are substituted instead of XII. Border, milled; Edge, plain. Silver; size, 14½; weight, 34 grains; fineness, 925; value, 8.618 cents.



MARYLAND GROAT.

The Maryland Groat. Two Types. Two Varieties.

No. 1. Obverse: Same in general as the Sixpence, except in size—large head.

No. 1. Reverse: Same in general as the Shilling, except in size—large shield. The numerals IV are substituted instead of XII.

No. 2. Obverse: Same in general as the Sixpence, except in size—small head.

No. 2. Reverse: Same in general as the Shilling, except in

size—small shield. The numerals IV are substituted instead of XII.

The Groat Obverse No. 2 and Reverse No. 2 is extremely rare. Border, milled; Edge, plain. Silver; size, 11; weight, 25 grains; fineness, 925; value, 6.3363 cents.



MARYLAND PENNY.

The Maryland Penny. One Type. One Variety. Unique. Obverse: Similar to that of the Sixpence.

Reverse: A Ducal Coronet, upon which are erected two masts, each bearing a flying pennant. Legend: DENARIUM: TERRE-MARLE ✚ Copper; size, 13.

The only specimen of this piece extant, was imported into America from England, at a cost of £75, and was sold for \$370 with the collection of J. J. Mickley, Esq., of Philadelphia.

The British Museum has impressions in copper of dies for the Maryland Shilling and Sixpence. There was also an impression of a die for the Shilling, in the collection of Dr. Clay, of Manchester, England. Of the varieties of these pieces we are not informed.

COINAGE FOR THE COLONY OF CANADA.

The French, who as early as 1504 enriched themselves by the fisheries of Newfoundland, drew a chart of the Gulf of St. Lawrence in 1506, explored the coast of North America in 1523 and 1524, and on July 12th, 1534, at a point near the lesser inlet of Gaspé Bay, set up a lofty cross bearing a shield with the lilies of France and an appropriate inscription, took possession of the country and began the colonization of Cana-

da, which they retained until, in 1763, that province was ceded to England. In order to facilitate commerce in Canada, Louis XIV, king of France, ordered, in 1670, the coinage of "a hundred thousand livres worth of Louis of 15 sous, and 5 sous, and Doubles of pure copper. These coins were of the same value in weight and fineness with those of France. On the silver Louis of 15 sous, and 5 sous, in place of *Sit nomen Domini benedictum*, there was *Gloriam regni tui dicent*, and on the Doubles, *Doubles de l'Amérique Francoise*." The silver Louis of fifteen and five sous of this Coinage, were described by Le Blanc, in his "Historic Treatise on the Coins of France," Paris, 1703, and said to be of the year 1670, and familiar. The Doubles or pieces of Two Deniers, on the contrary, were noted as unknown coins, of which a more exact description would be highly interesting.

While the record of the origin and character of these Coins for Canada has been well preserved, the currency itself has become, "except two or three specimens," quite extinct—at least in America. Diligent and careful collectors "have met with but one denomination of the silver pieces—that of five sous," and of these, but two specimens from slightly different dies. Of the genuine copper Double, no specimen is known. Sylvester S. Crosby, Esq., in his valuable work, "The Early Coins of America," Boston, 1875, describes a copy owned by M. Jules Marcou, of Cambridge, Mass. The French authority upon this coinage is Le Blanc's 'Traite Historique des Monnoyes de France,' published in Paris, 1703.

The Louis of five Sous. Two slightly different dies known.

Obverse: A bust of Louis XIV, facing right, laureated—above this a small figure of the sun. Legend: "LVD·XIII·D·G · F·R·E·T·N·A·V·R·E·L·X." (*Ludovicus XIII Dei Gratie Franciæ et Navarre King*), (*Louis XIII, by the Grace of God, of France and Navarre King*).

Reverse: French coat-of-arms surmounted by a crown. Beneath the shield the Paris Mint-mark A. Legend: "GLORIAM·REGNI·V·TRI·DICENT·1670·5" and a character of unknown

significance. Borders, milled; Edge, plain. Silver; size, 13; weight, 35 grains.

The Double of Two Deniers. Unknown.

Obverse: Device, thus—"16 L 70." Above is a crown, and beneath, the Mint-mark of Paris "A." Legend: "LVDO·VICVS·XIII·D·GR·FRAN·ET·NAV·REX"

Reverse: Inscription in four lines, "DE·LA·MÉRIQUE·FRANCOISE" Under the legend the Mint-mark of Paris "A" with *fluer de lis* at each side and one below it. Border, milled. Copper; size, 14½.

ST. PATRICK'S OR MARK NEWBY HALF-PENCE.

On November 19th, 1681, a party of emigrants from Dublin, Ireland, consisting in part of one Mark Newby and his family, arrived in the colony of New Jersey. This Newby brought with him a quantity of coins, which were called St. Patrick's Half-pence; and as small money was exceedingly scarce at the time, the authorities of New Jersey, on May 8th, 1682, passed an act "for the more convenient Payment of small Sums," by which it was provided "That Mark Newbie's half-pence, called Patricks half-pence, shall, from and after the said Eighteenth Instant, pass for half-pence current pay of this Province, provided he the said Mark, his Executors and Administrators, shall and will change the said half-pence for pay Equivalent, upon demand: and provided also, that no Person or Persons be hereby obliged to take more than five Shillings in one Payment."

The date and origin of these St. Patrick's or "Mark Newbie's" Half-pence is unknown, and has been the cause of much discussion without agreement. Whether they were coined "by the Papists when they rebelled in Ireland, and massacred the Protestants," "struck as medals," "minted for the Confederate Assembly," or "issued in Dublin sometime between the Restoration (1660) and the year 1680," merely as private tokens, is undecided. Considering the amount of them brought

over by Newby, it would seem that they originated not very long before the date of his emigration in 1681.

This coinage is very irregular, of numerous types and varieties, struck in various metals from similar dies, viz: silver, copper, brass, and occasionally, as a proof probably, in lead.

St. Patrick's Half pence. Large Size. Four Types. Six Varieties.



ST. PATRICK'S HALF PENCE.

Obverse: A crowned king, kneeling, facing left, and playing the harp. Above the harp is a crown. Legend: "FLORE AT REX" variously divided and punctuated on different dies. The letters also vary in size on different specimens.

Reverse: St. Patrick with a trefoil in his hand and a crozier in his left, surrounded by a crowd of people. To the left is a shield, with three castles or six flaming alters. Legend: "ECCE GREX" variously punctuated on different dies. Edges, either milled or plain. Only specimens in copper known to be extant. Size, 17 to 20; weight, 144 grains, or somewhat less.

St. Patrick's Half-pence. Small size. Twenty-two Types. Twenty-three Varieties.



ST. PATRICK'S HALF PENCE.

Obverse: Similar to that of the larger-sized piece of this coinage. Upon some specimens a bird appears, sometimes accompanied by three circles, all placed beneath the figure of the king.

Reverse: St. Patrick, his right hand outstretched, banishing serpents and reptiles, shown upon the ground. In his left hand he carries a double or metropolitan cross; at the extreme right is a church. Legend: "QUIESCAT PLEBS" variously punctuated on different dies. Edges, either milled or plain. Silver and Copper; size, 16; weight, silver piece, 98 to 144 grains—the copper piece, 98 grains.

The extreme irregularity of the silver pieces of this coinage suggests the idea that they could hardly have been coined for circulation as money, but rather struck for preservation as medals. The copper coins were more regular, and better adapted for use as currency, for which they were employed in New Jersey from 1681 indefinitely afterwards, the coinage of New Jersey, for its own use, not being established for more than a century from that time.

PROPOSALS FOR COLONIAL COINAGES.

Notwithstanding the various plans and contrivances for a supply of currency, the scarcity of small coin which inconvenienced the primitive settlers continued, and was a very great hinderance to minor business about the beginning of the eighteenth century. As early as July 5th, 1700, John Fysack laid before the British Board of Trade, a scheme for the erection of a mint at some point in the English plantations upon the continent of America. This plan failed to secure the approval of the Board of Trade, but another was proposed, May, 21, 1701, to the Lords of the Treasury, by J. Stanley Esq. Newton and Jn. Ellis, who suggested the coinage in England, of "halfe pence and pence of Copper, or a Mixed Metall, and of halfe ye value the English Small Money is made," a special issue to be struck for each of "Ye Severall Colonys." Being

submitted to the officers of the mint, this scheme was not fully approved, and no action was taken to carry it into effect. About the year 1715, a project was discussed for organizing and establishing "a private Bank in New England," but this was presently abandoned.

On July 14, 1748, Alexander Cuming, Bart., suggested that a coinage of £200,000 sterling should be struck in the Tower of London, to serve as the basis of a Provincial Bank for all the British Plantations of America, to be a bank of issue, redeeming its bills, on demand, in gold and silver, the said bills to be made current in all the colonies to the abolishment of local issues of inferior value like those of New England and Carolina, then sometime in use. This suggestion was regarded as chimerical, being, perhaps, too honest and business-like, to suit the grasping policy generally followed toward America by the Lords of the British Treasury.

In 1754, Arthur Dobbs, Esq., then Governor of North Carolina, asked official approval for a coinage of copper money for that colony, the pieces coined to be of the value of two-pence, one penny, and an half penny Carolina currency, which was one-fourth less value by denomination than the British standard. The amount of this coinage was to be limited to fifty tons weight. Upon reference of this matter to the officers of the mint, such a coinage was planned, to consist one-fourth of two-pence, one-fourth of pennies, and one-half of half-pence—the half-pence were to be of such a size, that sixty-one of them should weigh one pound avoirdupois, the other pieces being made in proportion. The copper being delivered to the mint free of cost, was to be minted as described, at the usual rate of five pence per pound, with an allowance for necessary waste of one part in forty-five, or less, as should be found actual in practice. The obverse of these coins were to bear the king's effigies, and the legend GEORGIUS II. REX, and on the reverse the arms of North Carolina inscribed SEPT. CAROLINA, and in Exergue beneath the date of the coinage.

After all, there is no evidence that any part of the fifty tons of small change thus arranged for was ever produced.

Still another effort was made to supply North Carolina with minor coin, and on September 29th, 1786, it was reported that Mr. Borel had completed his contract of coinage for that state in Switzerland, to the amount of 30,000*l.* in silver and copper, to be exchanged for the paper currency. No coin struck under this contract can be found, and soon after the sole right of coinage was assumed by the Government of the United States.

On July 12, 1722, William Wood, of Wolverhampton, in the county of Stafford, England, Esq., having been engaged in experiments in metallurgy and coinage as early as 1777, represented to George I, that he had "invented a certain composition or mixture, consisting partly of fine virgin silver, partly of superfine brass, made of pure copper, and partly of double-refined linck, otherwise called tutanaigne or spelter." In a mass of twenty ounces avoirdupois of Wood's metal, he stated there should be one pennyweight Troy of virgin silver, fifteen ounces avoirdupois of fine brass, and the rest of the spelter described. Through the influence of the duchess of Kendall, a frail beauty, a German baroness, who came to England with George I before he was crowned, Wood obtained letters patent, giving him a monopoly of coining "tokens," to be used as currency in Ireland and in America. The emoluments to arise from this coinage for Ireland, were given officially and directly to the duchess of Kendall; the consideration for the privilege of a like issue for America, doubtless was paid the same royal favorite.

The patent granted Wood for America, was made to cover his rights for fourteen years from the date of its issue, during which term he might utter and disperse therein "Three Hundred Tunns" of the coinage thus authorized. Of this, two hundred tons might issue the first four years, and ten tons each year of the term thereafter. These coins, as authorized by the king, were to go for "half pence, pence and Two

pences," and be made of such a size that twenty ounces avoirdupois of metal, should produce but sixty pence by actual count, and of the other pieces a proportionate number, according to their denominated value, or as elsewhere provided, "of such a bigness that thirty Two pences, sixty pence, and one hundred and twenty half pence, may weigh sixteen ounces avoirdupois," the variation allowed the coiner being not more than one penny in the above number, over or under. The metal was to be of the composition stated, and of such a quality that when heated red hot it would spread thin under the hammer without cracking, which test was to be applied to the coins directly by persons authorized by the Commissioners of the Treasury from time to time, and for the benefit of the Comptroller so appointed; said William Wood was to pay Two hundred pounds per Annum. The coinage was to bear "on the one side the Effigies or Portraiture With the name or Title of his Majestie" and on the other side "the figure of a Crown With the Word America and the Year of our lord and any other marks or Addicions as may be proper." Counterfeiting this coinage was forbidden under penalty of confiscation of "the Tools or Instruments for making thereof," and of the coins made in imitation of the genuine, the property to accrue to William Wood or his representatives. In consideration of these concessions, rights and privileges, William Wood was to pay his Majesty the sum of one hundred pounds per annum, over and above the amount paid the Comptroller named. Having given security as required, William Wood received a formal license, according to the terms of his contract, and presently began operations in the business of Coinage upon an extensive scale.

There were several partners engaged in the manufacture of this coinage; the dies, which were quite numerous, were made by Lammas, Standbroke and Harold, and the mintage done by a drop press, the metal being struck while hot for the sake of expedition in the work. The mint was established at the French Change, in Hogg Lane, Seven Dials, London, England.

The first Comptroller of this Currency was Sir Isaac Newton, but at his request Mr. Barton, his nephew, was presently appointed in his stead. The first attempt was a coinage for America, in 1722; a small issue of the same date was also made for Ireland. Circumstances in America favored the introduction of small coin at this time. So great was the scarcity of minor currency, that the same year Massachusetts, by an act which passed the House of Representatives at the session of May, 1722, authorized the issue of bills of the denomination of a penny, two-pence and three-pence, the same to be printed on parchment, to the amount in value of five hundred pounds. These were to be issued in redemption of other bills of the colony, which were to be burnt. There were to be: 'Forty Thousand and One Pennies, to be Round, Twenty Thousand Two Pence, Four Square, Thirteen Thousand Three Hundred and Thirty-three [Three] Pence, Sex-angular.' These bills were ordered to issue in sums not less than twenty shillings; to counterfeit them was punishable, in the first instance, as forgery, and for the second offense, "as those that Counterfeit the other Bills of this Province." Representations of the proposed bills were drawn upon the copy of the act, but in the engraving for the bills themselves some ornaments were added. Great as the necessity was indicated by the introduction of such a series of bills, "Mr. Wood's Copper Money" was not well received in America. It was made a cause of complaint that: "he had the Conscience to make Thirteen Shillings out of a Pound of Brass." Although his coinage was disliked by the Americans, Wood continued his efforts to circulate the same, and as late as 1725, the officers of his Majesty in Massachusetts, were directed to assist Mr. Wood in the enjoyment of his privileges; however, there is no reason to suppose that his American business was ever a profitable speculation.

Upon the appearance of Wood's coinage in Ireland, great objections were at once raised to such a currency; Dean Swift was a leading spirit in arousing and keeping active the discon-

tent of the people. The matter became a subject of controversy between Lord Carteret, the duke of Grafton, and Lord Townsend, who passed the patent. Townsend complained that Carteret slurred the duke of Grafton, flung dirt upon him, and made "somebody uneasy, for whose sake it (the patent) was done." In consequence of this great disturbance, the king reduced the amount of this coinage for Ireland from £100,000 to £40,000, but without appeasing the malcontents, who kept up so strenuous an opposition, that in 1725, the king was glad to purchase the privilege obtained from his Majesty through the royal mistress, by settling a pension of £3,000 per annum upon William Wood, the same to be continued and made payable for the term of eight years. For this, three warrants for £1,000 each, were issued October 12-21, 1725; these were made chargeable upon the establishment of Ireland, and thus the people of that island were in effect fined for the disfavor they had shown the new currency provided for them.

Although resigning for valuable consideration, his privileges in Ireland, Wood still continued to prosecute his enterprise and assert his rights in America. As there had been a large amount of coin struck for Ireland, and made uncurrent there, it was afterwards shipped to America, where an effort was made to introduce it into circulation, and where it became known as "Wood's money," in distinction from the *Rosa Americana* Series, coined especially for America. In the Archives of Massachusetts, is preserved an order from the duke of Newcastle, dated "Whitehall 29th Oct. 1725," directed to the Governor of Massachusetts, ordering in the name of the king of England, that Mr. William Wood should be protected, encouraged and assisted in the legal exercise of the powers and privileges granted him.

In 1733, other coins were struck, and a renewed endeavor made in behalf of the interests of Mr. Wood, but the scarcity of pieces of this date indicates a small coinage at the time, and these may all have been pattern pieces. Thus ended a business which having proved the ruin of some, and imposed hard-

ships upon many, seems to have been of small satisfaction to any one, unless indeed the duchess of Kendall, for all the uneasiness caused her by the reflections of Lord Carteret, had in her receipts from Wood and his partners, substantial reason to be well pleased. Although a large amount of coin was struck under the patent granted William Wood, the amount actually put in circulation is unknown. The part of this currency struck for America is known as The Rosa Americana Series, and on account of its historical interest, beauty of design, style of execution and rarity, is very much desired by antiquarians and numismatologists.

THE ROSA AMERICANA COINAGE.

The first supposed examples of this coinage, are several pieces said to have been struck by William Wood, for pattern pieces, as early as 1717. Of these, but five specimens, of three denominations, exist. These rare coins are Two-pence, Pennies, and a Half-Penny. As the Half-Penny was the largest copper coin then used in England, the Two-Pence and Penny indicate that the series must have been intended for an especial issue and circulation.

WOOD'S ROSA AMERICANA PATTERN PIECES. (?)

The Two-pence. Obverse: Well executed laureated head of George I, facing right. Legend: "GEORGIVS·D·G M·B·FR·ET·H·REX·"

Reverse: The Roman numerals II surmounted by a crown, above this on the border, the date 1717. Legend: "MAG·BRIT·FRA·ET·HIBER·REX·" The legend is between two plain circles. Border, milled; Edge, plain. "Bath Metal" or Wood's Composition. Size, $17\frac{1}{2}$; weight, 107 grains.

The Penny. No. 1. Obverse: Head of king George I, as on the two-pence, but magnified. Legend: "GEORGVIS·D·G·M·BRI·FRA·ET·HIB·REX·"

Reverse: The Roman numeral I, surmounted by a crown. Legend: "DAT·PACEM·ET·NOVAS·PREBET·ET·AU·"

GET·OPES." Border, beaded; Edge, plain. "Bath Metal." Size, $16\frac{1}{2}$; weight, 109 grains.

The Penny. No. 2. Obverse: As that of the Penny No. 1.

Reverse: Numeral "1," as on Penny No. 1, but at each side of the same, a branch, the stems crossing beneath. Legend: "BRVN: ET·LVN: DVX·SA: ROM: MI: ARC—TIE: ET·PR: ELEC." Border, beaded; Edge, plain. "Bath Metal." Size, $16\frac{1}{2}$; weight, 109 grains.

It will be noted that these Pennies weigh two grains more than the Two-pence, an odd fact indicating the experimental nature of the coinage thus far.

The Half-pence. Obverse: Head of king George I, facing right. Legend: "GEORGIUS REX."

Reverse: " $\frac{1}{2}$ " surmounted by a crown. Legend: "DAT·PACEM·ET·AUGET·OPES." Border, milled; Edge, plain. "Bath Metal." Size, $13\frac{1}{2}$; weight, 72 grains.

There is also an impression of the Penny No. 2, in brass.

AUTHORIZED ROSA AMERICANA COINAGE.

The regular authorized coinage by William Wood for America and Ireland, began in 1722, and has been described as the Penny, Half-penny and Farthing, but the value of the various coins was fixed by the royal letters patent as "two-pence, pence and half-pence."

THE TWO-PENCE OF 1722.

Four Types. Four Varieties.



ROSA AMERICANA TWO-PENCE, 1722.

Obverse: Laureated head of king George I, facing right.
Legend: "GEORGIUS·D·G·MAG·BRI·FRA·ET·HIB·REX·"

Reverse: A full double rose; from this project five barbed points. Legend: "ROSA-AMERICANA·1722·" in the field over the rose, upon a label beneath the same "UTILE DULCI·"
Border, beaded; Edge, plain. "Bath Metal." Size, 18 to 20; weight, 255 grains.

Beside this principle type and variety of the Rosa Americana Two pence, there are three others with the rose uncrowned. One of these bears the date 1722, and two are without date. The devices and legends of all three of them, are the same as those of the Two-pence already described, except slight variations in minor features or in punctuation. The dateless pieces are respectively of size, 14; weight, 270 grains, and size, 20; weight, 244 grains. The largest of these is called the Iron Rosa Americana, although composed of pure copper. The motto "UTILE DULCI" appears in the field of this piece, and not upon a label, as is the case with the Two-pence of the Rosa Americana Series dated 1722. The curious misnamed "Iron Rosa Americana" is unique, its composition, extra size, and rudeness of execution indicate its character as a trial piece.

THE PENNY OF 1722.

Thirty Types. Twenty-eight Varieties described. Numerous Dies.



ROSA AMERICANA PENNY, 1722.

Obverse: Laureated head of king George I, facing right.
Legend: "GEORGIUS·DEI·GRATIA·REX·"

Reverse: A full double rose; from this project five barbed points. Legend: "ROSA AMERICANA· UTILE·DULCI· 1722∴" which enireles the piece. Border, beaded; Edge, plain. "Bath Metal." Size, 16 to 18; weight, 139 grains.

THE HALF-PENNY OF 1722.

Eight Types. Eight Varieties.



ROSA AMERICANA HALF-PENNY, 1722.

Devices: Same as those of the Penny of this coinage. Legends: Same import as those upon the Penny, but varied by abbreviations and in punctuation. Border, beaded; Edge, plain. "Bath Metal." Size, 13 to 14; weight, 75 grains.

First. Obverse: "GEORGIUS·DEI·GRATIA·REX." Rare.

Reverse: "ROSA·AMERI·VTILE·DVLCI·1722·"

Second. Obverse: "GEORGIUS·D·G·REX." Quite rare.

Reverse: "ROSA·AMERI: UTILE·DULCI·1722·"

Third. Obverse: "GEORGIUS·DEI·GRATIA·REX·"

Reverse: "ROSA·AMERICANA· UTILE·DULCI·1722∴"

The first and second of the Half-pennies here mentioned are rare, especially the first. Of the third, there were six pair of dies, from all of which varied impressions are retained.

ROSA AMERICANA TWO-PENCE, 1723.

Three Types. Three Varieties. Ten Pair of Dies.

Obverse: Laureated head of king George I, facing right. Legend: "GEORGIUS·D·G·MAG·BRI·FRA·ET·HIB·REX·"

Reverse: A full double rose with barbs, surmounted by a crown. Legend: "ROSA·AMERICANA·1723·" in the upper half of the field, and upon a label beneath the rose the motto "UTILE·DULCI" Border, beaded; Edge, plain. "Bath Metal." Size, 19 to 21; weight, 220 grains.

ROSA AMERICANA PENNY, 1723.

Obverse: Laureated head of king George I, facing right.
 Legend: "GEORGIUS·DEI·GRATIA·REX·"

Reverse: A full double rose with barbs, surmounted by a crown. Legend: "ROSA·AMERICANA·1723," upon a label beneath the rose, the motto "UTILE DULCI," the legend almost encircling the device. Border, beaded; Edge, plain. "Bath Metal." Size, 16 to 18; weight, 148 grains. There is a unique specimen. Size, 20½; weight, 148 grains.

THE HALF-PENNY OF 1723.

One Type. Two Varieties. Minor Differences. Eleven and a half Pairs of Dies. Very scarce.



ROSA AMERICANA HALF-PENNY, 1723. No. 1.

An extremely rare type and variety of this Half-penny bears an uncrowned rose, as on those of 1722. One obverse and two reverse dies.

Obverse: Legend: "GEORGIUS·DEI·GRATIA·REX·"

Reverse: ROSA·AMERICANA ∴ UTILE·DULCI·1723 ∴
 Otherwise, in general, as other Half-pennies of the same series and date. Size, 14; weight, 51 grains. The motto "UTILE DULCI" is never shown upon a label on the Pennies or Half-pence which bear an uncrowned rose.



ROSA AMERICANA HALF-PENNY, 1723. No. 2.

The Rosa Americana Half-Penny of 1723 is usually of the same device, legend and general features as the Penny of the same series and date, but with minor differences not sufficient to establish a variety. Size, 14; weight, 64 grains.

THE PENNY OF 1724.

Two Types. Two Varieties. Rarely found.

Similar in design to the Penny of the same series dated 1723.

Obverse: "GEORGIUS·DEI·GRATIA·REX"

Reverse: "ROSA:AMERICANA·1724·UTILE·DULCI"

The cross upon the crown divides the word Americana.

In all this issue thus far described, the figure 1 resembles the Roman letter J.

THE TWO-PENCE OF 1733.

One Type. One Variety.



ROSA AMERICANA TWO-PENCE, 1733.

Obverse: Laureated head of George II. facing left. Legend: "GEORGIUS·II·D·G·REX"

Reverse: A rose branch, at its top a full blown rose, at the left a stem bearing four leaves, another at the right having three leaves and a bud. Legend: "ROSA AMERICANA·1733" Upon a scroll-formed label beneath the rose branch appears the motto "UTILE DULCI" Border, beaded. Edge, plain. "Bath Metal." Size, 18 to 21; weight, 266 grains.

But two specimens of this coin known, but there are beside three impressions of the obverse die struck in steel.

THE ROSA SINE SPINA.

One Type. One Variety. Excessively rare.

This dateless coin, of uncertain origin, has been confounded with the Rosa Americana Series, being sometimes mistaken for the Two-pence of 1733, the reverse of which it somewhat resembles.

Obverse: Laureated head of king George I facing right. Legend: "GEORGIUS·DEI·GRATIA·REX·"

Reverse: A rose bush planted in the earth, bearing at the top a full-blown rose; below are two stems, each bearing a closed bud, and a bud half opened. Legend: "ROSA·SINE·SPINA·" Border, beaded; Size, $16\frac{1}{2}$; weight, 120 grains.

There are two coins, a medal, and the reverse of another piece somewhat similar to the Rosa Sine Spina, and supposed to belong to the same coinage. Obverse; Almost identical with the Rosa Sine Spina. Reverse: A sceptre and trident crossed, interlaced with a three-looped cord, with pendant tassels. Legend: REGIT :: VNVS :: VTROGV D :: The largest coin is the only known specimen; others may be found in Europe perhaps. Size, $17\frac{1}{2}$; weight, 127 grains. The small coin is described as half the size. The date of the metal referred to is 1628. Though diligently sought by all collectors of coins struck in or for America, the Rosa Sine Spina is seldom seen even in the best cabinets. But three or four can be found in the United States.

LAWS OF PENNSYLVANIA.

The colony of Pennsylvania made no provision for a local coinage, but the authorities passed a number of orders and laws directed to the regulation of the value of copper coin, and the abolition of base coin, as well as the severe punishment of counterfeiters. In 1741, English Half-pence were decreed to pass at the rate of fifteen to the shilling. By this means it was proposed to prevent the importation of great quantities of these Half-pence, as had been the practice, to the

depletion of the province of large amounts of gold and silver money. However, certain "uneasy and ill disposed Persons," were not content with so high a valuation of the Half-pence, and declining to receive them, were denounced by the Mayor and Commonalty of Philadelphia as disturbers of the public peace.

Any person convicted of counterfeiting any coin of gold or silver in the province of Pennsylvania, was doomed to suffer death without the benefit of clergy, and any person knowingly passing such counterfeits, was on conviction thereof, to be sentenced to stand in the pillory for the space of one hour, having both their ears cut off and nailed to the pillory, and beside, receive twenty-one lashes in public on the bare back, and also pay one hundred pounds as a fine, one-half to go to the use of the Governor, and one half to the informer, with costs and charges of prosecution assessed upon the convict.

In July 14th, 1781, the Supreme Executive Council of the Commonwealth of Pennsylvania, issued a Proclamation prohibiting the issue and circulation of base coin "in the similitude of British half-pence, but much inferior in value and weight to the genuine." From this cause, this coin was depreciated to the enhancement of the necessaries of life, and the great distress of many, especially among the poorer classes. Genuine British Half-pence, made at the Tower, were made forty-eight to the pound. Those of the base sort were made at Birmingham, England, seventy-two of them, or even more, being minted from a pound of copper, which metal could at that date be purchased in America for one-eighth of a dollar a pound. Thus the base coinage was imposed upon the people of the provinces, at about six times the intrinsic value of the material from which the coins were produced. There was no method by which to learn the amount of such currency imported to the Confederate States of America during the decade succeeding the war of the Revolution. Sundry shipments were reported to the value of a thousand guineas each, and it was stated that no packet arrived from England, with-

out some hundred weight of the base Half-pence. It was officially estimated that the loss to the country at large by this "coinmerce of vile coin," was not less than thirty thousand dollars per annum—a very large sum for the times. In view of these facts, and the consequent disappearance to a large extent, of standard coins of the more valuable metals, the subject of a copper coinage of a national character was suggested at an early date to the financiers of the country, and for action, to the Congress of the American Confederation.

PROPOSED COINAGE FOR PENNSYLVANIA.

In April 5th, 1786, Thomas Smyth, Jr., and Thomas Harwood 3rd, citizens of Maryland, who represented themselves as the owners of rich mines of silver and copper in that state, offered a petition to the General Assembly of Pennsylvania, asking an exclusive, yet limited right of coinage for the state, the currency produced to be one-fourth as much silver as copper, the coins of either metal to be equal in purity and weight to any circulating at the time in America, the copper coins in particular to be equal if not superior to those made at Tower Hill, London. The petition was awarded a reading, but no decided action was taken by the Assembly in the case, nor does it appear that any subsequent effort was ever made to establish a coinage in the state of Pennsylvania.

COPPER COINAGE OF NEW HAMPSHIRE.



DESIGN FOR NEW HAMPSHIRE COPPER COIN.

The colony of New Hampshire considered the subject of copper coinage about the time of the Declaration of Independ-

dence by the American Republic. On the 13th of March, 1776, the House of Representatives of New Hampshire, appointed a committee to join a committee of the Honorable Board, to confer upon the expediency of making copper coin. It was reported expedient to make copper coin for the benefit of small change, the Continental and other bills being so large. It was recommended that one hundred and eight of the proposed copper coin, should be made equal in value to "one Spanish milled Dollar," and be struck from pure copper of the weight of English Half-pence, to bear such device as the General Assembly might approve.

On the 28th of June, 1776, the House of Representatives of New Hampshire, voted that the Treasurer of the colony should receive in exchange for its Paper Bills, any quantity of copper coin made in the colony, of the weight of five pennyweight and ten grains each, not to exceed, however, £1000 lawful money in all. Three such copper coins were to be received and paid for two-pence lawful money. The New Hampshire copper coinage thus made current, was ordered to bear on the Obverse "A Pine tree with the word American liberty" and on the Reverse a harp, and the figures 1776.



MOULTON'S PATTERN PIECE..

Some years ago, a laborer, in removing a bank of earth in Portsmouth, N. H., found an old copper coin, having on the obverse a tree, and the date 1776, and on the reverse the legend "AMERICAN LIBERTY," with an inscription "W. M.," presumably the initials of William Moulton, the person to whom it was proposed to grant the right of coinage in New Hampshire. The piece found was much defaced and corroded,

and is supposed to be a pattern piece struck by Moulton, though not of the design suggested by the committee of the Assembly. Other pattern pieces were made as specified in the report of the committee, of which one specimen struck from dies, though worn, still is overweight, being of 155 grains.



ENGRAVED PATTERN PIECE

Another specimen was engraved, and is now much abraded. Size, $18\frac{1}{2}$; weight, 127 grains.

Although the action noted was taken by the Assembly, and the pattern pieces prepared as described, there remains no evidence of a regular coinage for New Hampshire, and if any was minted, the coinage must have been very limited, and little if any of it found its way into circulation.

COPPER COINAGE OF VERMONT.

Though not one of the original thirteen states, and only admitted to the Union in 1791, Vermont was the first state to issue a copper coinage upon its own authority. On June 10th, 1785, the House of Representatives of Vermont, then sitting at the town of Norwich in that state, received and had read a petition from Reuben Harmon, Jr., of the town of Rupert in the county of Bennington, praying for leave to coin a quantity of copper, which memorial was referred to a committee of three, to meet a like committee from the Council and consider the matter, and make a report of the facts and of their opinion to the House.

On June 15th, 1785, a Bill was brought in, granting to Reuben Harmon, Jr., the right of coining copper and providing regulations for the issue of the same. The bill passed the same day, and by it Reuben Harmon, Jr., received the exclusive right of coining copper in the state of Vermont for the term of two years from July 1st, 1785, the pieces struck by him to be of the weight of one-third of an ounce Troy each, with such devices and mottoes, as should be agreed upon by the committee of the Assembly. For the fullness of weight in his coinage, and for the good and genuine quality of the metal to be used therein, the said Reuben Harmon, Jr., was required to give bonds, in the sum of five thousand pounds, with good securities. On the 16th of June, 1785, the sureties of Reuben Harmon, Jr., entered their names on his bond, and the business of the mint was forwarded accordingly.

In the course of the summer, the Representatives of Vermont became informed that they had made their coin of a greater weight than those circulating in the "United States of America," (of which Union Vermont was not then a party), and therefore, to prevent the deportation of their coinage, they, on October 27th, 1785, passed an act providing that the coin to be struck by Reuben Harmon, Jr., should weigh not less than four pennyweight of fifteen grains each. The Treasurer was to enter into a new bond with Harmon, but this appears not to have been done, though the work of the Vermont Mint was carried forward, as will hereafter be described.

Reuben Harmon, Jr., as stated by his grandson, came to Vermont from Sandisfield, Mass., with his father, Reuben Harmon, Sen., about the year 1760, and settled in the north-east part of the town of Rupert, Bennington county, where he became a man of considerable note and influence. He was a delegate to the Independence Convention of 1776 in Vermont, and a Representative to the Legislature of that state in 1780. From 1780 to 1790, he was a justice of the peace, beside which he filled several minor offices from time to time. In 1790, or about that time, Harmon emigrated to "New Connecticut," in

the northern part of the state of Ohio, where he engaged in making salt, at the "Salt Springs Tract" in Weathersfield township, Trumbull county, which business he followed until his death, October 29th, 1806, in the 56th year of his age.

The first mint in Vermont, was erected by Reuben Harmon, Jr., in 1785, at a point on the bank of a stream called Millbrook, or Pillet river, three rods from his residence, in the town of Rupert. The Mint-house stood a little east of the main road, between the towns of Dorset and Pawlett, where a dam was thrown across Pillet river, and a water wheel set to drive the machinery to be used in the coinage. The building erected was a story and a half high, of unpainted boards and rough timber, and was about eighteen feet long, by about sixteen feet wide. In the eastern end of this small structure, was a furnace for melting copper, and machinery for rolling the ingots and bars of the same into sheets; in the center stood a machine for cutting the sheets into planchets, and in the west part of the house, the press in which the coins were struck. The machinery for working the metal was driven by the water wheel, but the press for striking the coins was worked by hand. The impression of the pieces was effected by means of a large iron screw operated against a bearing in a heavy timber framework, braced from above. This screw had long arms on two opposite sides of its head, from these arms strong ropes depended, and each of them being hauled in reverse direction from the other by a stout man, the screw was raised or driven down, at will.

Beside the two men actuating the screw in this manner, another person was required to place the copper planchets under the die and watch the work. The press described, as operated, could be made to produce some sixty impressions in a minute, though thirty pieces per minute was the average number struck when in regular operation. One of the parties employed in working the press, was a person named William Buel, a refugee from Connecticut, and a son of Abel Buel, of New Haven, in that state. The elder Buel was known in

Connecticut, where a private copper coinage began as early as 1737, as a die sinker and engraver as well as a general mechanical genius; to him are to be attributed a number of the designs and dies for the early copper coinage of America. He also invented a number of machines, and devices, by which he became involved in pecuniary troubles, from which he was not delivered even by his successful imitation and counterfeiting of the Continental Bills of the Federal Congress, an enterprise which involved him in unpleasant consequences.

Abel Buel manufactured the "Sun-dial" or "Mind-Your-Business" coppers, common about the close of the last century, which he made at New Haven, Connecticut, from dies of his own designing and engraving. William Buel was concerned in the working of the mint belonging to his father, and may subsequently have been engaged upon a private coinage of his own. It seems that in consequence of his work as a coiner, William Buel was obliged to expatriate himself from his native place, not through any apprehension of punishment by the authorities of the commonwealth, for at that time they gave no trouble to parties in his line of business, unless actual counterfeiters, and in this William Buel was innocent. His trouble was peculiar, but exceedingly serious, and originated as follows: Having occasion to use aquafortis, he procured a quantity from a druggist, which he undertook to carry home in a jug. On his way, he was accosted by some Indians, who insisted upon drinking from the jug, which they assumed was full of rum.

Buel informed the Indians the contents of his jug were a deadly poison. This the aborigines considered a ruse by Buel to save his liquor, and forcibly took the jug from him. One of the Indians drank some of the aquafortis, and of course soon died a victim to his own ignorant rashness. The Indians, however, by their peculiar system of ethics and justice, regarded Buel as guilty of having killed the poisoned Indian, and they sought the coiner's life to appease the spirit of their deceased comrade. Had Buel been aware that the system of

blood money obtained among the Indians, as with the ancient Greeks, he could have atoned for the accident by the disbursement of a few shillings. Otherwise, the Indians pursued Buel with such pertinacity, that he was compelled to make good his escape to the new and then unacknowledged state of Vermont.

William Buel made his new residence in the town of Rupert, to which place he presently removed the New Haven manufactory of coppers, having taken with him the original dies made by his father. It may have been that William Buel first called the attention of Reuben Harmon, Jr., to the matter of the coinage of copper as a business. At all events, Harmon and Buel established a mint at Rupert, and there, as is supposed, the New Haven "Sun-dial" and "Mind-Your-Business" dies, were for a time more or less made use of, despite the provisions of the Vermont law to the contrary in the act of concession to Harmon. It is not probable any breach of the law was intended, but Buel was allowed to strike his coins at Rupert, as money of authorized issue in the state of Connecticut, to which state they may have been assumed to be shipped. In fact, the political relations of the states, and the customs regarding coinage, were both irregular and indefinite at the time of the circumstances just related. Another workman in the Vermont Mint, as originally operated, was "Colonel William Cooley," a die sinker, who had worked at the goldsmith's trade in the city of New York, whence he removed to Rupert, Vermont.

ORIGINAL COPPER COINAGE OF VERMONT.

The coin issued by Reuben Harmon, Jr., under the act passed in his favor, October 27th, 1785, may be described as follows:

THE VERMONT CENT OF 1785.

Four Types. Three Varieties. Two Pair of Dies.

Number 1. Obverse: A range of wooded mountains, from behind which, to the right, the sun is rising. In the field

beneath stands a plough. Legend: ".VERMONTIS.RES.PUBLICA." Exergue: 1785 - .

Reverse: An eye, enclosed in a small ring, surrounded by a circle of thirteen stars. From the small circle spring twenty-six rays, of which thirteen are long, one passing through each space between the stars. Thirteen of the rays are short, one between the body of each star and the center. Legend: "STELLA.QUARTA.DECIMA ." Borders, beaded or milled; Edge, plain. Copper; size, 17; weight, 111 grains.



VERMONT CENT, 1785.

Number 2. Obverse: Similar to that of No. 1, except the Legend: ".VERMONTIS.RES.PUBLICA." "

Reverse: Almost identical with that of No. 1. Copper; size, 17; weight, 117 grains.

Number 3. Obverse: The Legend: "VERMONTIS RES' PUBLICA" encircles the device and the date; the sun in the device is rising leftwards of a thickly-wooded hill; a line divides the date from the device.

Reverse: The sun in the center, from which proceed fine single-pointed rays of unequal length. Legend: "STELLA QUARTA DECIMA." Unique specimen, in poor condition.



VERMONT CENT OF 1786. OLD STYLE.

Number 1. Obverse: Device in general as that of No. 1 of 1785, but varying in details, both from the coinage of 1785 and in different dies of this piece of 1786. Legend: "VERMONTENSIVM·RES·PUBLICA." Exergue: 1786.

Reverse: An eye in the center, encircled by a small ring surrounded by thirteen stars; from the center proceed thirteen rays of many fine lines, running to a single point, which pierce the spaces between the stars. Legend: "QUARTA · DECIMA·STELLA."

COPPER COINAGE OF VERMONT. SECOND SERIES.

On October 23rd, 1786, Reuben Harmon, Jr., presented a second petition to the General Assembly of Vermont, then sitting at Rutland, asking that the privilege of coining copper granted him for two years, should be extended for a further term of ten years, or such a period as the Assembly should direct, the coinage to be conducted under such regulations as should be deemed expedient by the authorities.

Upon consideration, the Assembly ordered that the sole privilege of coining copper in the state of Vermont, be granted to Reuben Harmon, Jr., for the term of eight years from the expiration of his first grant on the first day of July, 1786. He was required to give bond to the Treasurer, as in case of the former grant. The first three years the petitioner was to enjoy his privilege free, and for the remaining five years, was to pay two and one-half per centum of his coinage to the state. It was ordered that thereafter, the device of the copper coin of Vermont should be, "a head on one side, with the motto '*Auctoritate Vermontensium*' abridged; on the reverse, a woman representing the Genius of America, with the letters INDE:ET:LIB: for "Independence and Liberty," the pieces struck, to weigh not less than "four pennyweight, fifteen grains each."

On February 23rd, 1787, the bond of Reuben Harmon, Jr., was made good, the operations of the Mint were continued, and on the 18th of the following April, its manager entered into a

new partnership, with a view to a large and widely-extended business.

This new partnership, when fully made up, consisted of ten men, viz: Reuben Harmon, Jr., William Coley, Elias Jackson, Daniel Van Voorhis, Samuel Atlee, James F. Atlee, D. Brooks, James Grier, James Giles, Thomas Machin. This Thomas Machin was an Englishman, who came to America as an officer in the British service, sometime before the Revolution. During the war for Independence, he entered the American army as an engineer, and was employed by Congress in 1777, in fortifying the Highlands of the Hudson, and stretching a great chain across the river at West Point.

At the close of the war, Captain Machin located at Orange Lake, New Grange, Ulster county, now the city of Newburgh, state of New York. Machin, or "Machen," as he was called in the histories of the time, brought his skill as an engineer into private service, and improved the natural features of Orange Lake, so as to form a considerable water power and develop a valuable property. He created an artificial outlet for the waters of the lake, and in 1784, erected a building known as "Machin's Mills," for the ostensible purpose of being used as a manufactory of "hardware." The real design of Machin, and those with whom he became associated, was to establish at Orange Lake, or Machin's Pond, "an extensive general Mint, for the common coinage of copper, either on private account as tokens, medals and so forth, or of an authorized currency, under contract by virtue of "any Grant for Coinage of Money from the United States of America in Congress Assembled or from the Legislature of any of the United States."

On March 3rd, 1787, Thomas Machin petitioned the Assembly of New York for a grant, allowing him to coin copper in that state, which was read and referred to a Committee, but no concession was granted the petitioner.

The partnership formed for working the Mint at Orange Lake, or "New Grange," was carefully organized, and as it ap-

pears the Vermont Mint became in some sort a part of the concern. There was, however, no legal connection between the two mints, the relation being only a private business understanding and co-operation between the parties named as partners. The manufacture of "hardware" at Machin's Mills, was conducted with secrecy, and generally looked upon with suspicion, being regarded as wrong and illegal. Though not very great in amount, the issues of the copper coinage of Machin & Co., were quite varied, and it is probable that many pieces now regarded as Connecticut coins, or others of irregular character, with many spurious half-pence of George III, are merely samples of counterfeits executed by them.

The Mint at New Grange was erected by Thomas Machin on the east side of his pond, an eighth of a mile from the shore, in 1784. The machinery for making the copper planchets to be coined, was much like that described as used in Vermont; the press for striking the coin was, however, of a somewhat different construction. "The coins were struck by means of a large bar, loaded at each end with a ball weighing some five hundred pounds, to which ropes were attached." This bar must have been the lever for rotating the screw of the press, and the heavy balls were intended to give momentum to the action of the same. Two men were required on each side to haul the ropes, beside a fifth person to set the planchets under the die. James F. Atlee is reported to have been the practical overseer of the work of coinage, the articles of partnership providing that, "Said Thomas Machin and James F. Atlee shall equally manage and perform that part of the trade which concern the Coinage of Money and Manufacturing Hardware."

The machinery of Machin's Mills was capable of producing about sixty pieces of coin per minute. The metal of which the coins were struck, was procured by smelting old brass cannon and mortars, the relics of the Revolution. The zinc being parted from the brass by the action of the furnace, the copper which came through the fire was worked into shape

for the use of the Mint. What amount of work was done under the superintendence of James F. Atlee is not recorded in full, but the business of Thomas Machin & Co., was not successful in any great degree. But little seems to have been done until the year 1789, when, according to Machin's papers, some thousand pounds of copper was manufactured. The next year there was a quarrel or disagreement among the numerous partners, and notwithstanding the care and proximity with which the articles of partnership had been drawn, a tedious and expensive lawsuit was apprehended. To avoid this, James F. Atlee suggested an equitable settlement by compromise, and the Mint ceased operations in 1791, on the basis of his suggestion as may be supposed. In 1792, the machinery and appliances for coinage were removed from Machin's Mills. The old coining press was subsequently used on board the sloop "Newburgh," as part ballast, and in this way was carried up and down the Hudson river, under command of Captain Isaac Belknap, for a number of years.

The dies used by Machin & Co., at New Grange, were made by James F. Atlee. The inscriptions and devices of some of them indicate they were to be used in producing a coinage intended for circulation in Vermont. There is also good reason to believe that the same Atlee executed some of the dies used in striking the authorized coinage of Vermont issued by Harmon; whether these were used at Rupert, as the law required, or at Machin's Mills, in the state of New York, as might have been convenient, is uncertain. Many of the coins of Machin & Co., were irregular, and all of them unauthorized, being coined in a place not legally recognized as a mint of issue.

COPPER COINAGE OF THOMAS MACHIN & CO.

No. 1. Obverse: A head almost identical with that upon the more common coins. Legend: "GEORGIUS·III·REX·"

Reverse: The goddess of liberty, seated, facing left, an olive branch extended in her right hand, the left hand supporting a liberty staff. This reverse being common to coins attributed

to Vermont and to others supposed to belong to Connecticut. Legend: "INDE ET LIB". Exergue: The date. Borders, serrated or milled; Edges, plain. Copper: size, 16 to 18; weight, from 120 grains to 154 grains.

No. 2. Obverse: A smaller head than No. 1. Legend: "GEORGIUS III. REX."

Reverse: Identical with that upon certain pieces described as Connecticut coins similar to that of No. 1. Legend: "INDE ★ ET ★ LIB ★"

No. 3. Obverse: A head, facing right. Legend: "★ AUCTORI. CONNEX ★"

Reverse: From the same die as that of No. 2.

No. 4. Obverse: A head, facing left. Legend: "∴ AUCTORI ∴ ∴ CONNEX ∴"

Reverse: From the same die as that of No. 2 and No. 3.

The Legislature of Vermont, by the terms of the second grant made Reuben Harmon, Jr., as has been related, provided for an entirely new series of coin, the devices, legends and general features of which have been noted already. Whether coined, according to the intent of the law, at the Vermont Mint, at Rupert, in that state, or struck for Harmon by Machin & Co., at their hardware manufactory in the state of New York, the regular authorized coinage of Vermont was of the following general description:

COPPER COINAGE OF VERMONT, 1786, 1787, 1788.

The "VERMONT CENT" of 1786. (New Series.) Three Types. Three Varieties.



VERMONT CENT, 1786. NEW STYLE.

Obverse: A head, facing right, or left. Legend: "AUCTORI VERMON," or "VERMON AUCTORI," variously punctuated on different specimens.

Reverse: The goddess of liberty, seated, facing left, by her side a circular shield, bearing four sheaves of grain. In her right hand the figure tenders an olive branch, the left arm being upraised, the hand resting at the top of a long liberty staff. Legend: "INDE ET LIB" variously punctuated on different specimens. Exergue: The date. Border, serrated; Edge, plain. Copper; size, 16 to 17; weight, generally above the legal requirement of 111 grains; average from 120 grains to 141 grains.

The "VERMONT CENT" of 1787. Three Types. Three Varieties.

Obverse: Similar in general to that of this coinage and series for the preceding year.

Reverse: Variety numbers 1 and 2, similar in general to that of the preceding year, except a cross upon the shield. Variety number 3, bears the word "BRITAN NIA" instead of the legend "INDE ET LIB."



VERMONT CENT, 1788.

The "VERMONT CENT" of 1788. Six Types. Four Varieties.

Obverse: Similar in general to that of this coinage and series for the preceding years. Variety number 4, has the legend "INDE ET LIB" transposed so as to read, "★ ET LIB ★ ★ INDE" a remarkable deviation.

There are fourteen obverse, and fourteen reverse dies, noted as having been used in the production of this coinage and series; these were used from time to time in varied relations and combinations, interchangeably, thus creating great diversities and numerous differences in the coinage, not of especial interest, aside from the studies of painstaking antiquarians.

Type No. 1, of 1786, is known as the "Baby Head," on account of the infantile appearance of the face. Nos. 2 and 3 of the types of 1786, have heads much the same as those shown upon the common types of the Connecticut cents of the same period. The obverse die of 1786, was sometimes struck upon pieces bearing a reverse of 1787. There was not an exceeding diversity in the coinage of 1787, or in the general features of that of 1778, except in the several rare issues from dies wherein the legends were punctuated with stars. One of the obverse dies of 1788, belonging to Connecticut, was used with a Vermont reverse of the same year, an instance of irregularity accounted for by what has been recorded as to the partnership formed at the time between the several men employed in producing coin in the name of different states, first one, then another, and finally, probably in an illegal, or at least disorderly manner, from dies of all these coinages, which, whilever they could be made effective, were economically and promiseously used in the production of a mixed and heterogenous currency, which, though at first a public convenience, owing to the condition of the country then, subsequently depreciated and was finally displaced by money issued by the United States.



COIN OF UNKNOWN ORIGIN.

The dies of the Vermont Mint, in common with those of the Mints of other states, were not only used oddly in conjunction with each other, but were struck upon other coins, such as British half-pence and Nova Constellatios.

A very rare piece, the origin of which is unknown, has for an obverse an impression of a Vermont type, and for a reverse, that of the pattern piece called the "Immune Columbia," which presents the goddess of liberty seated, facing right; her left hand is fully extended, and in it is upheld the scales of justice; in the right hand she grasps a flag, which depends from a liberty staff, which is crowned by the liberty cap. Legend: "IMMUNE COLUMBIA." Exergue: 1785. Both the Nova Constellatios and the Immune Columbia, were early pattern pieces, of which an account will be found in succeeding pages.

COPPER COINAGE OF CONNECTICUT.

The colony of Connecticut suffered, in common with the rest of the British Provinces in America, from a scarcity of currency, and like the others, sought to remedy the evil by an issue of paper money. These bills, in common with those of the rest of the provinces, rapidly depreciated, until in 1839, one ounce of silver of the British standard, was valued at "28 shillings of them or any other of the New England old tenor bills," all of which were "liable to grow worse and worse." The coinage of copper was a subject of consideration in Connecticut at an early date, inasmuch as in Granby, then part of the town of Simsbury, in the state of Connecticut, there was from early times a considerable copper mine, productive of a very fine quality of that metal.

There seems to have been a peculiar currency used in Connecticut early in the seventeenth century, consisting of a kind of coin of which the numismatologists of the present time are entirely ignorant. It can only be stated that on May 25th, 1721, the Upper House of the General Assembly of Connecticut, passed an act sent from the Lower House, ordering that the coin called "black doggs" should pass at two-pence each.

Although no such coin is known by the name, it is evident from the value given the pieces, that they must have been of copper, or of some composition consisting mostly of that metal.

The earliest coinage in Connecticut, of which there is an historical record, was an unauthorized or private one, made by John Higley, of Granby, of copper from ores dug on his own premises, at "Copper Hill," in that town, and struck during the years 1737, 1738, 1739, about three years, though no specimens of this coinage are to be found bearing the date of 1738.

The copper coins made by John Higley are called "The Granby or Higley Tokens," and are finely executed. As the authorities paid no attention to the production and circulation of these tokens, it is presumable that a considerable amount of them were issued, yet they are at present extremely rare, their disappearance being accounted for; according to tradition, by the fact that owing to the uncommon purity of the Connecticut copper, of which they were made, the "Higley Coppers" were largely used by the goldsmiths of the Colonial period and subsequent years, to alloy the gold used by them in their manufactures.

The "GRANBY OR HIGLEY TOKENS," 1737 to 1739. No. 1, 1737. Two Types. One Variety. (A.)







GRANBY OR HIGLEY TOKEN, 1737.

Obverse: A deer, standing, facing left, occupying the whole field. Legend: "WANT ME AS YOU PLEASE." THE VALVE OF THREE-PENCE."

Reverse: Three hammers, each bearing a crown. Legend: "I AM GOOD COPPER. 1737."

No. 2. 1737. One Type. Two Varieties.


Obverse: A deer, standing, facing left, occupying the whole field. Legend:  "VALUE.ME.AS.YOU.PLEASE☆"
 Exergue: The Roman numerals III upon a small scroll; a little crescent is shown below.


Reverse: Three hammers, each bearing a crown upon the head. Legend:  "I.AM.GOOD.COPPER."  ❖  1737.

No. 3. No date. Three Types. One Variety.




GRANBY OR HIGLEY TOKEN.

Obverse: A deer, standing, facing left; a crescent above in the field. Legend:  "VALUE.ME.AS.YOU.PLEASE☆"
 Exergue: The Roman numerals III upon a small scroll; a little crescent is shown below.

Reverse: A broad axe. Legend:  "J.CUT.MY.WAY.THROUGH."

No. 4. 1739. One Type. One Variety.

Obverse: A deer, standing, facing left; a crescent above in the field. Legend:  "VALUE.ME.AS.YOU.PLEASE☆"
 Exergue: The Roman numerals III upon a small scroll; a little crescent is shown below.

Reverse: A broad axe. Legend: "J.CUT.MY.WAY.THROUGH. 1739."

All the Granby or Higley Tokens were made with beaded or milled borders, and with plain edges. They varied in size from 18 to 19, and in weight from 120 to 170 grains. There were seven obverse and four reverse dies, which were combined variously, the same obverse being used with different reverse impressions, or one reverse with different obverse impressions, producing odd pieces. The most common reverse was the variety, bearing the broad axe, but no date. (No. 3.)

The coinage of his tokens having been effected without the sanction of law, Higley found trouble in putting them in circulation at their nominal value. At first he stamped them as worth three-pence, the colonial paper being depreciated, and then, at loss to measure values by such a fluctuating standard, and uncertain how his coinage would be received, he inscribed upon his subsequent pieces the modest legend, "Value.Me.As. You.Please." To establish and extend the business of his mint upon a more stable and regular basis, it appears that Higley sought assistance and co-operation outside the colony in which he conducted his business, and that he and those who became interested with him, undertook, through "Mr. John Read, of Boston, Gent.," to secure the authority of law for their operations, and to make the copper product of their mint, the monetary standard of the province.

Accordingly, on October 15th, 1739, the said John Read addressed the General Court of Connecticut, then assembled in New Haven, and in a Memorial and Petition, set forth the lamentable condition of the currency of New England, on account of the depreciation in the bills of the several colonies, and inasmuch as for various reasons Connecticut stood fairly with the British Court, he suggested the General Court should obtain from the Crown authority to effect a coinage of copper, and establish a mint, thus providing a proper currency for the colonists and developing the mines and natural resources of the colony.

Confident of the favor of the Crown of England, Mr. Read undertook, if the General Court would send an Agent to London under his direction, to bear all the expense of the mission, and only asked that in case of success in obtaining the patent such as was desired, he and those concerned with him, should have all the legitimate profit derived from the work of supplying "the public with the much-needed coinage."

The currency proposed by Mr. Read, was to consist of English half-pence and farthings coined from Connecticut copper of sterling value; with these he proposed to redeem the out-

standing bills of Connecticut at maturity, issuing in the meantime, new bills only to replace those already in circulation. Of the new bills and copper to be coined, he suggested a bank should be created, which should pay its obligations and those of the colony upon demand, in the course of business, one-half in the new bills, and one-half in copper money from the Connecticut Mint. In this way the petitioner argued, there would be an immediate supply of money of intrinsic value, which would be ever preserved in value "against all factors, stock-jobbers and chances whatsoever." Thus, too, he expected to induce the holders of silver money to give up hoarding the same, and throw it into circulation, in common with the other currency of paper and copper, the whole to result greatly to the comfort and relief of the people and the advantage of trade and general industry.

No notice was at first taken of the memorial of Mr. Read, and he wrote three letters, one after another, calling attention to the matter; his third letter was dated November 12th, 1739, and on the twenty-first of the same month, the Memorial and Petition which he had presented five weeks before, was first "come to" in the order of business for consideration. There is no evidence of the legislation desired by Mr. Read and his partners, and subsequently, although private coinages were continued in different places, and a share of the coppers produced were circulated in Connecticut, there is no further record of any effort to establish an especial issue of coin for that colony, as such.

The copper mine owned by John Higley, and from which he obtained the metal used in the production of his copper tokens, was situated about a mile and a half south of the principal Simsbury copper mines, and was in the course of time extensively worked. On October, 1773, the General Court of Connecticut made the subterranean part of the Simsbury copper mines a colonial goal and public workhouse, which was afterwards known as Newgate Prison. To this prison for some half a century thereafter, the Courts of Connecticut sen-

tenced burglars, horse thieves, counterfeiters and the like criminals. The mines, which were quite unprofitable as an average business, were more unsatisfactory as a place of confinement; the buildings connected with them were three times destroyed by fire, and revolts, violence and escapes were of frequent occurrence. The unfortunate prisoners were employed in working the mines, and the discreditable establishment was kept up until the year 1827, when a more humane institution was founded upon modern principles in another part of the state.

On October 18th, 1785, Samuel Bishop, James Hillhouse, John Goodrich and Joseph Hopkins, presented a petition to the "Honorable General Assembly of the state of Connecticut," then "sitting at New Haven, in that state." These petitioners, citizens of Connecticut, represented the existence of a great and general scarcity of small coin in the state, to the excessive inconvenience of all orders of men, especially the laboring class, "in the article of making change," and furthermore, that both Englishmen and natives of the state were counterfeiting in great abundance, coining and issuing a coin much under weight, and endeavoring to impose the same upon the public, to the discredit of the copper currency and the damage of the commonwealth. In view of these facts, the said Bishop, Hillhouse, Goodrich and Hopkins, proposed the consideration of the expediency of a grant to them of the right and power of establishing "a Mint in this State," to be used for ten years by them, under superintendence of the Assembly in coining coppers of good metal of the standard and weight of British half-pence, five per cent. of the coppers coined by them to be paid into the Treasury of the state, in consideration of the privilege granted them in making such an issue current. Beside this, they asked that the coinage of copper in the state, without permission of the Assembly, should be punished as counterfeiting, according to the laws in the case of an imitation of gold and silver money.

After discussion, the General Assembly, on October 20th,

1785, finally passed a bill in form, granting the persons named in the petition, the right to establish a mint in Connecticut to manufacture coppers of the value of British half-pence, not to exceed the amount of Ten Thousand Pounds lawful money, the grant to continue during the pleasure of the General Assembly, but not exceeding five years, upon the terms named in the petition, the coinage to be inspected by appointees of the state, at the expense of the persons conducting the mint, and not to issue without inspection. Nothing in the act was to be construed so as to make the coppers a legal tender, "except for the purpose of making even change, for any sum not exceeding three shillings." This coinage was ordered to bear the following impression or stamp, (*viz*), a man's head on the one side, with a circumscription in the words or letters following, (*viz*), AVCTORI: CONNEC: and on the other side, the Emblem of Liberty, with an olive branch in her hand, with a circumscription in the words and figures following, (*viz*), INDE:ET:LIB:1785.

On October 24th, 1785, the General Assembly of Connecticut "Passed a Bill to prevent Coining Coppers without Licence" by which it was enacted "that no person whatever shall Coin or Manufacture any Copper Coin of any description or size without permission first had and obtained from the General Assembly on pain of forfeiting for each offence the sum of one hundred pounds lawful Money which forfeiture shall be if sued for by a private person one Moiety thereof to the use of the person prosecuting to Effect and the other Moiety thereof to the Treasurer of this State to and for the use of this State and shall be recoverable by Action of Debt or Information before any Court proper to try the same—". An attempt was subsequently made to prohibit the importation into Connecticut of any counterfeit coin, or any copper coin, unless of a coinage authorized by the Congress of the United States, or by some one of the States, and of equal value to that coined in Connecticut by lawful authority. During May, 1786 a bill passed the Lower House of Assembly, which

fixed the amount of prohibited coppers any person could at one time bring into the state, at fifty pieces; non-compliance with the law to be punished by a fine of "Ten Pounds lawful Money," all such coin so imported to be confiscated and disposed of as counterfeit money. This bill failed to pass the Upper House of Assembly, and the mixed and irregular copper currency continued in circulation.

The dies for the Connecticut coppers were made by Abel Buel. The work of coinage appears to have been made the subject of a sub-contract to Samuel Broome and Jeremiah Platt; these sub-contractors had formerly been merchants in New York, and were said to be men of fortune. Broome and Platt had a mint at a place now called Morris Cove, on the right hand side of New Haven harbor, going up, at a point about two miles above the light house. There was another mint at Westville, at the foot of West Rock, about two miles inland from New Haven. The building at Morris Cove was a small frame house, said to have been painted red. This mint was in operation in 1788, and is described as making use of "a powerful iron serew" for striking the coins, the whole apparatus and establishment being doubtless much the same as that described in use about the same time at Rupert, Vermont, and by Machin and Company at New Grange, now Newburgh, Ulster county state of New York.

CONNECTICUT COPPERS, 1785 TO 1788 INCLUSIVE.

The "CONNECTICUT CENT," 1785. Eight Types. Eight Varieties.



CONNECTICUT CENT, 1785 MAILED BUST.

Obverse: A mailed bust, the head laureated, facing right or left. Legend: "AUCTORI CONNEC," variously punctuated.

Reverse: The goddess of liberty, seated, facing left, by her side a circular serolled shield. In her right hand the figure tends an olive branch; the left hand, being upraised, grasps a liberty staff, near the top, which is surmounted by a liberty cap. Legend: "INDE. ET LIB.:" Exergue: 1785. Borders, serrated or milled. Edges, plain. Size, 17 to 18; weight, 132 to 153 grains.



CONNECTICUT CENT, 1785. MAILED BUST.

Some of the types and varieties of the coinage just described are unique as specimens, some very rare, and others comparatively common.

The "CONNECTICUT CENT," 1786. Seven Types. Ten Varieties.



CONNECTICUT CENT, 1786. MAILED BUST.

Obverse: Similar to that of this coinage for the preceding year, except that the first five types have mailed busts, while the other two are draped.

Reverse: Similar to that of this coinage for the preceding

year, except differences in punctuation of the legend. Weight, 116 to 173 grains.



CONNECTICUT CENT, 1786. ("HERCULES.") MAILED BUST.

Two pieces from dies classed as belonging to this coinage of 1786, weigh respectively but 84 grains and 102 grains, and on that account, and because of differences in execution as compared to the rest of the issue, are suspected of being counterfeits. While some of the genuine coins of 1786 are as noted, of but 116 grains, few have been found which do not reach the legal weight of 144 grains, and a number are considerably heavier.



CONNECTICUT CENT, 1786. DRAPED BUST.

The "CONNECTICUT CENT," 1787. Forty-three Types. Thirty-six Varieties.



CONNECTICUT CENT OF 1787. MAILED BUST.

Obverse: Similar in general to that of this coinage for the two preceding years, except in the division and punctuation of the legend, and the mis-spelling of the same in several instances, the word "AUCTORI" being variously rendered in different dies, as: "AUCIORI," "AUCTOBI," "AUCTOPI," or the legend made to read "AUCTORI CONNECT," or "AUCTORI CONNFC." Fifteen of the types of 1787 bear mailed busts, and twenty-eight types of the same year bear draped busts, while the decoration of the different pieces with stars, pheons, cinquefoils, fleurons mullets and the like peculiarities, creates deviations too numerous and unimportant for record in a general description.

Reverse: Similar in general to that of this coinage for the two preceding years, except in the division, transposition, and punctuation of the legend, and the mis-spelling of the same in several instances, the words "INDE ET LIB" being variously rendered in different dies, as: "INDE ETLIB," "ETLIB INDE," "IND ET. LIB," "INDL ET LIB," "INDE ETLIR," "INDE ET.LIR," "INDE ETIIB, etc., with multiform decorations varied on the different pieces, creating deviations too numerous and unimportant for present notice. Weight, 117 to 184 grains.



CONNECTICUT CENT, 1787. DRAPED BUSTS.

One piece from a die classed as belonging to this coinage of 1787, weighs but 104 grains; it has a very small head upon the obverse, and in execution resembles the coins of other states more than the mintage of Connecticut. On account of these peculiarities, this piece is supposed a counterfeit.

The "CONNECTICUT CENT" of 1788. Sixteen Types. Fourteen Varieties.



CONNECTICUT CENT, 1788. MAILED BUST.

Obverse: Similar in general to that of this coinage for the three preceding years, having deviations similar to those described in the dies of 1787. In one case, the legend "AUCTORI CONNEC" is mis-spelled and made to read "AUCTORI CONNLC." Thirteen of the types of 1788 bear mailed busts, and three types of the same year bear draped busts.

Reverse: Similar in general to that of this coinage for the three preceding years, with somewhat similar deviations in the division, orthography and punctuation of the legend, and also in the heraldic details and decorations peculiar to the several varieties. Weight, 108 to 168 grains. (Average weight less than any other year.)

One specimen of 1788, has an obverse identical with one of 1787 of Connecticut; reverse the same as one of the coins of Vermont. Another Connecticut coin of this year, has the same reverse as the "GEORGIUS III. REX." issue of Machin & Co., from the mint established by them in the state of New York.



CONNECTICUT CENT, 1788. DRAPED BUST.

Of this copper coinage of Connecticut, there were, according to the best authorities and the most careful investigation of the best collections of "Colonials," in 1785, eighteen obverse and eight reverse dies; in 1786, fifteen obverse and ten reverse dies; in 1787, one hundred and eight obverse and fifty-two reverse dies; in 1788, twenty-three obverse and fourteen reverse dies. One hundred and sixty-four obverse and eighty-four reverse dies in all, for although according to the record, this coinage was continued until 1789, no coins have been found of this species bearing that date and the impress of the Connecticut mint. These numerous dies were used interchangeably, in different combinations, one with another, sometimes those of different years being worked together, and as has been noted, the dies of different mints appear in the coinage of different states, and in cases, upon pieces from private unauthorized manufactories of coppers. Great trouble has been taken to classify the copper coinage of Connecticut, but the enumeration and description of the same has not been made absolutely perfect; neither can the best experts discriminate with certainty between the counterfeit and the genuine.

In January, 1789, the General Assembly of Connecticut appointed a Committee to inquire into the condition and record of the mint of that state. This Committee met on the 7th of April, 1789, and reported to the General Assembly at the session held at Hartford the following May. The report of this Committee gave a succinct history of the mint, reciting its origin and organization, as well as giving a complete statement of the several co-partnerships which had been formed to carry on the business. The owners of the mint at that time, were James Jarvis, 4-8 and 1-16 parts; James Hillhouse, Esq., 1-8 part; Mark Leavenworth, Esq., 1-8 part; Abel Buel, 1-8 part, and John Goodrich, 1-16 part. "Abel Buel" is reported to have gone to Europe and left his rights in the copper coinage to his son Benjamin. The firm are said to have ceased the coinage of coppers June 1st, 1787, but Benjamin Buel is

reported to be pursuing the business "and has Just began to Stamp them." The Certificate of the three Inspectors showed there had been inspected "twenty eight Thousand nine Hundred and forty four Pounds weight of Coined Coppers," and that there was still due the state, on account of the twentieth part to it payable by law, "sixty-one Pound & two ozs. of coined coppers" which were reckoned at "Eighteen Coppers for One Shilling," making the amount due the state "Eight Pound three Shillings."

For six weeks from September 10th, 1786, the mint, as appeared by report of the Committee, had been leased to Mark Leavenworth, Isaac Baldwin, and William Leavenworth, during which time they made, according to their own statement, blank coppers, which they had stamped in the city of New York with various impressions, some few with that borne by the Connecticut coins, or one resembling the same. On June 20th, 1789, the General Assembly passed a resolve suspending the coinage to the end of the next session, the proprietors and all persons interested in the mint to be notified to appear and show reason why their grant of the right of coinage should not cease; and this seems to have been in effect the end of the coinage of this mint for the state of Connecticut.

By the Constitution of 1787, the United States assumed the exclusive right to coin money for the several states. On motion, during the session of the General Assembly of Connecticut, December, 1790, the Treasurer was authorized and directed to sell the copper coin belonging to the state for liquidated notes, or securities of the state, provided he could obtain two shillings of said notes or securities per pound weight for said coppers. The same coppers still remaining unsold, and James Jarvis being engaged upon an extensive contract to coin copper cents according to act of the Congress of the United States, the General Assembly of Connecticut, during the session of May, 1791, directed the State Treasurer to dispose of the coppers in the Treasury, the property of the state, to the best advantage, and make report of his proceedings in

said business, which being supposed to have been done, concluded the action of Connecticut in the matter of a *special* and local coinage.

COPPER COINAGE OF MASSACHUSETTS.

From a very early date, the industrious and commercial colony of Massachusetts, gave almost constant attention to various projects for securing a supply of money, either of paper bills, or coin of different metals. In Massachusetts, the only colonial mint for silver was established, and for that colony alone, as far as known, was a project for importing money considered by its Legislature. This scheme was embodied in a Memorial presented to the Senate of Massachusetts, March 17th, 1702-3, by "William Chalkhill, One of the Moneyers of Her Majesties Mint in the Tower of London" then resident in Boston. Chalkhill proposed to bring over "Ten Thousand Pounds in Copper Money," the prices and values to be agreed upon.

The Senate, having received the proposal of the Moneyer, appointed a Committee of three to meet a Committee of the House of Representatives, in conference upon the subject. The joint Committee favored the importation of £5000 in pence, but their report was not concurred in, and the matter being laid upon the table, went over to be considered at the "next Court, if then offered." It does not appear from the subsequent record, that the scheme was ever revived, and that which has already been given, is all that is known regarding the matter.

Almost half a century later, a military adventure by Massachusetts against the French at Cape Breton, Canada, caused the importation of the largest sum of money in specie, known to have been sent at one shipment to the British provinces in America during the colonial period. The expenses incurred by Massachusetts in the expedition to Cape Breton, were estimated at £183,649, 2s. 7½d. sterling, and, as the enterprise was against a public enemy, the Parliament of Great Britain voted the amount should be repaid the colony.

Accordingly, on September 18th, 1749, the ship *Mermaid*, commanded by Captain Montague, arrived in Boston harbor, and William Bollan, Esq., one of the agents of the province, having come in the said ship, laid before the Council of the colony, a statement of his business, and an account of the monies on the *Mermaid* for the Treasury of Massachusetts, from the Exchequer of England. With the credit obtained from the British Treasury, the agents of Massachusetts had purchased six hundred and fifty ounces of silver coin, in milled and pillar Spanish dollars and halves of the same, and ten tons of British copper half-pence and farthings.

The authorities were somewhat troubled to find a place of deposit for such a mass of money; Ezekiel Lewis, Samuel Danforth and Treasurer Foye were appointed to visit a house owned by Foye, in King's street, to see if it were a fit place for lodging the public money, and to treat with the tenant of the premises, to secure her consent to remove. The house was found desirable for the purpose, but the tenant refused to remove, even to make room for a large amount of money, at the request of "the Honorable the Great and General Court of His Majesty's Province of the Massachusetts Bay in America."

There being thus "a lady in the case," the Council voted that "a Brick Arch" should be built in the cellar of the residence of Treasurer Foye, to which the treasure on the *Mermaid* should be conveyed as soon as possible, and Samuel Danforth and Andrew Oliver were made the Treasurer's assistants in the important business. By means of this specie, the greater part of the bills of credit and paper money of Massachusetts, were taken up and redeemed, and it is supposed that the frequency of fine specimens of English half-pence and farthings in America, dated 1749, may be accounted for by this importation and disbursement. It cost over two hundred pounds sterling to ship this money from England, to which were added cost of freight on board the *Mermaid*, charges for delivery, etc., probably as much more. The transaction shows a marked contrast to the business methods of the present day.

According to the record in the archives of the Senate of Massachusetts, the first proposal for a copper coinage for that colony, was made by Seth Reed, of Uxbridge, Massachusetts, "To the honorable the Senate and House of Representatives in General Court assembled," March, 1786. In the Senate, March 9th, 1786, the same petition was read and left in charge of a joint committee. Reed represented that he could obtain a considerable quantity of copper and silver from bodies of ore within the United States, samples of the ores being in his possession. By coining the metals named, the petitioner supposed the public might be greatly benefitted, and the necessities of business better met, than by an emission of paper currency. Aware that the development of the mines, and the coinage, would involve great expense and much trouble, the adventurer asked that the Commonwealth should save him harmless in that particular, and grant him the exclusive right of coinage in its jurisdiction, for such a time as may be deemed necessary, or so long as he should meet in full the requirements of the Government in the matter.

On March 15th, 1786, a petition was presented by James Swan to the Senate and House of Representatives of Massachusetts, for the right of coining money, but of copper only. Swan asked leave to coin Twenty thousand pounds value in copper, the size, fineness, and impression of the coin, to be determined by the authorities, and the value determined by the relation of the coin to the British half-pence or to the French sols. The petitioner proposed to establish a mint at his own cost, in Massachusetts, and on condition that all foreign copper coin, of whatever denomination, should be declared illegal; would pay into the Treasury of the Commonwealth five and one-half per cent. on all the coin he should make. The benefits to the public were urged as reasons for granting the petition, and the fact that a similar petition had been granted in New Jersey and Connecticut, quoted as a good example.

The statement in regard to New Jersey, was somewhat premature, no action of that state in the matter having been made

subject of record, until May 23rd, 1786, more than five weeks afterward. No attention seems to have been paid to this petition from James Swan, but the proposal of Seth Reed was reported upon by the Committee having the same in charge, on March 24th, 1786, and it was recommended that the petitioner be called upon for fuller particulars and larger samples of the ores mentioned by him, with proof that the mines from which they were taken were worked in Massachusetts, and that the affair be referred over to the next General Court. The report of the Committee was concurred in by the Senate and House the same day.

Meantime, March 23rd, 1786, another scheme was introduced, and a Committee appointed to consider the subject of coining a quantity of copper or silver money in behalf of the commonwealth. This was referred for consideration to the Governor and his Council, by whom the business was entrusted, to the Lieut. Governor and Honble Mr. Adams, to confer with the authors of the several petitions presented for the right of coinage, consider the circumstances, and report. A thorough investigation followed, and extensive negotiations with James Swan were conducted. Mr. Gorham, one of the Delegates of Massachusetts in the Congress of the United States, taking notice, according to the newspapers, that proposals had been made the Legislature of Massachusetts, relative to a copper coinage, informed the Governor that great inconvenience must follow a separate coinage by the states, and moreover, that a uniform coinage would soon be provided by Congress. In view of the facts, the Governor suggested, under date of June 12th, 1786, that the proceedings to establish a mint in Massachusetts should be suspended.

Notwithstanding the suggestion of the Governor, and the advice of Mr. Gorham the Delegate, the business of the mint of Massachusetts was forwarded, and on October 16th, 1786, there was passed "AN ACT for establishing a Mint for the coinage of Gold, Silver and Copper." The United States in Congress assembled, having on the 8th of August, 1786, regu-

lated the alloy and value of coin, as was stated in the preamble of the Act, it was enacted that all the coin that should be struck in the Mint of Massachusetts should "be of the same weight, alloy and value, and each piece bear the same name, as is by the said Resolve of Congress fixed and established. It was further enacted that Sixty thousand dollars should be coined in convenient proportions of cents and half cents, the name of each to be stamped in the center thereof, each coin to bear such inscriptions or devices as the Governor, with the advice of Council, may think proper, the said coin, when struck, to be received in all payments in the commonwealth. The erection, equipment, and superintendence of the mint, was committed to the Governor and his Council, to report from time to time to the General Court.

The Governor of Massachusetts nominated Captain "Joshua Wetherle" as a person suitable to be employed in the mint, and the Council advised that said "Wetherle" be appointed to conduct the business of copper coinage for the commonwealth. Captain Joshua Witherle (as he wrote the name), having become Mint-master, there was weighed for delivery to him from the cannon foundry at Bridgewater, on May 10th, 1787, thirty-four hundred and thirty-four pounds of copper, and six hundred and fifty weight of "screws" of the same metal, the property of the commonwealth; and David Kingman and Hugh Orr, the Committee appointed for the purpose, reported that there was on hand fit to be used for coinage, "One Ten Inch Mortar Two & half Do., four Cohorn Mortars unfinished, now on hand, also Two four pound Brass Cannon that are to be run Over Again and a Ten Inch Mortar that failed in the Casting Supposed to weigh 12 or 14 Cwt. together with a Brass rack belonging to the Machine for boring Cannon,".

On Wednesday, June 27th, the Council advised that the devices for the intended copper coinage, should "be the figure of an indian with a bow & arrow & a star on one side, with the word 'Commonwerlth,' the reverse a spread eagle with the words—'of Massachusetts A. D. 1787'—". It will be

noted in the illustrated description of the copper coins of Massachusetts on succeeding pages, that in the execution of the dies from which the mintage was done, there was a variation from the design named by Council in the legend upon the reverse, the word "of" being omitted, and "Massachusetts" and the date alone inscribed.

The appointed superintendent of the second Massachusetts Mint was the principal partner in the firm of Witherle & Co., coppersmiths, who had a shop on Kilby street, in the city of Boston. Joshua Witherle lived upon a piece of land now occupied by buildings from Number 1132 to 1144 Washington street, Boston. A short distance in the rear of his house, once described as 910 Washington street, Witherle erected the building which was used as a mint-house. This was described as of wood, one story high, about twenty feet wide by forty feet long, and is said to have been put up before the mint was proposed. The copper for the coinage, was cast into ingots at the mint in Boston, then carted to Dedham, Massachusetts, and rolled into plates at a mill there belonging to Joshua Witherle, from which the metal ready for being struck into planchets or blanks for the coin, was carried back to Boston and delivered again into the mint.

Though having buildings already put up for the business of coinage, superintendent Witherle explained before the Council on January 17th, 1788, that having received orders in May, 1787, from Government, to erect the necessary buildings, and prepare machines for coining copper cents according to law, he had immediately begun the work, and spared no pains to procure every article which might be thought necessary. Unfortunately, the iron furnaces, upon which he had been obliged to depend, were "so nearly out of blast," that he could not get patterns made for the rollers he needed, and was at loss for sundry other articles. Unable to get such castings as he desired, the Mint-master was compelled to have rollers made of wrought iron, which, however, answered the purpose.

Another cause of great delay in the business, was the diffi-

culty found in securing steel of a proper quality for making the dies required for the coinage, which was, however, finally accomplished. More time was lost in unsuccessful experiments in casting copper in readiness for the rolling mill, the metal being afterwards drawn, or forged into shape, under trip hammers erected at Dedham.

Most of the dies for the second Massachusetts mint, were made by Joseph Callender, of "Half Square State-Street," Boston, at a cost of £1, 4s. each. Of this, Superintendent Witherle made complaint as an excessive price, and subsequently made a contract with Jacob Perkins, of Newburyport, Massachusetts, who was to receive for making the dies, one per cent. of the coin struck from them. From peculiarities in the impressions from the dies, it appears that Callender made thirty-eight dies; his bill was £48, 12s. for making thirty-nine dies and repairing three dies. There was but £3, 18s. 10d. paid to Jacob Perkins in all; how economical the contract with him would have proved, had the same been continued, is uncertain; the small amount received by him shows he could have done but little comparatively in the service of the mint.

The accounts of the copper coinage of Massachusetts show there were £1048, 2s. 7d. in value of coppers coined, up to January 21st, 1789, at an expense of £2249, 16s. 4½d., a loss to the commonwealth of £1201, 13s. 9d. 1 farthing. The coinage seems to have been ended at this time. On June 17th, 1789, Joshua Witherle having been paid by a warrant on the Treasury of Massachusetts, for "one thousand and seventy pounds, ten shillings and three pence ¼" his bonds as superintendent of the mint were cancelled. The buildings, machinery, and facilities of the mint establishment were, upon his petition, left in possession of Joshua Witherle, for his use in private business, he agreeing to properly take care of and upon demand, duly account for the same.

On June 10, 1790, the copper cents in the Treasury of Massachusetts, were made current at one hundred and eight cents

for six shillings, or one dollar, of lawful money. No silver or gold coins were struck at the second mint of Massachusetts, and as the federal coinage soon made the manufacture of coin by any state as needless, as it was declared unconstitutional, it occurred to the Legislators of the Bay State, that they would have done well to have heeded the suggestion of their Governor, and suspended action regarding their state currency, in deference to the proceedings of the Congress of the United States.

COPPER COINS OF MASSACHUSETTS.

Obverse: A clothed Indian, standing, facing left, in his right hand a bow, in his left an arrow. Legend: COMMON ★ WEALTH.

Reverse: A spread eagle, bearing a shield upon his breast, inscribed with the denomination of the piece; his right talon grasps an olive branch, and the left holds a bundle of arrows. Legend: MASSACHUSETTS. In exergue, the date. Borders, milled; Edge, plain.

The "Cent," 1787. Eight Types. Nine Varieties.



MASSACHUSETTS CENT, 1787.

Obverse: A clothed Indian, standing, facing left, in his right hand a bow, in his left an arrow. Legend: COMMON ★ WEALTH.

Reverse: A spread eagle, a broad shield upon his breast, six pales gules (upright), a chief azure (open or plain). Upon the chief, or upper part of the shield, the word CENT, in bold Roman lettering. In exergue, beneath a heavy horizontal bar,

the date 1787. Borders, milled; Edge, plain. Size, $16\frac{1}{2}$ to 19; weight, 146 to 165 grains.

The "Half Cent," 1787. Six Types. Four Varieties.



MASSACHUSETTS HALF CENT, 1787.

Obverse: Same general description as the Cent of 1787.

Reverse: Same in general as the Cent of 1787, except that the shield upon some specimens, bears only HALF CENT. Borders, milled; Edge, plain. Size, 15 to $15\frac{1}{2}$; weight, 75 to 83 grains.

The "Cent," 1788. Twelve Types. Thirteen Varieties.



MASSACHUSETTS CENT, 1788.

General description much the same as that of the Cent of the same coinage for 1787.

The "Half Cent" 1788. One Type. Two Varieties.



MASSACHUSETTS HALF CENT, 1788.

Similar in general to the Half Cent of the same coinage of the preceding year 1787. Weight, usually 76 grains.

The Copper Coinage of Massachusetts was, in comparison with other colonial issues, quite regular, the several types and varieties showing respectively but minor points of difference. The superintendent of the mint, Joshua Witherle, was known among his neighbors as "The Cent Maker." The archives of Massachusetts contain a great number of documents relating to the silver and copper coinage of the colony and state; these have been published by S. S. Crosby, at the suggestion of the NEW ENGLAND NUMISMATIC AND ARCHÆOLOGICAL SOCIETY, and give a very interesting account of the whole business, the different schemes proposed by various parties, and the laws enacted, the result and conclusion of all having been given herein. Superintendent Witherle seems to have been a practical man and able mechanic, who achieved good results under unfavorable circumstances. But for the establishment of the United States Coinage, doubtless the metallic currency of Massachusetts would have become of great commercial importance, a benefit to the people and a source of direct profit to the commonwealth in which it originated.

COPPER COINAGE OF NEW JERSEY.

During the tenth General Assembly of the State of New Jersey, on Tuesday, May 23d, 1786, "The speaker laid before the House proposals made by Walter Mould, Thomas Goadsby and Albion Cox, for striking a Copper Coin for the state of New Jersey, which was read Whereupon Ordered, that Messrs A. Clark, R. S. Smith, Sheppard, Marsh and Nicoll be a Committee to Confer with the said Walter Mould Thomas Goadsby and Albion Cox on the Subject of the said proposals and report to the House the Terms they may agree upon." On Wednesday, May 24th, 1786, the Committee to whom the matter had been referred, reported to the Legislature of New Jersey they held the conference for which they were appointed, and that the petitioners proposed either to coin a sum in coppers, not to exceed ten thousand pounds, and pay one-eleventh part to the state, or if permitted to coin any greater

sum, to pay the state one-tenth part of all sums issued without depreciation of the currency to be created.

Such was the first recorded proposition for a copper coinage in New Jersey. Massachusetts had already taken action upon the petition of Seth Read for a similar privilege, March 9th, 1786, yet many of the copper coins of New Jersey were dated 1786, while no copper coin was struck in the Massachusetts Mint until the year 1787. On Thursday, May 25, 1786, a petition for the privilege of making copper coin, was presented to the Legislature of New Jersey, by one William Leddel, who represented himself to be in possession of a considerable quantity of copper, and the owner of sundry iron founderies. Under the direction of the Legislature, Leddel proposed to coin coppers equal in weight and quantity to the best ever circulated in the state, and pay the state every ninth copper and receive the paper money of the state in exchange for others if desired. The petitioner proposed to accept a design, and stated weight, from the Legislature, and in five days return a sample of his coinage.

However, the Legislature of New Jersey paid no particular attention to the petition of William Leddel, and who he was, or where his sundry iron founderies were situated, is alike unknown. On June 1st, 1786, an act was passed by the Legislature of New Jersey, authorizing Walter Mould, Thomas Goadsby and Albion Cox, to strike and coin in copper, for the state, a sum equal in value to ten thousand pounds, at fifteen coppers to the shilling. The coins were to be of pure copper, to weigh six pennyweights and six grains each. They were to be made in the state, of such device and impression as should be directed by the Justices of the Supreme Court, or any one of them. It was further provided that said coin should be subject to alteration in value, by act of the Congress of the United States.

Mould, Goadsby and Cox, were required to give bonds in the sum of ten thousand pounds, for the faithful performance of their duties in effecting the coinage proposed in full within

two years, and for the payment, by quarterly instalments, of ten per cent. of the coinage into the Treasury of the state.

Subsequently, a disagreement arose between Mould, and Goadsby and Cox, in consequence of which the two last were authorized by the Legislature to make two-thirds of the coinage by themselves, without prejudice to the rights of Mould regarding the third part remaining. An act was passed June 4th, 1787, against the circulation in New Jersey of any coppers other than those made within that state, or "struck by the United States of America in Congress assembled," under penalty of a forfeit of ten times the nominal value of the sum or sums so offered in payment.

There were two mint-houses established in New Jersey under the legislation just noted. One was in Morristown, and the other at Elizabethtown. The Morristown Mint was located in a residence once known as "Solitude," and afterwards as the "Holloway House." "Solitude" was the residence of John Cleve Symmes, Chief Justice of the state of New Jersey, and subsequently the home of a Mr. Holloway. The mint here was carried on by Walter Mould, said to have been a coiner of coppers at Birmingham, England, before his emigration to America. Mould, according to report, brought from Birmingham, all the machines, tools, and appliances, for coining copper, and had only to secure new dies, set up his apparatus, and proceed anew with his old business. In consequence he avoided the difficulties which retarded the work of Mintmaster Witherle in Massachusetts, and, as has been noted, under a later legislation, produced an earlier issue of coin.

The Elizabethtown Mint, was in a shed attached to a building once known as the "Old Armstrong House," in Water street. The coinage there was carried on by a man named Gilbert Rindle, as is supposed on account of Goadsby and Cox. According to tradition, this mint was carried on for about two years, as follows: A wooden box, several feet deep, was sunk like a pit in the middle of the floor of the room; in the center of this, was an iron upright or anvil, bearing a die, the top of

which was about even with the surface of the floor of the room. Upon the floor, at one side of the pit, sat a workman, his legs hanging down inside the same. He took the blanks from a box beside him, and placed them on the die, when the stamp came down and made the impression, after which he brushed the new copper off the die into the pit beneath. The press was worked by two men, one at each end of an iron bar nine or ten feet long, at the middle of which was a heavy perpendicular screw. The copper was brought to this place all ready for stamping, and the coin taken away in kegs. The good housewives of the neighborhood used to buy the coin from the mint for paper money, "a bureau drawer nearly full at a time," and pay them out for the ordinary small expenses of their families.

A careful study of the lettering of the New Jersey Copper Coinage, shows that many of the dies were made from the same set of punches, and presumably by the same hand. The same punches were used upon many of the dies cut for the copper coinage of Vermont, and upon some of the dies for the copper coinage of Connecticut. The inference from these facts and some other indications, is, that there was a business connection, more or less definite, between Reuben Harmon, Jr., of Rupert, Vermont; Machin & Co., of New Grange (Newburgh), New York; the owners of the Connecticut Mints at New Haven; other money manufacturers in the city of New York, and Messrs. Mould, Goadsby and Cox, of New Jersey: and furthermore, that James F. Atlee, the engraver and die sinker, and perhaps other artists of his kind, were in the habit of itinerating from one mint to another, as their services were required. The Vermont Coins of 1787, were evidently, for the most part, from dies made by Atlee—the like may be said of the same coinage for 1788; of many of the pieces indicated as belonging to Connecticut; the Georgivs III Rex of Machin & Co., and various types of the copper coins of New Jersey.

There was a coinage of New Jersey coppers said to have

been carried on by a Mr. Hatfield, who assumed to have made dies and struck the pieces in a barn below Elizabethtown, being assisted by a colored man. John Bailey, cutler, of the city of New York, testified in August, 1789, that he had coined "Jersey coppers previous to April 15th, 1788:" by authority derived from an Act of the State of New Jersey, entitled, "An Act for the establishment of a Coinage of Copper in that State, passed June the first, 1786." The copper coinage of New Jersey was not as regular as that of Massachusetts; good and bad dies were in many cases used together, just as may have suited the convenience of the operatives of the mint.

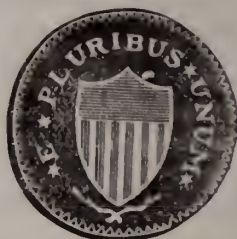


NEW JERSEY COPPER COIN 1786.

Obverse: A horse's head, facing right, upon an heraldic wreath; in the field, under this device, stands a plough. Legend: NOVA CÆSARA. Exergue, the date 1786.

Reverse: A shield, to be described in the language of heraldry as, argent, six pales gules, a chief azure. Legend: " * E * PLURIBUS * UNUM * ". Borders, serrated; Edges, plain; size, 16 to 19; weight, 137 to 173 grains.

Of 1786, Eight Types. Eight Varieties.



NEW JERSEY COPPER COIN, 1787. LARGE SIZE.

General description of both Obverse and Reverse, same as the pieces of this coinage for the year 1786. Size, 19 or less; weight, 165 grains or less.



NEW JERSEY COPPER COIN, 1787. SMALL SIZE.

General description same as of the larger piece. Size, 16 or more; weight, 108 grains or more.

Of 1787, Eleven Types. Ten Varieties.



NEW JERSEY COPPER COIN, 1788.

General description same as that of this coinage for the two preceding years, except that the device of the horse's head faces to the right in some of the dies of the obverse, and to the left in others.

Of 1788, Five Types. Five Varieties.

The Types and Varieties of the New Jersey Copper Coinage, are in a number of instances marked by decided and notable differences. On some of the obverses, three leaves appear beneath the device of the horse's head; upon some of the reverses, there are two crossed branches inscribed beneath the shield. The legend *NOVA CÆSARIA* upon the various obverses, is in general perfectly plain lettering, though sometimes punctuated with a period at the close. In some half-a-

dozen instances, the legend of the obverse is punctuated variously by quatrefoils, mullets, or stars, the legend upon the reverses always ornamented and punctuated variously by similar characters. There are two obverses called "the dog" or "the fox," on account of a small device struck upon them in connection with the legend, but on good specimens, this device is easily recognizable as the figure of a running horse. One obverse has for a legend, the contraction **E. PLURIBS UNUM**, punctuated with stars. An extremely rare variety is double struck, and thus made to read **E. PLUKIBUS UNUM**, the **R.** being mutilated. The device of the horse's head, facing left, appears, as far as known from existing specimens, to have been struck only upon the obverses of a part of the genuine New Jersey Copper Coinage of 1788, but for the purpose of defrauding collectors, some one has by engraving, or other artistic processes, reversed the horse's head, upon New Jersey Copper Coins of both 1786 and 1787, making the device face to the left, a deviation from common honesty, not a differentiation in the mintage of New Jersey. During the spring and summer of 1787, the Congress of the United States ordered the coinage of three hundred and forty-five tons of copper into cents, as will presently be described, and the right of coinage was the same year vested exclusively in the General Government. In consequence, the New Jersey and other local mints ceased operations. However, the multiform product of these "copper shops" continued to circulate, with a great amount of cheap coin imported from England. The most of the imported coppers were said to have been made in Birmingham, England, and were denominated "Birmingham coppers;" this became corrupted to "Bungtown coppers," and as the miscellaneous coinage of coppers was displaced by the authorized CENT of the United States, and became depreciated, the phrase "Not worth a Bungtown Copper," became proverbial. Gradually, the whole coinage of coppers began to disappear, and finally, as so much rubbish, they were swept from circulation; their disappearance, however, was not complete

and final until during the suspension of specie payment in the time of the war of the great rebellion.

PROPOSED COLONIAL COINAGES OF NEW YORK.

As early as 1661, an attempt was made by the Burgomasters and Scepens of New Amsterdam, to establish a mint in that city, now New York. An application was made by the officers just named, to the Chamber of Directors of the West India Company, at Amsterdam in Holland, for authority to coin silver, but without success.

In the year 1672, an order was passed by the General Court of Assizes in New York, for regulating the currency of silver coin in that state, which provided that a Boston shilling should pass for one shilling, and "a good piece of Eight Spanish Coine, whether of Mexico Sevill or a pillar piece" for six shillings. It was stated in the Massachusetts and New Hampshire Advertiser, of March 29th, 1786, that New York, Connecticut, and Vermont, had authorized a coinage of copper, the money being already in circulation, and that of New York especially, very fine in appearance. It is supposed that the coins alluded to as belonging to New York, were the "Non Virtute Vici" or the "Neo-Eboracensis" pieces of private coinage then in circulation, and to be hereafter described herein. There is neither record or specimen of coin, to show that the state of New York authorized a copper coinage.

On February 11th, 1787, petitions for the right to coin copper were presented to the Senate and Assembly of the state of New York, by John Bailey, Ephraim Brasher, and Thomas Machin. The matter was referred to a Committee, which reported that there were various sorts of copper coin in circulation in the country, which they described as:

"First. A few genuine British half-pence of George the Second, and some of an earlier date, the impressions of which are generally defaced.

"Secondly. A number of Irish half-pence, with a bust on the one side, and a harp on the other.

"Thirdly. A very great number of pieces in imitation of British half-pence, but much lighter, of inferior copper, and badly executed.

"Fourthly. A very considerable number of coppers of the kind that are made in the state of New Jersey. Many of these are below the proper weight of the Jersey coppers, and seem as if designed as a catch penny for this market."

The Committee estimated that the coiners' profit on these various pieces, was: On the British half-pence, 36 per cent; on the Birmingham half-pence, 49 per cent; on the Jersey coppers, 54 per cent. The further consideration of the subject was postponed. On April 20th, 1787, the Senate and Assembly of New York passed an "Act to regulate the Circulation of copper coin," which prohibited the passing of any coppers in the state of New York, except those of pure copper, weighing one-third of an ounce avoirdupois, each, which were to pass at the rate of twenty to the shilling of the lawful current money of the state, and not otherwise. Any person to whom uncurrent coppers were offered in payment, might seize and retain the same, making complaint to any Justice of the peace of the city or county. If the person tendering or passing light or base coppers, was aware of their base character, such person forfeited five times the sum offered, to the person to whom they had tendered the same. On February 7th, 1788, the counterfeiting of gold or silver coin, was by special enactment declared a felony punishable with death.

PATTERNS AND TOKENS.

The various coins to be described under this head, are Pattern pieces of state mints, or of the Mint of the United States, together with various other pieces of different coinages, many of which are of an unknown origin.

THE CAROLINA AND NEW ENGLAND TOKENS.

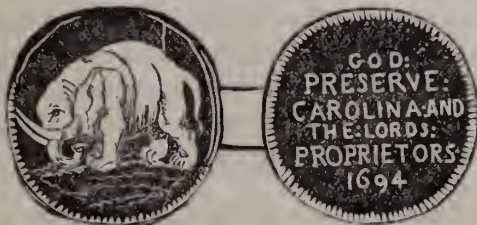
As late as the year 1769, there was still preserved in the

Tower of London in England, the obverse and reverse dies of a coin called the London Half-penny. The device upon the obverse of this piece was an elephant, the head well down. The reverse bore the arms of the city of London, around which was inscribed the legend: "GOD PRESERVE LONDON." The dies for this token were said to have been made by the engraver Rotiers, of London. The purpose of this coinage is unknown; a hundred and thirty years ago, the issue was variously stated to have been made "for the London Work-house," struck while the plague raged in London, from which pestilence the inscription is supposed to be a prayer for deliverance; or intended to be made current at Tangier in Africa, but never set in circulation there.

Having furnished one seemingly unsolvable problem for the antiquarian, the old obverse die bearing the device of an elephant, was left to become the cause of still other unsatisfied inquiries. During the reign of William and Mary, king and queen of England, there appeared a new coin, which has been called the "Carolina Cent," and said to have been issued in the Carolina plantations. There were at least Two Types and Two Varieties of these pieces. The more rare of these may be described as follows:

Obverse: An elephant, standing, facing left.

Reverse: An inscription, in six lines, occupying the entire field: "GOD: PRESERVE: CAROLINA: AND THE: LORDS: PROPRIETERS 1694" Borders, milled; Edge, plain; size, 18½; weight, 143 grains.



CAROLINA TOKEN.

This illustration is of the more common type and variety of this coinage, the obverse being identical with that of the "London Half-penny."

Obverse: An elephant, standing, facing left.

Reverse: An inscription, in six lines, occupying the entire field, "GOD: PRESERVE: CAROLINA: AND THE: LORDS: PROPRIETORS. 1694." Borders, milled: Edge, plain; size, 17 to 18½; weight, 130 to 162 grains.

The Carolina Tokens were struck in copper, and impressions from the same dies are said to have been made in brass. The obverses of the two pieces described are much the same; however, the tusks of the elephant on the first-named piece, are short, while in the more common type, they are longer, and approach the border of the coin very nearly. The die of the first variety was recut to form the common reverse, the last "E" in "PROPRIETORS" being altered to form an "O," changing, as may be noted, the orthography of the word. On good specimens, the original "E" may be seen beneath the overcut "O," proving the identity of the die.

NEW ENGLAND TOKEN.

Obverse: Same as that of the common type of the Carolina Token of 1694, and from the same die as that and the "London Halfpenny."

Reverse: An inscription, in five lines, occupying the whole field, "GOD: PRESERVE: NEW: ENGLAND: 1694" Borders, milled; Edge, plain. Copper; size, 18½; weight, 133 and 236 grains.


The great irregularity in the weight of the Carolina and New England Tokens, indicates they were coined as medallets, or tokens, rather than for circulation as money. The coinage is supposed to have been done in London, England, from whence the issue found its way to America.

THE EARLIEST NEW YORK TOKEN.

A very rare piece, the only specimen of which was until

lately supposed to be preserved in Holland, but of which during the last decade, several samples have been found and now are extant in the United States, is called "The New York Token," and being conjectured to have been struck about 1700 to 1706, is supposed to have been the earliest coinage for that colony.

Obverse: An heraldic eagle, rudely engraved, displayed, resting upon a branch, with a leaf at each end. Legend:

* NEW · YORKE · IN · AMERICA ❖ 

Reverse: A group of palm, or other trees; at the right, a figure in flowing robes; at the left, a smaller, semi-nude, running figure, with a bow in the left hand. From the shoulder of this last figure, what appears to be a wing, but may have been intended as drapery, projects, or floats, backward. Mr. Crosby considers this figure a Cupid, and the draped one Venus. They may have been designed for an Indian and a squaw; classical or aboriginal, all in relation to the coin being a matter of speculative guesswork. Borders, milled; Edge, plain; size, 13; weight, in brass, 55 grains.

There are specimens of this New York Token in lead, brass, and perhaps in tin; it was probably originated in Holland, for circulation in New York, but never minted in any quantity. Perhaps the seraphic bird inscribed as the device of this coin, was the primitive attempt to display the eagle as an American emblem.

THE "NEW ENGLAND STIVER."

A token, supposed to have been minted in Holland, early in the seventeenth century to furnish small change for the use of Dutch Traders in New Amsterdam, now the city of New York.

Obverse: Two lions, one above, facing left; one beneath, inverted, facing right; to the left of the lions $\frac{1}{2}$; to the right of them $\frac{2}{3}$. Around all these, is inscribed a circle of dashes, forming a deep milled border.

Reverse: An inscription, in four lines, NEW ENGLA ND
 N The N's all reversed, the M inverted. Edge, plain; size,

12; weight, 37 grains. The style of work in this coin is the only indication of the period of its issue.

THE GLOUCESTER TOKEN.

This piece, of an unknown origin, and without a history, is believed to have been a pattern for a shilling to be issued by Richard Dawson, of Gloucester Co. (or Court House), Virginia. The only two specimens known, are both struck in brass and quite imperfect.

Obverse: A large mullet; the center and points are void.
Legend: "RIC," and indistinct letters, supposed to be, "HARD," then "DAWSON·ANNO·DOM·1714."

Reverse: A house. Legend: "GLOUCESTER·CO.," and indistinct letters, supposed to be, "HOUSE," then "VIRGINIA." Exergue: "XII" Borders, beaded; Edge, plain.
Brass. Size, 14; weight, 62 grains.



LOUISIANA CENT.

In 1721, 1722 and 1767, various Copper Coins were struck in Paris, France, for the use of the colonies of France; these pieces are popularly known in the United States of America as "Louisiana Cents," and as such, one is here presented, as among the earlier coinages for America, yet not for a British colony.

Obverse: The letter "I," in duplicate, crossing, saltierwise, surmounted by a crown. Legend: "SIT NOMEN. DOMINI BENEDICTUM."

Reverse: An inscription, in four lines, occupying the field. "COLONIES FRANCOISES 1722 II"

THE VIRGINIA HALF PENNY.

Among the pieces which have been described by a distinguished English author as "Coins for the Colonies," are those called Virginia Half-pennies; they were struck in copper, with specimens also in silver. There is no proof of the especial relation of these coins to Virginia, and we have the authority of Jefferson, as late as 1782 (*Works*, vol. 1, p. 136), for the statement that, "In Virginia, coppers have never been in use." It is evident there was a considerable issue of these coins, but they are not to be considered as having been the currency of the colony for which they were named.



VIRGINIA HALF PENNY, 1773.

Obverse: Laureated bust of George III of England, facing right. Legend: "GEORGIUS III REX"

Reverse: An ornamental crowned shield, quartered and emblazoned with the arms of England and Scotland; of France; of Ireland; of the Electoral dominions. Legend: "VIRGINIA" divided by the shield. Above the shield 17 73

the crown dividing the figures. Border, milled; Edge, plain; size, 15½ to 17; weight, 110 to 123 grains, and in one variety, sometimes called a "penny," 131 grains.



VIRGINIA HALF PENNY, 1774.

Obverse: Laureated bust of George III of England, facing right. Legend: "GEORGIUS·III·DEI·GRATIA."

Reverse: Similar to that of the same coinage for preceding year, except the date 1774. Border, plain; Edge, plain; size, 16; weight, 8½ grains.

There seem to have been about twenty pair of dies made use of in striking these coins, but the coinage is quite regular, the minor differences of punctuation, spacing of letters and the like, being considered insufficient to establish decided varieties.

MASSACHUSETTS PINE TREE COPPER, 1776.

Obverse: A pine tree, rooted in the earth; to the left of the trunk "1 C;" to the right of the same "L. M." Legend: "MASSACHUSETTS STATE," the top of the tree dividing the first word.

Reverse: The goddess of liberty, facing left, seated upon a globe; in her left hand the staff of liberty; the right hand is extended, and upon it appears a liberty cap. At her feet rests a very small dog. Legend: "LIBERTY AND VIRTUE." Exergue: Beneath a heavy line "1776" Borders, milled; Edge, plain; size, 20; weight, 198 grains.

This piece is supposed to have been the first pattern for a Massachusetts Cent. The specimen is considered unique, having been dug up some years since. The "1 C L. M." on the obverse is probably an abbreviation of *One Cent Lawful Money*.

MASSACHUSETTS HALF PENNY ("JANUS COPPER").

Obverse: A trifons device of three faces together, facing left, front, and right. Legend: "STATE OF MASSA: ½ D"

Reverse: The goddess of liberty, facing right, and bracing backward against a globe, which appears to be slipping away from under her; in her right hand she grasps a liberty staff, in her left holds a liberty cap. At her feet rests a very small dog. Legend: "GODDESS LIBERTY." Exergue: Beneath a heavy line "1776" Border, plain; Edge, plain; size, 15; weight, 81 grains.

This specimen is doubtless unique, having been found among the papers of Paul Revere, and supposed to be engraved by him for some private enterprise in connection with the preceding "Pine Tree Copper."



"CONTINENTAL CURRENCY." Three Types. Three Varieties.

The "*Congress in America*" in 1776, is said to have issued a coinage of tin and brass, specimens of which have been found in silver. The design resembles very much that subsequently adopted for the first authorized coins of the United States. This Continental Currency may be described as follows:

Obverse: Thirteen interlinked rings, the name of a state being inscribed upon each ring. Legend: "AMERICAN CONGRESS" inscribed upon a small circular label in the center of the field. Within the space enclosed by the label, is an inscription, "WE ARE ONE," in three lines. The space between the legend and the thirteen rings, is filled by a glory of short rays.

Reverse: A sun-dial, to the right of the center of the field, surrounded by two parallel circles, one within the other. Between these circles, to the upper left of the field, appears a small sphere, representing the sun, from which numerous rays proceed toward the dial. Near the sun, and below the same, between the circles, is inscribed the word "FUGIO." Beneath the sun-dial is an inscription, "MIND YOUR OWN BUSINESS,"

in two lines. Outside both the circles and around the whole, the Legend: "CONTINENTAL CURRENCY 1776." Borders, beaded; Edge, inscribed with ornamental leaf work; size, 25; weight, silver, 378 grains; tin, 258 grains; brass, 224 grains.

Specimens of this currency, in silver, have circulated as dollars. The greatest number of impressions were made in tin. Of specimens in brass and silver, but single pieces are known. The specimens in tin are not very common. The types of this coinage are formed in part by differences in the rings on the obverse, some of which are plain, some beaded, and some partly cut into lines, the first style being most numerous; the two last have a comma under the *N* in the word "AMERICAN." One type has the legend thus, "AMERICAN CONGRESS," and "N. HAMPS" *precedes* "MASSACHUS" in the inscriptions on the rings. The first variety of the reverse is as described and illustrated; the second has for a legend only "CONTINENTAL CURRENCY," the date 1776 being omitted. Another, used with the last described obverse, has the sun nearer the dial, and E. G. FICET in the inner circle over the date. Beside the pieces of Continental Currency in silver and brass, supposed to be unique, that having this last reverse is most rare, the rest being neither very scarce, nor yet common.

NON DEPENDENS STATUS.

The origin and history of this fine engraved pattern piece are unknown; the specimen is interesting as perhaps the earliest presentation upon coin of the legend of an Independent American state.



NON DEPENDENS STATUS

Obverse: A full bust, facing right; flowing hair to the shoulders. Upon the drapery of the bust a small oval shield as an epaulet, emblazoned with a staff bearing a flag; across the staff, saltierwise, rests a naked sword. In each angle of this device is displayed a fleur de lis. Upon the breast of the bust is a head with spreading wings. Legend: "NON-DEPENDEN— DENSTATUS"

Reverse: An Indian, seated upon a globe, facing left; nude, except a eap or bandeau upon his head, and a feather tunic around the lower part of the body. In his extended right hand he holds a bunch of tobacco; the left reaches behind him and rests upon a shield, bearing the same emblems displayed upon the epaulets upon the bust on the obverse. Legend: "AMERICA" divided by the figure of the Indian. Exergue: 1778. Border, plain; Edge, plain; size, 19.

Some coin dealers advertise the Non Dependens Status as "a rare copper, worth \$100,00."

CHALMERS' ANNAPOLIS TOKENS.

This Coinage was issued in 1783, by a goldsmith named L. Chalmers, of Annapolis, Maryland, as a speculation on his own private account. The denominations are shillings, sixpences, and threepences, all now very rare, the smaller pieces especially so.

THE CHALMERS' SHILLING. (UNIQUE).

Obverse: *Equal to One Shi* above this a branch, and beneath two clasped hands. Legend: "I. CHALMERS * ANNAPOLIS * 1783 * " Border, milled, in fine work.

Reverse: A chain of twelve rings, in regular links; another ring linked in the three lower links of the chain. From the center of this sett of four rings, arises a liberty staff, crowned by a eap, which is displayed at the center of the field. Above the eap is an eye. There are mullets enclosed in each of the eleven upper rings, and a mullet in the center of the field, each side of the liberty cap. Border, beaded. Silver; size, 13.

This piece is supposed to be unique, and at the sale of the Mickley Collection, brought fifty dollars.

THE CHALMERS' SHILLING. (VERY RARE).

Obverse: Clasped hands, inside a wreath. Legend: "I. CHALMERS, ANNAPOLIS. *"

Reverse: Center, a heavy horizontal bar; below, two doves, a branch in their bills; above the bar is horizontally extended the figure of a serpent; around the field is a fine circle, and outside of this and against it a beaded ring. Legend: "ONE SHILLING 1783." Border, milled; Edge, milled. Silver; size, 14½; weight, 57 grains. There are two slightly different dies of this reverse.

THE CHALMERS' SIXPENCE.

Obverse: Center, an open mullet, enclosed by a wreath. Legend: "I. CHALMERS. ANNAPOLIS."

Reverse: An ornately ornamental right-angled cross, at the center of which are displayed two clasped hands. The perpendicular arm of the cross has a crescent at either end and a small ornament; the horizontal arm has a star at either end; in each angle of the cross is displayed a leaf. Legend: "I. C. SIX PENCE 1783." Border, milled; Edge, milled. Silver; size, 11; weight, 28 grains.

THE CHALMERS' THREEPENCE.

Obverse: Two hands, clasped. Legend: "I. CHALMERS. ANNAPOLIS. ★"

Reverse: A branch, with buds or fruit, surrounded by a wreath. Legend: "THREE PENCE 1783." Border, milled; Edge, milled; size, 8; weight, 12 grains.

At the date of the Chalmers' Coinage, it had become customary to cut silver dollars in halves, quarters, and eighths, for change. The cutting was presently done so as to make five pieces of a dollar, which were called quarters, or nine or ten pieces called eighths. This abuse rendered the pieces so cut

uncurrent, and Chalmers, buying the bullion at a discount, made his issue of underweight coin at a double advantage.

THE NOVA CONSTELLATIO PATTERNS.

Beside the remarkable issue of paper money during the war for independence, the American Congress, as has been described, was credited with the production of a "Continental Currency" of tin in 1776. In 1781, the same body of legislators undertook to provide a general metallic currency for the confederated states, of which they were the representatives. To this end, Robert Morris, the distinguished Financier of the Confederation, was directed to take the subject of an American coinage and currency under consideration, and thereupon, as soon as practicable, make his report.

On January 15th, 1782, Robert Morris made report to Congress of a system of coinage suggested by Gouverneur Morris. It had been found that the different coins which had circulated in America had undergone such varied changes in value, that hardly any could be considered a general standard. The coin which most nearly served as such a standard, was found to be the Spanish dollar. These dollars passed in Georgia at five shillings, in North Carolina and New York at eight shillings, in Virginia and the four Eastern states at six shillings, and in all the other states except South Carolina at seven shillings and sixpence, and in South Carolina at thirty-two shillings and sixpence.

The money unit, to agree with all these different values except that of South Carolina, was found in the fourteen hundred and fortieth part of the dollar—the sixteen hundredth part of a crown. A very small monetary unit was considered an advantage to commerce, but it was not considered necessary that this unit should be exactly represented in a coin, provided its value were generally and precisely known. Two copper coins were proposed, one of five units and one of eight units, and it was suggested they might be called "Five" and "Eight" accordingly. The money unit, as was stated, would be worth

one quarter of a grain of fine silver in coined money. Thence, in a decimal ratio, one hundred units would be the lowest silver coin, supposed to be made of twenty-five grains of fine silver, to which might be added two grains of copper, making the coin weigh one pennyweight and three grains. This coin it was proposed to call a CENT. Five Cents were to make a QUINT, or five hundred units, and the coin representing this denomination was to be of the same metal and fineness as the Cent, and weigh five pennyweights and fifteen grains. Ten Cents were to make a MARK, or one thousand units, represented by a coin of the same metal and fineness as the Cent and Quint, to weigh eleven pennyweights and six grains.

No immediate action was taken by Congress in relation to this piece of business, yet the scheme was discussed repeatedly and by such persons as Thomas Jefferson and his especial colleagues. Jefferson considered the monetary unit proposed by Gouverneur Morris, and approved by Robert Morris through his report to Congress, too small. In this Robert Morris was, according to the writings of Jefferson, brought in some measure to agree to, both considering that "*the ease of adoption with the people,*" was the thing to be aimed at. To meet the views of Jefferson, Morris proposed the MARK as a unit, instead of the fourteen hundred and fortieth part of a dollar, as at first suggested. The Mark, according to the account given by Jefferson, was worth about 4s, 2d. lawful money, or twenty-five thirty-sixths of a dollar. As a monetary unit, Jefferson proposed the Dollar itself, and whether that or the Mark should be so regarded, came to be the only question left between the two famous statesmen.

Various plans were proposed by Robert Morris; one of his systems provides for a decimal coinage, of which the series first proposed would have been issued as follows:

- Ten Quarters to make one *penny* ;
- Ten Pence to make one "*bill*" or *bit* ;
- Ten Bits to make one *dollar* ;
- Ten Dollars to make one *crown*.

The Quarter proposed as a unit was to be made of the value of a quarter of a grain of pure silver, or one fourteen hundred and fortieth part of a Spanish dollar. The Crown was to have been coined of gold, the dollar of silver; the penny must have been the smallest coin and presumably the only one in copper. Robert Morris also proposed that other coins than those named could be struck if required, but each to contain an exact number of *quarters*. The names of the coins he stated were arbitrary "like all other names"; for example, the word crown occurred from an idea of a design for the gold piece to be as follows: "An Indian, with his bow in his left hand, and in his right hand thirteen arrows, and his right foot on a crown; the inscription, *manus inimica tyrannis*." "The Financier of the Revolution" subsequently changed this plan of his and made the unit of his new series equal in value to twelve shillings and sixpence sterling, which he called a pound.

Ten Doits to make one *penny* ;
 Ten Pence to make one *shilling* ;
 Ten Shillings to make one *pound*.

Such was to be the system of account; the coins to represent the same were denominated

The Crown, of gold, of 1,200 Doits.			
" Half Crown, " "	600	"	"
" Dollar, of silver, "	300	"	"
" Shilling, " "	100	"	"
" Groat, " "	20	"	"
" Doit, " "	1	"	"

There were other proposals made, the embodiment of which is to be found in the American State Papers. Early in 1783, or perhaps late in 1782, preparations were made for the "Mint of North America." The business was entrusted by Robert Morris to Benjamin Dudley. The die-sinkers and engravers employed were Jacob Eckfield, John Swanwick, and A. Du-

bois. The first piece struck as an American coin, was one of silver, which was delivered to Robert Morris by Dudley, April 2nd, 1783. Being urged at various times by Morris to hasten the work upon the coins "to lay before Congress to establish a Mint," Benjamin Dudley, on April 22nd, 1783, "sent in several Pieces of Money as patterns of the intended American Coins." During July, it was proposed to buy a Minting Press then in the city of New York, but Morris had become doubtful of the immediate establishment of the mint, and not only declined to purchase the Mint Press on account of the Government, but advised Dudley to seek private employment. On the 30th of August, 1783, the dies for coining in the "American Mint" were delivered by Dudley to the Financier of the Confederation. From these dies the coins here described, and perhaps others, were produced.

The "Continental Currency," already described as having been struck in tin and dated 1776, may be regarded as perhaps the first attempt of the confederated states to establish a national currency of coin; however, the origin of the tin coinage of 1776 is uncertain, although it bears the devices and legends subsequently adopted for the Fugios as an issue authorized by Congress. The Nova Constellatio Patterns, though a few years later in date, are of surpassing interest, not only on account of their great rarity, but as the original evidence of the first well-recorded effort by Congress, to establish a general mint and metallic currency therefrom.

The "Mark." One Type. One Variety. (Unique.)



THE MARK.

Obverse: An eye, the center of a glory, thirteen points cross, equidistant; a circle of as many stars. Legend: "NOVA CONSTELLATIO ☾"

Reverse: "U. S. 1.000" inscribed in two lines, a wreath surrounding. Legend: "LIBERTAS·JUSTITIA·1783." Border, a wreath of leaves; Edge, leaf work. Silver; size, 21; weight, 270 grains.



THE QUINT.

No. 1. Obverse: An eye, around which a narrow, plain, circular field; outside a glory, thirteen points cross, equidistant; a circle of as many stars. Legend: "NOVA CONSTELLATIO ☾"

Reverse: "U. S. 500" inscribed in two lines, a wreath surrounding. Legend: "LIBERTAS·JUSTITIA·1783." Border, beaded; Edge, leafwork.

No. 2. Obverse: Center, an eye, around which a glory, thirteen points cross, equidistant; a circle of as many stars; outside the stars, a plain raised ring. No legend.

Reverse: Similar to that already described. Border, beaded; Edge, leafwork. Silver; size, 16; weight, 110 grains.

The dies for the Mark are supposed to have been cut entirely by hand, while those for the Quint were made in the common way, by the use of punches. The entire coinage from the dies of the Nova Constellatio patterns was extremely limited, possibly but a single piece from each of them, merely as specimens to lay before Congress. But three specimens are known, a Mark and two Quints, and in 1875, all of them were in the possession of S. S. Crosby, of Boston, Massachusetts. The Mark and one of the Quints can be traced directly to the

possession of Hon. Charles Thomson, Secretary of the first Congress. The reverse of the other Quint is from the same die, hence, beyond doubt, genuine. A coin for the "Five," somewhat like the Quint, inscribed U. S. 5 1783, was described in 1784, by Samuel Curwen; there may, however, still be unknown specimens of the Robert Morris pattern pieces to be discovered.

During the year 1784, Jefferson, in behalf of a Committee upon Coins and Curreney, laid before Congress a report recommending the Spanish Dollar as the monetary unit, it being in popular use, of convenient size, and capable of easy division. Upon this basis, it was proposed to strike four coins, of value as follows:

- Ten Dollars, a gold coin.
- One Dollar, a silver coin.
- One-tenth of a Dollar, a silver coin.
- One-hundredth of a Dollar, a copper coin.

The principles of this report, made by Jefferson, were adopted in 1785, and in 1786, Congress made legal provision for a coinage on the decimal system, which still continues in the United States and is coming into use throughout the world.

THE GEORGIUS TRUMPHIO.

This token has occasioned varied conclusions; some consider it as having been struck in honor of George Washington, who, at the date given the piece, 1783, was indeed the triumphant George, by virtue of success in winning the independence of his country. Others suggest this piece relates to George III of England, as the effigy upon the obverse resembled him. The coinage was probably made from a die produced by using an old English hub, engraved with a head of George III, the details of legend, date, etc., being added to suit the fancy of the artist and the political circumstances of the time and country. George III made a good enough George Washington to strike coppers with, as may have been thought,

just as in various instances the figure of Brittania made a useful but rather disreputable-looking "goddess of liberty," "genius of Columbia," etc., etc.

Obverse: A laureated head, resembling George III, facing right. Legend: "GEORGIVS·TRIUMPHO."

The goddess of Liberty, facing left; before her is a framework of thirteen bars, a fleur-de-lis at each corner of the same. In her extended right hand the goddess holds an olive branch; her left is uplifted, supporting a liberty staff. Legend: "VOCE POPOLI." Exergue: the date 1783. Borders, milled; Edge, plain; size, 18; weight, 117 grains.

"Washington and Independence 1783." Five Types. Six Varieties.

THE UNITY STATES CENT.

The early coinage created for pattern pieces, or as an irregular currency for general circulation in the United States after the establishment of the independence of the nation, was in very many instances made to bear the portrait of Washington as the most prominent republican citizen and statesman of the era. That this device was not used on the coin of the United States Government, was probably due to the repugnance of Washington to allow an observance and custom tending, in his opinion, to perpetuate monarchical institutions. The Washington coinage, or that of pieces bearing the likeness or the name of Washington, is quite extensive; a comparatively few specimens are herein described, but these include some of the earliest dates and most prominent, rare or interesting examples. A remarkable instance of a foreign coin, doubtless issued for private speculation, is the so-called "unity Cent," supposed to have been made in France, the designers' ignorance of the English language being supposed to account for the character of the legend.

No. 1. Obverse: A large laureated bust of Washington, draped, facing left. Legend: "WASHINGTON AND INDEPENDENCE 1783."

Reverse: Two olive branches, entwined, and an inscrip-

tion of "ONE CENT" Legend: "UNITY STATES OF AMERICA" Exergue: 1-100 in two lines. Border milled; Edge, plain; size, $17\frac{1}{2}$; weight, 114 grains.

No. 2. Obverse: Large laureated bust of Washington, draped, facing left. Legend: "WASHINGTON & INDEPENDENCE-1783"

Reverse: The figure of a female, facing left, seated upon a rock; in her right hand an olive branch, her left supporting a liberty staff, which bears a cap. Legend: "UNITED STATES" Border, beaded; Edge, generally plain; size, $17\frac{1}{2}$; weight, 128 grains.

Two dies of Obverse No. 2. The same number of dies of this reverse; minor differences of obverses. One reverse has in the exergue T. W. I. E. S. Copper or brass. Engrailed edges on some specimens.

No. 3. Obverse: A small bust of Washington, in uniform, laureated, facing left, hair in a queue. Legend: "WASHINGTON & INDEPENDENCE-1783"

Reverse: A figure of a female, facing left, seated upon a rock; right hand holds an olive branch, left, staff of liberty, with cap. Legend: "UNITED STATES" Exergue: T. W. I. E. S. Border, beaded; Edge, plain; size, $17\frac{1}{2}$; weight, 120 grains. Two obverse and three reverse dies.

THE DOUBLE HEAD WASHINGTON CENT.

A bust of Washington, in uniform, laureated, facing left, hair in a queue. Legend: "WASHINGTON"

Reverse: A bust of Washington, in uniform, laureated, facing left, hair in queue. Legend: "ONE CENT" Borders, beaded; Edge, plain; size, 17; weight, 124 grains. As an ornament, an elongated star is inscribed under the busts.

The only very rare Washington Cent yet described, is that from one of the Washington & Independence dies of the type bearing the small head; in it, the features are less prominent, the expression unlike the rest of the series.

WASHINGTON · THE · GREAT · D · G.

Obverse: A very ugly head, facing to the right. Legend: "WASHINGTON · THE · GREAT · D · G." Border, serrated.

Reverse: A chain, with thirteen rings, the name of a state within each; inside the chain, upon the lower part of the central field, the figures 84. Border, plain; Edge, plain; size, 16½; weight, 102 grains.

The figures 84 described, are supposed to be part of 1784, an abraded date. But two specimens of this coin are extant, and both of them are so badly defaced, that the actual date can be determined from neither.

THE IMMUNE COLUMBIAS.

The finely-executed dies of the Immune Columbias, are supposed to have been made by Thomas Wyon, of Birmingham, England. The obverses appear on the copper Nova Constellatio, and they were variously combined or muled with other pieces, in gold, silver, and copper, as is hereafter described.



THE IMMUNE COLUMBIAS.

First Obverse: An eye, on a small, plain circular field; from the outside of the field radiates a glory of thirteen blunt points, crossing, equidistant, the spaces between as many stars in a circular constellation. Legend: "NOVA CONSTELLATIO." Border, serrated.

Second Obverse: Same as the first, except that the points of the rays in the glory are made somewhat finer, and the legend is punctuated as here presented. "NOVA · CONSTELLATIO * " Border, serrated.

Reverse: The goddess of liberty, seated upon a paneled cubic pedestal, facing right; her left hand is well extended and balances the scales of justice. A short liberty staff, crowned with a cap and bearing a flag, rests against her right shoulder, and is supported by the right hand. Legend: "IMMUNE COLUMBIA." Exergue: The date 1785. Border, serrated; Edge, plain or milled; size, 17; weight, gold, 128.8 grains; silver, 92 grains; copper, 148 grains.

This reverse was "muled" or used with the dies made by Atlee for the Vermont coinage, and those for Machin & Co., already described. The work of Atlee was much inferior to that of Wyon. How the Immune Columbia dies came in possession of those who thus wore them out, is unknown. The dies muled with the Immune Columbia are as follows:

Vermon Auctori.

Obverse: A laureated head, mailed bust, facing right. Legend: "VERMON AUCTORI" Border, serrated; Edge, plain; size, 16; weight, 106 grains.

Georgius ★ III·Rex.

Obverse: A laureated head, mailed bust, facing right: Legend: "CEORCIVS ★ III·REX." Border, serrated; Edge, plain; size, 16; weight, 129 grains.

The misspelling of the legend in this die, and on another piece of work, indicates that the letter "G" was missing from among the punches used by Atlee. He sometimes struck the "C" punch in a die and then engraved it into a "G." As these muled or combination pieces may have been intended as trial pieces, the engraver perhaps omitted to finish his work in his usual manner. These pieces, bearing the Immune Columbia reverse, are all extremely rare. The specimen in gold is supposed to be unique, and is in the Cabinet of the Mint at Philadelphia. The obverse "NOVA CONSTELLATIO," reverse "IMMUNE COLUMBIA," struck on a guinea of one of the Georges of England, is a thin piece, and somewhat abraded, yet the legend of the guinea may be discerned beneath the more recent impression of the "Immune." The piece is of

128.8 grains weight, the original weight having been 129.5 grains; its present bullion value is computed by Mr. W. E. Du Bois, Assayer of the Mint, at \$5.05. Five specimens are known in silver, all having the first described obverse and milled edges; an unique copper specimen exists of the same description. Of the second obverse, eight copper specimens, with plain edges, are known. The muled pieces, all of copper, are perhaps even more rare than the others.

THE CONFEDERATIO AND EXCELSIORS.

The Confederatio and Excelsiors, as they are called, are a noteworthy and somewhat extensive series of varied coins, the relation of which is not historically evident, though definite peculiarities in the different coins, show a common origin for most of the dies in the work of the same hand, or at least in the fact of their production from one set of punches under direction of a single artist.

The best authorities conclude these dies were made by Thomas Wyon, of Birmingham, England, and intended as patterns for the coins of New Jersey, and for New York, and some of the Washington pieces probably, to be adopted for the coinage of the United States Mint. Most of the coinage is supposed to have been done at Birmingham, but one of the dies was, as it appears, brought to America and used in the Mint of New Jersey, as a model for the making of other dies, and subsequently, in 1777, to stamp a very few impressions, of which but two are known to be extant.



CONFEDERATIO AND IMMUNIS COLUMBIA

Confederatio—First Obverse: A circular central field, size 8, covered with a cluster of large stars; around this device a glory of fine rays, presenting a corrugated outline of twenty-four points. Legend: "CONFEDERATIO·1785" Border, serrated.



CONFEDERATIO AND INIMICA TYRANNIS.

Second Obverse: A circular central field, size 6, covered with a cluster of thirteen small stars; around this device a glory of fine rays, presenting a corrugated outline of sixteen points. Legend: "CONFEDERATIO·1785" Border, serrated.

Reverse 1: An Indian, standing beside an altar or pedestal, his right foot upon a crown, an arrow in his right hand, a bow in his left; at his back a quiver full of arrows. Legend: "INIMICA TYRANNIS·AMERICA" Border, serrated; Edge, plain; size, 18; weight, 112 grains.

The coin bearing this reverse was found in digging up an old drain at Berlin, Connecticut, in 1861.

Reverse 2: Same device as the preceding reverse. Legend: "INIMICA TYRANNIS·AMERICANA" Border, serrated; Edge, plain; size, 18; weight, 147 to 153 grains.

The obverses and reverses already described, are supposed to have been intended for each other originally, in the order mentioned. Reverse 1 has been found with the first obverse only; reverse 2 was struck with both the first and second obverse.

Reverse 3: Monogram, U S enclosed within a wreath. Legend: "LIBERTAS ET JUSTITIA·1785" Border, abraded

on the specimen; Edge, plain; size, 17; weight, 103 grains.

Reverse 4: Head of Washington, facing right. Legend: "GEN. WASHINGTON." Border, plain; Edge, plain; size, 18½; weight, 134 grains.

Reverse 5: An eagle, displayed, bearing on his breast a shield argent, six pales gules, a chief azure; right talon, a bundle of arrows; left talon, an olive branch; about the head of the eagle, thirteen stars. Legend: "★ E PLURIBUS UNUM 1786" Border, plain; Edge, plain; size, 18½; weight, 134 grains.

Reverse 6: Goddess of liberty, seated upon a globe, facing right; in her extended left hand she balances the scales of justice; with her right hand she supports the staff of liberty bearing a flag and crowned with a cap. Legend: "IMMUNIS COLUMBIA." Exergue: "1786." Border, serrated; Edge, plain; size, 18; weight, 160 grains.

Reverse 7: A shield argent, six pales gules, a chief azure. Legend: "★ E ★ PLURIBUS ★ UNUM ★" Border, serrated; Edge, plain; size, 18; weight, 160 grains.

Reverse 8: An eagle, displayed; on his breast a shield argent; six pales gules; a chief azure; in the right talon, an olive branch, in the left, a bundle of arrows; about the head of the eagle, thirteen stars. Legend: "E PLURIBUS UNUM ★ + 1787 ★" Border, milled; Edge, plain; size, 18; weight, 114 grains.



THE NEW JERSEY IMMUNIS.

The Confederatio. First Obverse (large stars), was used with the reverses 1, 2, 3, 4, 5 and 6.

The Confederatio. Second Obverse was used with Reverses 2 and 8.

Reverse 4 is shown on one specimen with Reverse 5, and Reverse 5 is seen on another piece muled with Reverse 7.

Reverse 6 is found, but very rarely, muled with Reverse 7, forming "THE NEW JERSEY IMMUNIS."

All the combinations described are of extreme rarity. The weights given with the description of the reverses, are those of pieces formed by the Confederatio obverses and the dies mentioned.

The "New York Excelsiors." Two Types. Two Varieties.

These pieces are called "The New York Excelsior Cents," though there is nothing in the device or legend to indicate such a denomination. They are evidently associated with the Confederatios and their varied reverses.



THE NEW YORK EXCELSIOR.

Obverse: Arms of the state of New York. Center, an oval shield, upon which is shown the sun rising from behind a range of hills, the sea in the foreground; left Liberty, with staff and cap; right Justice, with sword and scales; upon the top of the shield a hemisphere, supporting an eagle, wings outspread, facing left. In Exergue: "EXCELSIOR" Border, serrated; Edge, plain; size, 18; weight, 141 grains.

In the second Obverse of the Excelsiors, the eagle faces right, which is the only prominent difference.

Reverse: The Excelsior Obverse first described (eagle facing left), is coined with Reverse 8, of the Confederatios, which see.

The Excelsior Obverse last described (eagle facing right), is coined with Reverse 8, of the Confederatios and the following:

Reverse 9: A large eagle, displayed, a shield upon his breast, argent six pales gules; a chief azure; right talon, a bundle of arrows; left talon, an olive branch. About the head of the eagle are thirteen stars. Legend: "★ E ★ PLURIBUS UNUM 1787 ★" Border, serrated; Edge, plain; size, 18½; weight, 123 grains.

The wings of the eagle nearly touch the legend, the beak widely open, the crest long and slender.

All these *Excelsior* combinations are quite rare; of the last, First Obverse and Reverse 9, very few specimens; two or more are known.

THE NON VI VIRTUTE VICI, ETC.

The coins called the "Non Vi Virtute Vici" (1786), *Immunis Columbia* (1787), *Liber Natus Libertatem*, and the *George Clinton* (1787), appear to have been made from dies engraved by Atlee, showing as they do the marks of the same tools used upon the dies for *Machin & Co.*, of New Grange, New York, the *Vermont Mint*, at Rupert, Vermont, and the *Mint of New Jersey*. In the account already given of the *Copper Coinage of Connecticut*, it appears that the *Connecticut Mint* was at one time rented by its owners to one *Leavenworth* and his partners, and that they coined planchets or blanks at *New Haven*, which were struck in the city of *New York* on their account, with dies belonging to said *Leavenworth & Co.*, or those who did the mintage for them in *New York city*. The coins mentioned by their legends in the beginning of this paragraph, are supposed to be those produced from the blanks thus made in *Connecticut*. The die for the "Non Vi Virtute Vici" was, perhaps, a pattern made by *Atlee* during the preparations for the establishment of the works of *Machin & Company*, or quite probably, was produced by him before the formation of the partnership, after the manner of such artists, privately, on his own account, as an experimental piece, to be used when occasion should offer. The piece is by some collectors classed among the *Washington coinage*, be-

cause the head upon the obverse bears a resemblance to the portrait upon a number of the larger Washington medals.



NON VI VIRTUTE VICI.

Obverse: A bust, in uniform, facing right. Legend: "NON VI VIRTUTE VICI"

Reverse: The goddess of liberty, seated upon a paneled cubicular pedestal, the body upright, the left hand fully extended and balancing the scales of justice; the right hand supports a liberty staff crowned with a cap; the lower end of the staff rests at the feet of the figure; the cap is just back of its shoulder, and very near the legend. Legend: "NEO-EBORACENSIS." Exergue: 1786 Borders, serrated; Edge, plain; size, 19; weight, 117 grains.



IMMUNIS COLUMBIA (1787).

Obverse: The goddess of liberty, seated upon a globe, facing right; in her fully extended left hand she balances the scales of justice; the right hand supports a liberty staff, bearing a flag and crowned with a cap. Legend: "IMMUNIS COLUMBIA" Exergue: 1787.

Reverse: An eagle, displayed; right talon, an olive branch, thirteen leaves; left talon, thirteen arrows. Legend: "★ E ★"

PLURIBUS ★ UNUM ★ " Borders, serrated ; Edge, plain ; size, 16½ ; weight, 135 grains.

Uncommon—not extremely rare.

THE NOVA CONSTELLATIO COPPERS.

This series of tokens is said to have been made at Birmingham, England, from dies engraved by Thomas Wyon, of that place, the coinage being on account, as is supposed, of Gouverneur Morris, of New York, and intended for circulation in America. Forty tons are reported to have been struck from one die alone, and many more from another. The series includes nine types and nine varieties, most of which are common, though some are very rare. These Coppers bear date respectively 1783, 1785 and 1786, as here described.

1. Obverse: An eye, around which a narrow, plain, circular field; outside a glory; thirteen points cross, equidistant; a circle of as many stars. Legend: "NOVA CONSTELLATIO".

Reverse: "U·S" large Roman characters; a wreath around the field. Legend: LIBERTAS JUSTITIA·1783. Borders, milled, sometimes serrated; Edge, plain; size, 16½ to 18; weight, 117 to 138 grains. Three Types. Three Varieties of 1783.

2. Obverse: Same as preceding, except that the legend lacks punctuation or ornament.

Reverse: Monogram "U S" in script, around which is a wreath. Legend: "LIBERTAS ET JUSTITIA·1785" Borders, milled, sometimes serrated; Edge, plain; size, 16½ to 18; weight, 103 to 127 grains. Five Types. Five Varieties of 1783.

3. Obverse: Same as the preceding of 1785.

Reverse: Same as the preceding of 1785, except the change of date to 1786. One Type. One Variety of 1786.

The types of these coins a few differences of note in the form of the rays; some are light, some heavy, some cuniform,

some blunt: beside, the rays vary in the particular direction in which they point. The reverses vary most in the punctuation of the legend, the disposition of the leaves of the wreath, and the sizes of the letters of the monogram "U S." The rare pieces are mostly included in the coinage for 1785, and 1786, though the first piece described. of 1783, is not common.

THE BAR CENT, OR U S A COPPER.

This coin, presumed to have belonged to the same issue as the Nova Constellatio Coppers, was probably made in Birmingham, England, by Thomas Wyon, for circulation in America. The "U S A" Copper was first passed as money in the city of New York, in November, 1785. The device was taken from an old Continental button, to which fact and the light weight of the piece, has been attributed the disfavor shown the coinage and the limited circulation given the same.

Obverse: Large Roman "U S A" in a monogram, on a plain field.

Reverse: Thirteen horizontal bars. Border, serrated; Edge, plain; size, $15\frac{1}{2}$; weight, 85 grains. Two pairs of dies.

In the most common specimens, the top of the "N" in the monogram *nearly* touches the letter "A"; in the rare type, there is considerable space at this point. A Bar Cent, size 15, is extant, supposed by some to have been of the original coinage and intended for a Half Cent, but on better authority, is decided to be a recent imitation, or rather a modern novelty, created, as supposed, to make a saleable variety.

GEORGE CLINTON.

Obverse: Bust of George Clinton, facing right. Legend: "GEORGE ★ CLINTON ★"

Reverse: Arms of the state of New York. Upon an oval shield at the center is shown the sun rising from behind a range of hills, the sea in the foreground; left of the shield, Justice, with sword and scales. right, Liberty, with staff and

cap. Upon a hemisphere, above the shield, stands an eagle, wings outspread, facing right. Exergue: 1787; beneath this, next the border, "EXCELSIOR" Border, serrated; Edge, plain; size, 17; weight, 157 grains.

About a half-dozen specimens extant.

LIBER NATUS LIBERTATEM DEFENDO.

Obverse: An Indian, standing, crowned with feathers, and facing left; in his right hand he wields a tomahawk, his left supports a bow, the end of which rests on the ground near his feet; over his right shoulder appears the top of a quiver of arrows, which is borne upon his back. Legend: "LIBER NATUS LIBERTATEM DEFENDO ★"

First Reverse: Identical with that of the George Clinton, already described. Weight, 127 grains.

Second Reverse: A hemisphere of the globe, marked by longitudinal and meridional lines; upon this stands a large heavy-bodied eagle, wings spread, somewhat drooping, beak toward the right. Legend: "NEO-EBORACUS 1787 EXCELSIOR" Border, serrated; Edge, plain; size, 17; weight, 153 grains.

Third Reverse: A bust of George III, facing right. Legend: "GEORGIUS III REX"

This rendering of *Georgius III Rex* is doubtless from the hand of Atlee, who seems to have lacked the letter "G" among his punches, as already explained. All these pieces are very rare, the one with first reverse most common; the second reverse is found on but three or four pieces; the coin bearing the third reverse is considered unique.

BRASHER'S DOUBLOON.

Obverse: The sun rising from behind a range of mountains, which fill the center of the field; at the foot of the mountains, and in the foreground, appear the waves of the sea; in the lower part of the field appears the inscription "BRASHER"; around all this is a beaded circle. Le-

gend: "NOVA ♦ EBORACA ♦ COLUMBIA ♦ EXCELSIOR ♦"



BRASHER'S DOUBLOON.

Reverse: An eagle, displayed; on his breast is a shield argent, seven pales gules, a chief azure; the right talon grasps an olive branch, the left holds a bundle of arrows; about the head thirteen stars; upon the right wing is an oval punch-mark, showing the letters "E B." The device is encircled by a formal wreath of leaves. Legend: "UNUM ★ E ★ PLURIBUS ♦ 1787 ♦" Border, plain; Edge, plain. Gold; Size, 19; weight, 408 grains.

But four of these doubloons are known; one of these is in the Cabinet of the United States Mint at Philadelphia, the other three in possession of private persons.

The "Nova Eboracs." Three Types. Three Varieties.

This coinage is supposed to have been produced in England for circulation in New York or other parts of America. The issue was not authorized by the state of New York, but probably originated as a private speculation with some English merchant trading to New York.



NOVA EBORAC.

First Obverse: A bust, laureated and mailed, facing right.
Legend: " ♦ NOVA ♦ EBORAC ♦."

Reverse: The goddess of liberty, seated upon a globe, facing right; beside, and somewhat behind her, is a shield, bearing the arms of the state of New York; in the left hand, an olive branch; the right hand is upraised and supports a liberty staff, which is crowned with a cap. Legend: " ♦ VIRT ET LIB ♦" Exergue: 1787

Such is the description of the most common of these pieces; the First Obverse was also used with Reverse showing the figure of liberty, facing left, and the legend: " ♦ VIRT · ET LIB ♦ "

The Second Obverse was made similar to the first, as described, except a variation in the legend, thus: " ♦ ♦ NOVA EBORAC ♦ "

The Reverse of this piece presents the goddess of liberty, facing left, and the legend: " ♦ VIRT. ET LIB. ♦ "
A third obverse varies the legend to this form: " ★ NOVA ★ EBORAC ★ "

On the Reverse with the Third Obverse, the figure of Liberty faces left, and the legend is: " † VIRT. ET. LIB † "

As to other details of these coins, the borders of the pieces formed of the First Obverse, and the two Reverses used with it, are sometimes slightly milled, but generally plain. Size, 16½; weight, about 112 grains.

The Reverse with the Second Obverse, has a milled border. Size, 17; weight, 120 grains.

The Third Obverse and its Reverse, have milled borders. Weight, 120 to 142 grains.

The edges of all these are plain. The first-named piece is most common, the rest more rare; of the last, but three specimens are known, all of late in the possession of private persons.

THE AUCTORI PLEBIS.

The Auctori Plebis is a token doubtless produced in England for circulation in America.

Obverse: A bust, laureated and draped, facing left. Legend: * AUCTORI * * PLEBIS * "

Reverse: The figure of a female, seated, left arm resting upon an anchor, the right hand upon a globe, a lion at the feet. Legend: " * INDEP: ET LIBER * " Exergue, "1787"

This piece has been classed with the Connecticut coinage, which it somewhat resembles. The device of the reverse appears upon three other English tokens. The legend of the obverse is used upon another coinage, the device differing, the date 1736, this last not intended for America.

THE KENTUCKY TOKENS.

This coinage, from two obverse and three reverse dies, struck in copper and silver, is one of the most beautiful series of all the tokens produced for use in America. The series consists of the "Kentucky Triangle," or "Pyramid Token," so called, and of the pieces called "The Myddleton Tokens."

THE KENTUCKY TRIANGLE.

Obverse: A hand, grasping a scroll, bearing the inscription: "OUR CAUSE IS JUST" Legend: "UNANIMITY IS THE STRENGTH OF SOCIETY + "

Reverse: A triangular pyramid, formed of fifteen shining stars united by rings, the initial of a state inscribed on each star; the star at the apex bears the letter "K" for Kentucky. Legend: "E PLURIBUS UNUM * " Borders, milled. Size, 18 to 19½; weight, 155 to 192 grains.

The edges of this piece are variously finished in different specimens; some are plain, some engrailed, and some lettered with different inscriptions, as "PAYABLE IN LANCASTER LONDON OR BRISTOL" or "PAYABLE AT BEDWORTH," etc.

THE BALTIMORE TOWN THREEPENCE.

The history of the Baltimore Town Threepence is unknown. It appears to have been a private issue by Standish Barry, and takes its name from its legend, and the fact that it appeared in

Baltimore, Maryland, in 1790, and bears the denomination of three-pence. The coin is remarkable from the precision of its date, "JULY· 4· 90" and it has been surmised that the piece may have been issued in commemoration of some celebration of the fourth of July in 1790 as an anniversary of American Independence.

Obverse: A bust, draped in civilian dress, facing left, enclosed by a plain circle. Legend: "BALTIMORE·TOWN· JULY· 4· 90"

Reverse: A plain circular field, bearing in two lines the inscription: "THREE PENCE" underneath the lower line a heavy dash. Legend: "STANDISH·BARRY." interlaced with a diagonal beaded network. Border, milled; Edge, milled; size. 9; weight, 13 grains.

THE MYDDELTON TOKENS.

Obverse: A figure, representing Hope, beside an anchor; she presents two children to a female, the last extending her right hand in reception of the charge; the left hand supports a liberty staff, which is crowned with a cap; in front of the figure with the staff is an olive branch and a wreath, to the rear a cornucopia. Legend: "BRITISH SETTLEMENT KENTUCKY" Exergue: "1796."

First Reverse: Britannia, seated disconsolate amid the down-cast emblems of her power, and facing left; her head is bowed; she holds in her right hand an inverted spear, the head of which penetrates the ground before her, as she bears heavily upon it; at her right side a bundle of fasces, or lictors' rods, have fallen and lie prone; near them the cap of Liberty lies upon the earth, or may have been intended to be represented as rising from it; upon the ground, before the figure, are the scales of justice, upon which Britannia has set her left foot; upon the scales and the ground is the sword of justice, but with a broken blade; the left arm of the figure rests heavily upon a large shield, bearing the cross of the British ensigns. Legend: "PAYABLE BY P· P· P· MYDDELTON." Bor-

ders, milled; Edge, plain; size, 18; weight, silver, 175 grains; copper, 177 grains.

Second Reverse: Center a circular field, size 6, enclosed by a fine plain line; upon the field an inscription in four lines: "COPPER COMPANY OF UPPER CANADA" Legend: "ONE HALF PENNY." Border, milled; Edge, plain. Copper; size, 18; weight, 166 grains.

This reverse belongs to a different coinage, a token intended for Canadian circulation, the obverse of which bears a figure of Neptune reclining against an aqueduct, with the legend: "FERTILITATEM DIVITIAS QUE CIRCUMFERREMUS." the date being 1794—a very rare piece.

The copper pieces of the Myddelton Tokens were intended for circulation as money, but what value was put upon the silver pieces is unknown.

THE MOTT TOKENS.

The first of the numerous trade tokens which have been issued by the merchants, manufacturers and business men of the United States, were those made in England for the firm composed of William and John Mott, manufacturers of and dealers in clocks, watches, and jewelry, of No. 240 Water street, city of New York.

Obverse: An old-fashioned family mantle-tree clock, crowned by the small figure of an eagle. Legend: "MOTT'S, N. Y. IMPORTERS DEALERS, MANUFACTURERS, OF GOLD AND SILVER WARES."

Reverse: An eagle, wings spread, facing left, right talon, an olive branch, left talon, three arrows; on the breast a shield argent, six pales gules, a chief azure; above the head of the eagle the date 1789. Legend: "CHRONOMETERS, CLOCKS, WATCHES, JEWELRY, SILVERWARE." Borders milled; Edge, generally plain, though milled on some specimens. Size, 17; weight, 108 to 171 grains.

THE TALBOT ALLUM & LEE TOKENS.

The second issue of tokens by American merchants, was made by the firm of Talbot Allum & Lee, India Merchants, of Number 241 Pearl Street, City of New York. The firm consisted of William Talbot, William Allum and James Lee, from 1794 to 1796, when Lee retired; the partnership of Allum & Lee was dissolved in 1798. The firm circulated a large quantity of coppers of various devices, all, however, bearing the date 1794 or 1795, the coinage being executed in England.

First Obverse: A ship, under sail, to the right, above this: "NEW YORK" Legend: "TALBOT ALLUM & LEE. ONE CENT

Reverse 1: The goddess of Liberty, standing, facing front, on the right a bale of merchandise; the right hand of the goddess upholds a short liberty staff, which is crowned by a cap; the left hand rests upon a ship's rudder. Legend: "LIBERTY & COMMERCE. Exergue: "1794" Borders, milled; Edge, lettered and ornamented "PAYABLE AT THE STORE OF —:— —:— —:— —:—"

Second Obverse: A ship, under sail, to the right.

Legend: At THE STORE OF TALBOT ALLUM & LEE NEW YORK. * "

Reverse 2: The goddess of Liberty, as upon Reverse 1: Legend: "LIBERTY & COMMERCE" Exergue: "1795" Borders, milled; Edge, lettered: "WE PROMISE TO PAY THE BEARER ONE CENT." Size, 18; weight, 153 grains.

Of this coinage for 1794, there are specimens from four obverse and two reverse dies. The most rare of the pieces of coin, has a large & in both legends, and the name "NEW YORK" is not inscribed above the ship. Of the coinage for 1795, but one pair of dies are known. The dies were cut at Birmingham, England, the coins of 1795 being much less extensively manufactured. These dies were muled with others to produce coins not especially intended for circulation in America.

THE FRANKLIN PRESS TOKEN.

The Franklin Press Token is assumed by the best authority to be an English coinage; the reference to the name and fame of Franklin supposed to be intended by the legend, secures the coin a place in American collections.

Obverse: An old-style printing press. Legend: "SIC ORITUR DOCTRINA SURGETQUE LIBERTAS" Exergue: "1794"

Reverse: An inscription: "PAYABLE AT THE FRANKLIN PRESS LONDON." Borders, milled; Edge, plain; size, 17½; weight, 120 grains.

THE WASHINGTON COINAGE.

The earliest of the pieces bearing the portrait and name of Washington, was the "Unity Cent" of 1783, which for the sake of chronological order, is, with the Double Head Washington Cent, and Washington The Great D·G. described on preceding pages.

The English origin of the Washington Cents, the coinage of a later date than 1783, is supposed to be demonstrated by several trial pieces, one of which was procured from the widow of an engraver and die cutter named Hancock, of Birmingham, England. The piece referred to was struck from an unfinished obverse die of the Washington Cents of 1791; the impression is on a planchet intended for a Macclesfield half-penny, the reverse plain. Edge, inscribed "PAYABLE AT MACCLESFIELD LIVERPOOL OR CONGLETON"

There were also two other trial pieces, imported with a lot of English tokens, one of Reverse 1 of 1791, the "Large Eagle Cent," according to the description which follows this paragraph. The edge of this piece bore an inscription: "BERSHAM BRADLEY WILLEY SNEDSHILL" another of Reverse 2 of 1791, edge lettered: "PAYABLE AT THE WAREHOUSE OF THOS. & ALEX. HUTCHINSON."

Dickeson's "American Numismatic Manual," Philadelphia, J. B. Lippincott & Co., 1860, mentions the Washington Cents

of 1791, about to be illustrated and described, as: "the real 'Simon Pures,' which were gotten up as pattern pieces by authority of the General Government, and which, we think, we can establish to be such, beyond controversy."

WASHINGTON CENTS OF 1791.



THE LARGE EAGLE CENT.

First Obverse: Bust of Washington, in uniform, facing left, hair in a queue. Legend: "WASHINGTON PRESIDENT 1791"

Reverse 1: A large eagle, displayed, bearing upon his breast a shield argent, six pales gules; from the beak of the eagle, on either side, floats a scroll, inscribed: "UNUM E PLURIBUS" right talon, an olive branch of thirteen leaves; left talon, thirteen arrows; above the eagle, in the place of a legend: "ONE CENT" Border, milled; Edge, lettered: UNITED STATES OF AMERICA · × ·" Size, 19; weight, 194 grains.

Reverse 2: A ship, under sail, to the right; beneath the ship are waves, and in the foreground two long branches, crossed at their lower ends. In some specimens, the maintop of the ship is disfigured by a break, creating the appearance of a cap at mast head, with a piece of loose sail below. Legend: "LIVERPOOL HALFPENNY" Border, milled; Edge, inscribed: "PAYABLE IN ANGLESEY LONDON OR LIVERPOOL · × ·" Size, 18; weight, 138 grains.

The First Obverse, and Reverse 1, were used together to make the coin called "The Large Eagle Cent," the most common of the Washington Cents dated after 1783. The same Obverse, and Reverse 2, were used together to form a piece,

of which but four specimens are known to be in existence; they are called the "Washington Liverpool Halfpennies."



THE SMALL EAGLE CENT.

Second Obverse: Bust of Washington, in uniform, facing left, hair in a queue. Legend: "WASHINGTON PRESIDENT."

Reverse 3: A small eagle, displayed, upraised wings; on his breast a shield argent, six pales gules, a chief azure; right talon, an olive branch, eight leaves and three berries; left talon, six arrows; about the eagle's head are eight mullets; above these are clouds, filling the space from wing to wing; above the clouds are inscribed the words: "ONE CENT" under the eagle is the date 1791. Borders, milled; Edge, lettered: "UNITED STATES OF AMERICA · × ·" Size, 19; weight, 190 grains.

Reverse 4: A ship, under sail, to the right. Legend: "HALFPENNY" under the ship, waves, and in the foreground, on a panel, the date 1793. Border, milled; Edge, lettered: "PAYABLE IN ANGLESEY LONDON OR LIVERPOOL · × ·" Size, 19; weight, 163 grains.

The Second Obverse, with Reverse 3, is called "The Small Eagle Cent," which is not as common as the large eagle variety (Reverse 1); the Second Obverse, and Reverse 4, form "The Ship Halfpenny," which is of the same rarity as The Small Eagle Cent. An obverse, bearing the bust of George III, facing left, with the legend "GEORGIUS III DEI GRATIA" was used with Reverse 1, to form a medallet supposed to be unique. Struck in copper. Size, 20; Border, beaded; Edge, engrailed.

THE WASHINGTON CENTS OF 1792.



THE NAKED BUST OR ROMAN HEAD CENT.

First Obverse: A classical bust of Washington, undraped, facing right; the head is encircled by a fillet, confining the hair, which is cut short and is curly; the fillet is tied at the back of the head by a bow knot with long pendent ends. Legend: "WASHINGTON PRESIDENT. 1792"

Reverse 1: A small eagle, displayed, wings upraised; on his breast a shield argent, six pales gules; right talon, an olive branch, fourteen leaves, six berries; left talon, thirteen arrows; about the head of the eagle are six mullets, and above is the word "CENT" Border, milled; Edge, plain, or inscribed: "UNITED STATES OF AMERICA × × × × ×" Size, 19; weight, 193 grains. Some six or eight specimens only are known.



SECOND OBVERSE, REVERSE 2, 1792.

Second Obverse: Bust of Washington, in uniform, facing left, hair in a queue. Legend: "WASHINGTON PRESIDENT 1792"

Reverse 2; A large eagle, displayed, on the breast a shield argent, six pales gules, a chief azure; in the beak a scroll, inscribed: "UNUM E PLURIBUS"; right talon, an olive branch, thirteen leaves and a berry; left talon, thirteen arrows; above the head of the eagle a voided star, above this, twelve like stars are formed in an arch from wing to wing. Border, milled; Edge, plain, or inscribed: "UNITED STATES OF AMERICA - X" Size, 19; weight, copper, 180; silver, 187; gold, 252 grains.

The Second Obverse, and Reverse 2, form an extremely rare coin; impressions exist in gold, silver, and copper; they were perhaps struck in the various metals, with a view to determine to which the dies would be best adapted. The piece in gold is supposed unique; the specimens in silver and those in copper are perhaps a half-dozen or more of each.

Third Obverse; A bust of Washington, in uniform, facing left, hair in a queue. Legend: "GEO. WASHINGTON BORN VIRGINIA FEB. 11. 1732."

Reverse 3: An Inscription: "★ GENERAL OF THE AMERICAN ARMIES 1775 RESIGNED 1783 PRESIDENT OF THE UNITED STATES 1789 —" The inscription is in ten lines, the star being inscribed above all, and the dash beneath the whole. Border, milled; Edge, plain; size, 19; weight, 178 grains.

The Second and Third Obverses, and Reverse 3, were intended for medallets, but used with the dies of the First Obverse, and Reverse 1. The Second Obverse is uncommon, but the Third Obverse, and Reverse 3, are not very rare. They are usually struck in copper, with plain edge. Pieces, in copper, are known, formed of the Second Obverse, and Reverse 3, the edge lettered: "UNITED STATES OF AMERICA"

The Third Obverse, and Reverse 3, are used in a few extremely rare silver pieces. A single copper piece is struck from the Third Obverse, and Reverse 2. There are two dies of Reverse 3.



FOURTH OBVERSE, REVERSE 4, 1792.

Fourth Obverse: A bust of Washington, in uniform, facing left, hair in a queue. Legend: "G. WASHINGTON PRESIDENT. I. 1792"

Reverse 4: An eagle, displayed; on his breast a shield argent, six pales gules, a chief azure; right talon, an olive branch, thirteen leaves; left talon, thirteen arrows. Legend: "UNITED STATES OF AMERICA"

This die is supposed to have been condemned, as indicated by a chisel cut across the face of the impression.



REVERSE 5, 1792.

Reverse 5: An eagle, displayed, upraised wings, on the breast a shield argent, seven pales gules, a chief azure; right talon, an olive branch, fifteen leaves; left talon, six arrows; about the head of the eagle fifteen mullets. Legend: ". UNITED STATES OF AMERICA." Border, milled; Edge, plain; size, 20 to 22; weight, copper, 220 to 273 grains; silver, 193 to 234 grains.

Of the Fourth Obverse, and Reverse 4, used together, but one specimen is known, and that is a coin in silver. The Fourth Obverse, and Reverse 5, were used together to make coins of both silver and copper; both of these last are rare, the silver pieces being very rare. A specimen, the copper formerly owned in Berlin, Prussia, had an edge ornamented geometrically in circles and squares. The dies of the Fourth Obverse, and Reverses 4 and 5, are believed to have been made by one Peter Getz, of Lancaster, Pa., a very skillful though self-taught mechanic and engraver, evidences of whose remarkable genius still remain in the jewels of the Lancaster Lodge of Masons, in a part of the apparatus of the United States Mint, and elsewhere.

THE "GRATE" TOKEN.

Obverse: A bust of Washington, in uniform, facing right, hair in a queue. Legend: "G. WASHINGTON. THE FIRM FRIEND TO PEACE & HUMANITY ☉ "

Reverse: An open fire-place, with a grate. Legend: "PAYABLE BY CLARK & HARRIS. 13. WORMWOOD ST. BISHOPSGATE. Exergue: "LONDON 1795" Border, milled; Edge, engrailed; size, 17½; weight, 144 grains.

This is evidently an English token, of which two obverse dies, and one die of the reverse are known. The impression of the border is seldom seen on the specimens of this token, the planchets used being too small for the dies.

LIBERTY AND SECURITY WASHINGTON COINS.

The several pieces described under this head, are probably of English origin, but whether intended for medals or for circulation as pennies, or half-pennies, is unknown.

First Obverse: A bust of Washington, in uniform, facing left, hair in a queue. Legend: "GEORGE WASHINGTON."

Reverse 1: A shield argent, seven pales gules, impaling argent, fifteen mullets, five, four, three, two, one. Above the

shield is displayed an eagle, right talon, an olive branch, nine leaves, two berries; left talon, three arrows. Legend: "LIBERTY AND SECURITY" Border, a plain double ring; Edge, lettered: "AN ASYLUM FOR THE OPPRESS'D OF ALL NATIONS :: : ::" Size, 21; weight, 300 grains.

This piece, though uncommon, is not rare.

Second Obverse: A bust of Washington, in uniform, facing right, hair in a queue. Legend: "GEORGE WASHINGTON."

Reverse 2: A shield, paly of sixteen argent and gules, impaling argent, fifteen mullets, five, four, three, two, one. Above the shield is displayed an eagle, right talon, an olive branch, eight leaves, four berries; left talon, six arrows. Legend: "◦ LIBERTY AND SECURITY ◦" Exergue: "17 95" divided by the point of the shield. Border, a plain circle, and outside of the same, milling. Edge, lettered: "AN ASYLUM FOR THE OPPRESS'D OF ALL NATIONS :: : ::" Size, 20½; weight, 310 grains.

This piece is extremely rare, but two specimens being known.

Third Obverse: A bust of Washington, in uniform, facing right, hair in a queue. Legend: "GEORGE WASHINGTON" Border, a plain circle, outside of the same, milling.

Reverse 3: A shield argent, seven pales gules, impaling azure, fifteen mullets, five, four, three, two, one. Above the shield is displayed an eagle; right talon, an olive branch, eight leaves, three berries; left talon, six arrows. Legend: "LIBERTY AND SECURITY" Exergue: "17 95" divided by the point of the shield. Border, milled; Edge, lettered variously, generally: "PAYABLE AT LONDON LIVERPOOL OR BRISTOL." Sometimes, but rarely: "BIRMINGHAM REDRUTH & SWANSEA" and in one instance, of which but one specimen remains: "AN ASYLUM FOR THE OPPRESS'D OF ALL NATIONS . × ." Border, milled; size, 18; weight, 139 grains.

This piece, though not at all common, is not extremely rare.

Reverse 3, is sometimes found muled with an "Irish Half penny."

Some of the dies described were left unfinished, inasmuch as the pales of the shield, represented as gules, lack the fine perpendicular lines which, in heraldry, are indicative of red.

WASHINGTON MEDAL.

Obverse: A bust of Washington, in uniform, facing left, hair in a queue. Legend: "WASHINGTON PRESIDENT 1796" Border, A beaded circle, outside of which a glory.

Reverse: Identical with Reverse 4, of 1792, except the border, where a glory is introduced, as if extended over from the obverse and turned in. Size, nearly 24.

The description of this piece is taken from Snowden's "Washington and National Medals." It is excessively rare, or unique—if not lost.

THE NORTH WALES WASHINGTON PIECE.

Obverse: A bust of Washington, in uniform, facing left, hair in a queue. Legend: "GEORGEIUS WASHINGTON"

Reverse 1: A harp, fronting left, upon which, a large crown, surmounted by a star; on each side of the base of the harp, a star of six points. Legend: "NORTH WALES" Border, plain; Edge, generally plain, though one specimen is lettered: "PAYABLE IN LANCASTER LONDON OR BRISTOL"

Reverse 2: The same as Reverse 1, except that the stars each side of the base of the harp, are small, and a fleur de lis appears on the top of the crown, instead of the star.

Most of these pieces are of brass or composition; the one "Payable in Lancaster London or Bristol" is on a copper planchet, weighing 143 grains. The only known impression of Reverse 2, is also in copper.

There are other Washington pieces than those here described; to include all the medals and coins which might thus be classified, would be to form an extensive catalogue; the descriptions preceding, are those of the Washington coinage of

the last century, evidently either struck as pattern pieces or issued as money.

THE FUGIOS. TWENTY-SEVEN TYPES. TWENTY-FOUR VARIETIES.

The Fugios were the first coinage made by authority of the United States. There is but little on record concerning this series of coppers, and the documents in relation to them, aside from the Journal of Congress, cannot be found. The Congressional Record states, that on "Saturday, April 21, 1787 :
* * * * The Committee, consisting of Mr. Johnson, Mr. King, Mr. Pierce, Mr. Clark, and Mr. Pettit, to whom was referred a report of the Board of Treasury on certain proposals for coining copper have reported,

"That the board of treasury be authorized to contract for three hundred tons of copper coin of the federal standard, agreeably to the proposition of Mr. James Jarvis, provided that the premium to be allowed to the United States on the amount of copper coin contracted for be not less than fifteen per cent. That it be coined at the expense of the contractor, but under the inspection of an officer appointed and paid by the United States; that the obligations to be given for the payment of the copper coin to be delivered under such contract be redeemable within seven years after the date thereof with an option of discharging the same at an earlier period; that they bear an interest not exceeding six per cent per annum, and that the principal and interest accruing thereon be payable within the United States; that the whole of the monies arising from the said contract shall be sacredly appropriated and applied to the reduction of the domestic debt.

"A motion was made by Mr. Madison, seconded by Mr. Few, to strike out the last clause, and on the question, shall the last clause stand, viz that the whole of the monies &c, the yeas & nays being required by Mr. Pettit, the question was lost, and the clause was struck out."

After the clause was stricken out, the original article was

amended by inserting in the blank the word "twenty," and instead of the rejected clause the following was inserted:

"That the whole of the aforesaid loan shall be sacredly appropriated and applied to the reduction of the domestic debt of the United States, and the premium thereon towards the payment of the interest on the foreign debt." Thus amended the bill was passed. The Journal shows that on

"Tuesday May 8, 1787. On Motion of Mr. King" it was:

Resolved, That the board of treasury be and hereby are authorized to dispose of the public copper on hand, either by sale or contract for the coinage of the same, as they shall judge most for the interests of the United States."

"Friday, July 6, 1787 * * * * * On the report of a Committee, consisting of Mr. Pierce, Mr. Kean, and Mr. Holten, to whom was referred a letter of the 11th May from the board of treasury:

Resolved, That the board of treasury direct the contractor for the copper coinage to stamp on one side of each piece the following device, viz: thirteen circles linked together, a small circle in the middle, with the words 'United States,' round it; and in the center, the words 'We are one;' on the other side of the same piece the following device, viz: a dial with the hours expressed on the face of it; a meridian sun above, on one side of which is to be the word 'Fugio,' and on the other the year in figures '1787' below the dial, the words 'Mind your Business.'"

On September 30, 1788, a Committee of inquiry, consisting of Mr. Clark, Mr. Dane, Mr. Carrington, Mr. Bingham and Mr. Williamson, appointed on finance, reported:

"There are two contracts made by the board of treasury with James Jarvis, the one for coining three hundred tons of copper of the federal standard, to be loaned to the United States, together with an additional quantity of forty-five tons, which he was to pay as a premium to the United States for the privilege of coining; no part of the contract hath been fulfilled. A particular statement of this business, so far as re-

lates to the three hundred tons, has lately been reported to Congress. It does not appear to your Committee that the board were authorized to contract for the privilege of coining forty-five tons as a premium, exclusive of the three hundred mentioned in the act of Congress.

“The other contract with said Jarvis is for the sale of a quantity of copper, amounting, as per account, to 71,174 pounds; this the said Jarvis has received at the stipulated price of eleven pence farthing, sterling, per pound, which he contracted to pay in copper coin, of the federal standard, on or before the last day of August 1788, now past; of which but a small part has been received. The remainder it is presumed, the board of treasury will take effectual measures to recover as soon as possible.” — and with this, strangely enough ends the record of action upon this important business. Of the amount of coin issued, and the time and manner of settlement with Mr. Jarvis, there is no information to be had. From the number of dies evidently used in creating the Fugios, and the abundance of specimens still found, we may conclude the contracts were fulfilled according to the original agreement.

When, as related in the account of the Copper Coinage of Connecticut, under the general head of “British Colonial Coinages” herein, the General Assembly of the State of Connecticut, appointed in January 1789, a Committee of inquiry in relation to the mint at New Haven, and the said Committee reported, April 7th, 1789, it was found that the owners of that mint were: “James Jarvis 4-8 and 1-16 Parts James Hillhouse Esq. 1-8 Part Mark Leavenworth Esqr. 1-8 Part Abel Buel 1-8 Part and John Goodrich 1-16 Part”. The report also states, that James Jarvis became a part owner of the Connecticut Mint in April 1786, by purchase from Pierpoint Edwards and Elias Shipman of “2-8 Parts,” and from Jonathan Ingersol of “1-16 Part of Sd. Company’s Right,” and that James Jarvis “Still Continued Sd. Business until Some Time in the Summer following When want of Stock Obligated

them to Desist." Furthermore about June 1st 1787, James Jarvis is reported to have bought of Samuel Bishop and John Goodrich, "2-8 Parts of Sd. Comp'y's Right." which it may be observed gave Jarvis one half, and one sixteenth, of the stock of the Company, and the control of the mint and its business, which he retained until 1789, as appears in the beginning of this paragraph.

The coinage of Connecticut Coppers was reported by the owners of the mint to have ceased about June 1st 1787, the date of the last purchase of shares of the Company's stock by James Jarvis, and the right to coin copper at the Connecticut Mint, was suspended by Act of General Assembly of the state June 20th 1789 and not renewed thereafter.

It will be noted that at the time of his last purchase of stock in the Connecticut Mint, Jarvis had already made his proposals to Congress to coin copper on account of the United States, and must have been preparing to carry out the same, according to the contract provided for by the Act of Congress April 21, 1787, already quoted in this connection. The device being ordered July 6, 1787, it may be supposed Jarvis proceeded with his coinage of the Fugios at New Haven, yet on September 30, 1788, the Committee of Congress reported "no part of the contract hath been fulfilled." Presumably, the Fugios, though dated 1787, in conformity to the law which authorized them, were mostly coined subsequent to that year. Though generally reported to have been coined at New Haven, altogether, the coinage for Jarvis was begun in the city of New York, continued at New Haven, carried on at Rupert, Vermont, probably also by Machin & Co., at Newburgh, N. Y., and indeed, in almost any, and every place in the United States where facilities could be obtained. The dies were made by Abel Buel, or "Bewil," as his name was spelt in the reports of the Connecticut Mint, in which establishment he was, as may be noted in a preceding paragraph, the owner of a 1-8 interest. The device ordered by Congress was faithfully reproduced by Buel in his work upon the dies, and

is presented in the many specimens of the same still in existence, as follows :



FUGIO. FIRST OBTVERSE. REVERSE 1.

First Obverse: Thirteen rings, linked in uniform order, as by rotation, making an endless chain in circular form. Legend: "UNITED & STATES &" inscribed on a narrow label around a small central field. Center: An inscription "WE ARE ONE" in three lines.

Reverse 1: A sun dial, above which appears the sun, with many rays, shining upon the dial. Legend: "& FUGIO. & 1787 &" In the exergue, an inscription: "MIND YOUR BUSINESS" in two lines. Border, milled; Edge, plain; size, $17\frac{1}{2}$ to 18; weight, 126 to 178 grains.



THE FUGIO. SECOND OBTVERSE. REVERSE 2.

Obverse: Similar to First Obverse, except that a star of eight points is used in the punctuation of the legend.

Reverse 2: Same as Reverse 1, except in the details of the finish of the face of the sun dial, and the variation in the punctuation of the legend and inscription, as shown in the preceding illustration.

The types and varieties of the Fugios are generally created

by minor points of difference. On the obverse the words UNITED STATES, are frequently changed to STATES UNITED. In one die, of which but three impressions are known, the word UNITED is inscribed in the upper part of the circular label, and the word STATES appears in the lower part of the same; specimens from another die, show the words UNITED STATES divided by a star of eight points. The inscription WE ARE ONE is differently placed and spaced on various pieces. The reverses of the Fugios vary in the finish of the face of the sun dial; also in different punctuations of the legend and inscription, and in the light or heavy engraving of the rays of the sun. The coins were heavily struck; the illustration of the First Reverse shows six figures in the field produced by the rings showing through from the obverse; this is common, and on many pieces the impression of the reverse shows upon the obverse. The description thus far is of the regular issue of this coinage.

THE FUGIO PATTERN PIECES.

With the regular authorized Fugio currency of the United States, have been found a number of coins of like general character, which, in the absence of positive information, are regarded as pattern pieces.

First Obverse: Thirteen rings, interlinked, as by alternation of position, in a circle, a mullet enclosed in each ring. Legend: "UNITED * STATES * " inscribed upon a label, borne by a large, open star, of thirteen triangular points, at the middle of the field. In the center, an inscription: "WE ARE ONE"

Second Obverse: Thirteen rings, linked in uniform order, as by rotation, making an endless chain in circular form, the name of a state inscribed on each ring. Legend: "AMERI CAN · CONGRESS ·" upon a small circular label; within the label, at the center, is an eye; from the outer edge of the label radiates a glory of many rays, filling the space to the circle of rings.

Third Obverse: Identical with Second Obverse, except the eye in the center. These obverses are all rare, but two specimens from each, some in silver and others in copper.

Fourth Obverse: Similar to Third Obverse, except that the rays of the glory extend into and nearly across the space inside the several rings.

Fifth Obverse: Thirteen rings, interlinked alternately, a mullet in each; in the field a large star, open at the center.

Sixth Obverse: Thirteen rings, linked in uniform order, as by rotation, making an endless chain in circular form, the name of a state inscribed on each ring. Legend: "AMERICAN CONGRESS" on a small circular label. In the center, an inscription: "WE ARE ONE." The space between the legend and the circle of rings is filled by a glory.

Reverse 1; A sun-dial; above, the sun shining down upon the dial. The field is plain.

Reverse 2: A sun-dial; above, the sun shining down upon the dial. Legend: "☼ FUGIO. * ☼ 1787 ☼" Exergue: "MIND YOUR BUSINESS"

Reverse 3 A sun-dial; above, the sun shining down upon the dial. Legend: "FUGIO. 1787 .." Exergue: "MIND—YOUR—BUSINESS."

The First, Second, Third and Fourth Obverses have been used with Reverse 1.

The First Obverse and the Fifth Obverse have been used with Reverse 2. The first in silver and brass, the other in silver only, as far as known. Specimens excessively rare or unique.

The Sixth Obverse has been used with Reverse 3, upon copper specimens. Excessively rare.

The die of Reverse 3 was used with the First and Second Obverses of the regular authorized issue of the Fugios.

The pattern pieces were of the same size as the regular issue, $17\frac{1}{2}$ to 18.

A number of dies of this coinage, were found at a store in New Haven, Connecticut, once occupied by Browne & Platt.

sometime the owners of the mint; from these dies, restrikes have been made; on these the rings appear to be interlinked in alternation of position, in a manner unlike that shown in the illustrations herein given.

"The Fugios" are so called by Mr. S. S. Crosby, of Boston, in his work *THE EARLY COINS OF AMERICA*, an excellent authority. They were generally known as the Franklin Cents, otherwise as the Sun-dial Cents, the Ring Cents, and the Mind Your Business Cents. It has been proposed by very respectable parties to denominate this coinage the Rittenhouse Cent. The Scientist and Philosopher, David Rittenhouse, of Philadelphia, when only twenty-four years of age, adopted as his mottoes the words "*Tempus Fugit*" (Time Flies), and the terse maxim '*Mind Your Business*'. The famous results of his life, demonstrate his adherence to the rule of action thus chosen by him.

In 1756, David Rittenhouse made an eight-day clock for Mr. Barton, his brother-in-law, over the dial-plate of which he engraved "*Tempus Fugit*," and beneath the same "*Mind Your Business*" From this time-piece, these curt, sensible phrases found their way to the Continental Bills of Credit, the tin coins of the "Continental Currency," and the dies of the Fugios, the first authorized coinage of the United States.

The various devices of the Continental Currency were much admired for their appropriate significance; they were supposed to be the designs of Judge Hopkinson, an intimate friend of Rittenhouse.

The first coins struck for America, are supposed to have been the Sommer Island Shilling and Sixpence, the first-named piece being known as the "Hogge Penny." An account of these pieces, is given in this volume, under the head of "British Colonial Coinages." The Hogge Penny was issued about the year 1612. From that time on, the subject of a currency, and the regulation of the value of various foreign coins, was a matter of frequent consideration in the British American Colonies. Laws in relation to the various forms

of money in use, were passed in Virginia as early as 1640; by Virginia and Maryland in 1642; in Massachusetts the same year, and afterwards in the different colonies. Virginia passed a law for the establishment of a mint and the creation of a coinage, November 20, 1645; Massachusetts passed a law of the same kind, May 27th, 1652. The Virginian law was without issue, but the Massachusetts coinage was effected. Maryland passed a law "concerning the setting up of a mint," May 1st, 1661, the coinage, however, being made for the colony, by Lord Baltimore, in England, thereafter. New Hampshire voted the consideration of a copper coinage, March 13, 1776, the matter being afterward agreed upon, but never concluded. Vermont authorized a coinage June 15, 1785; Connecticut October 20, 1785, and New Jersey did the same, June 1st, 1786.

The Congress of the Confederate States of America, not only issued paper money in large amounts for carrying on the war against England for independence, but is credited with having put forth a coinage of tin in 1776, described as the "Continental Currency." Robert Morris, the "Financier of the Revolution," made his report of a scheme for a National Coinage to Congress on January 15, 1782, the same being represented herein by the *NOVA CONSTELLATIO PATTERNS*. The scheme presented by Morris not being adopted, the subject of a Coined Currency continued to be discussed in Congress, and on Wednesday, July 6, 1785, that legislative body considered the report of a grand Committee on the subject of a monetary unit, and resolved:

"That the money unit of the United States of America, be one dollar.

"That the smallest coin be of copper, of which 200 shall pass for one dollar.

"That the several pieces shall increase in a decimal ratio."

On August 8, 1786, the subject was further considered, and the names and weights of the several coins of the United States were specified, and the Board of Treasury ordered to report the

draft of a law to be passed for the establishment of a mint. On October 16, 1786, an "Ordinance for the establishment of the Mint of the United States of America, and for regulating the value and alloy of coins," was passed, as may be found in the Journals of Congress. The adoption of the Constitution of the United States in 1787, arrested all local issues, and vested the sole right of coinage in the general government.



AMERICAN AND OTHER GOLD,

AND THE

PRIVATE COINAGE OF GOLD IN THE UNITED STATES.

The vast production of the precious metals in the Western Hemisphere since the American voyages of Columbus in the year 1492, is the most remarkable phenomenon of the important facts of modern history.

Of the precious metals, gold, the earliest known and most beautiful of all metallic substances, has been, and remains, of the greatest commercial consequence.

The Private Coinage of Gold in the United States, is one of the most noteworthy of all known mintages, though less artistic and varied than some series of classical origin, and lacking the scientific accuracy and mechanical finish of the best work of modern dates; it is, notwithstanding, an evidence of the richness of American geologic formations, an incident in the establishment of art and civilization in a new land, and later, as appearing in California, a result of the unequalled enterprise of a free and cosmopolitan people in the most extraordinary natural and social conditions. It is proper then, that in a work like the present, the history and description of this coinage should be preceded by some brief notes upon the subject of gold in general, and a more particular account of the gold regions of the United States.

Of Gold, it may be said, that it is not only "the earliest known and most beautiful of all metallic substances," as has already been stated, but it is also most widely disseminated, and thoroughly diffused through various elements in multi-form states and combinations. Gold has been found in all quarters of the globe; no considerable region seems to be without this metal in greater or less abundance. The earliest supplies of gold were, it may be supposed, found in masses now called "nuggets," which consist of metallic gold in a natural state, mixed to a greater or less degree, with pebbles, or fragments of rock, called "matrix," and blended with other metals, or with different minerals. Gold is found otherwise in small grains, in deposits called "placers," in varied forms in "lodes" and "veins," and as "gold dust" mingled with the sand and earth in many places. Common clay, such as underlies the whole of the extensive city of Philadelphia, Pennsylvania, and which is used there for the general manufacture of bricks for building, contains in many instances considerable amounts of gold. The walls of the houses of Philadelphia are supposed to contain many millions of dollars worth of superfine gold embedded in the bricks of which the buildings are constructed. It has been shown from chemical analysis by Soustadt, that about a grain of gold is diffused in every ton of sea water, and that the gold can be separated so as to be recognized from a quantity of the water no more than from one hundred and fifty to two hundred cubic centimetres. Nevertheless, as universally as gold may in this manner be traced, there are comparatively few localities where the labor and expense of obtaining the same does not exceed the value of the metal secured.

The symbol of gold, in chemistry, and among numismatists, is *Au*, from *Aurum*, the Latin term for this metal. In chemistry, the equivalent number of gold is 98.5, though in the practice of many chemists, the same is expressed by the double of this, the equivalent being written as 167. Gold is the most ductile, the most malleable, and the only yellow

metal. The density of gold varies with the degree of compression to which it may be subjected; that of hammered gold is from 19.258 to 19.4. Finely-divided gold, obtained by precipitation from its solution by sulphate of iron, has a specific gravity of 20.72. Pure gold is about the softness of lead in the same state, and the higher the degree of purity in the gold, the greater the capacity of the metal for extension by the processes of rolling, beating and wire-drawing. An ounce of gold can be made to cover one hundred square feet of surface; leaf gold of this thickness transmits, if pure, green rays of light, but if somewhat alloyed with silver, pale violet rays are transmitted also. One grain of gold may be made to cover a surface of from 56 to 56,3.4 square inches. Ordinary gold leaf is made one two hundred thousandth of an inch in thickness; the French leaf is but one two hundred and eighty thousandth of an inch thick, and in some cases of but one two hundred and ninety thousandth of an inch thick, while specimens have been made, of which 367,500 were required to make a pile one inch high, or about 1200 leaves of gold to make the thickness of a sheet of common printing paper. A grain of gold can be drawn into a wire 500 feet in length. In gilding silver, an ounce of gold may be extended to cover a wire 1300 miles in length, when the thickness of the gold is reduced so much, that three million, three hundred and eighty-four thousand such films of metal would be required to make a pile an inch high. The tenacity of gold, is less than that of iron, copper, platinum, or silver. The experiments of Seeckingen are said to have demonstrated that a gold wire 0.078 of an inch in diameter, is capable of supporting a weight of 150.07 lbs. avoirdupois, without breaking. Upon more recent authority, we are informed that a wire of gold 0.787, or rather more than one thirty-sixth of an inch in diameter, will support 150 pounds avoirdupois. After the conquest of Carthage, the ancient Romans used gold leaf upon various articles of furniture, and ultimately, in an excess of extravagance, gilded the ceilings of their apartments and halls. The gold

leaf used for this purpose, was by the writers of that age. compared to a cobweb, and yet from their more definite statements, we learn that it was about three times the thickness of the common gold leaf used at the present time.

The thin leaf of pure gold, as has been stated, transmits light of a green color; heat changes the color of the same to a ruby red, and finely-divided gold, under certain conditions, imparts this to glass. The melting point of gold, has been variously stated, at 1200 degrees Centigrade by Pouillet, at 1380 degrees Centigrade by Guyton de Morveau, and at 1425 degrees Centigrade by Daniells. From a comparison of the results obtained by these different authorities, Reimsdijk concludes the exact point at which gold fuses, is 1240 Centigrade. Otherwise, the melting point of gold has been given at 2016 degrees Fahrenheit; at 2192 degrees, at 2518 degrees, and at 2590 degrees, of the same thermometrical scale. When melted, gold becomes of a bright bluish green color; it expands more than most metals in fusing, and in consequence contracts more in cooling, and becoming solid again. Thus, although the ductility, malleability, and considerable tenacity of gold, combine with its fineness, beauty of color, and capacity for finish, to fit it for the varied arts, and recommend it pre-eminently for the use of every mint, its action when fused in the crucible or cooling in the mold, prevents the metal from being founded or cast in any practical manner, except into blanks, ingots, or similar masses, of a rude form and rounded outline.

Gold is remarkable for the long time during which it may be submitted to a high degree of heat, without loss by volatilization. Gasto Claveus placed an ounce of pure gold, in an earthen vessel, in the furnace of a glass-house, where the heat was sufficient to melt glass, and there the same was kept at that heat for two months, but upon careful examination, the gold was found to have lost nothing by the prolonged fusion. Other experimenters, however, describe gold as somewhat volatile under a higher and long-continued heat. When subjected to the flame of the oxyhydrogen blow-pipe, gold wire

is dispersed in vapor; the same result may be obtained by the use of the heat of the rays of the sun concentrated by a powerful convex lens, or by a strong current of electricity. As the current from a powerful electric battery is made to pass along a gold wire, vapors of the metal are produced which may be collected upon a sheet of paper beneath the wire. The paper, in such an experiment, will be stained a purplish brown by the deposit of impalpable gold-dust; if a sheet of silver be used in the place of the paper, in the same way, a like deposit will be formed upon the silver which may thus be gilded. The primitive natural form of gold is that of a cubical crystal. When gold is melted in a large quantity and made to cool and resolidify slowly, cubical crystals sometimes appear, and crystals of gold have been found in a state of nature in the form of the regular octohedron.

Chemically, gold is not acted upon by the alkalies, nor by any simple acid, except selenic acid; neither is it affected by the oxygen of the air, though long exposed to the same when in a state of fusion. It is not affected by sulphur, but is dissolved by bromine and chlorine, or by any combination of acids or different substances wherein free chlorine may be found. Chlorine, as generated in chemical compounds, is a powerful solvent of gold; to this is due the potency upon gold of the combination of 4 parts of hydrochloric acid and one part of nitric acid, which is called *aqua regia*. Gold can be alloyed with most of the metals; the addition of silver or of copper increases the hardness of gold and fits it to endure the wear to which the metal is subjected in coins and in articles of jewelry or of plate. At the same time the tenacity of the metal is increased, and it is rendered more fusible. Articles of jewelry and such wares of red gold, are soldered with a composition consisting of one part of copper to five of gold. A solder for light-colored gold is made of four parts of gold and one part of silver, or for a deeper shade, of one part copper, one part silver and four parts of gold. Gold, when obtained from chemical solution, is presented in a variety of

forms; from a chlorine solution of gold may be obtained a mass of peculiar nature, which by a process involving heating, annealing, and other proper manipulation, becomes the "sponge gold" used in dentistry. Gold can be welded cold, and sponge gold, when properly prepared, is readily reduced to a perfectly solid condition by a moderate amount of percussion or hammering. Gold "plugs" have been found in the teeth of mummies centuries on centuries since alive in Egypt, but we are not aware the ancients had knowledge of such a form of gold as is here described.

BINARY COMPOUNDS OF GOLD.

The atomic weight of gold has been given by various authorities at 196.0, 193.2, 196.3, 196.5, and 196.67, the same quantity of heat being required to produce a given change of temperature in 7 grains of lithium, 56 of iron, 207 of lead, 108 of silver, or from 196.0 to 196.7 grains of gold. The most important compounds of gold are—

First. Oxide or Protoxide of Gold. Oxygen and gold unite, but only by indirect chemical action. The oxide or protoxide of gold is prepared by adding a solution of potash to one of protochloride of gold; a green powder is separated, which is the oxide or protoxide named. It is an exceedingly unstable compound. It consists of oxygen 8, gold 200.

Second. Peroxide or Teroxide of Gold. This may be obtained by decomposing a solution of perchloride of gold, by digesting it with a small excess of magnesia, and treating the precipitate with diluted nitric acid. This oxide decomposes when exposed to daylight, and its oxygen is very readily expelled. It consists of oxygen 24, gold 200.

Third. Chlorine and Gold. These form two compounds. *Primarily, the Perchloride or Terchloride of Gold,* which is most readily obtained. For this gold may be digested in an aqueous solution of chlorine, or it may be treated with nascent chlorine, derived from *aqua regia* through the mutual decomposition of nitric and hydrochloric acids. Gold is pre-

epitiated from this compound in a metallic state by the action of light and various agents. It consists of chlorine 108, gold 200. *Secondarily*, the *Protochloride of Gold*, which may be obtained by heating the perchloride to about 500 degrees Fahrenheit in a porcelain vessel, and treating that which remains with water. The result is a colorless saline mass, unalterable in the air, but instantly decomposed in boiling water. It consists of chlorine 36, gold 200.

Fourth. Bromide of Gold. This may be obtained by dissolving gold in a mixture of hydrobromic and nitric acids and evaporating the solution, when a deep red saline mass is left, which is sometimes deposited in crystals, and is so intense in color that one part of the same will tinge five thousand parts of water.

Fifth. Sulphuret of Gold. This may be obtained by passing hydrosulphuric acid gas into a solution of perchloride of gold. The result is a black powder, which if heated, at once decomposes into sulphur and gold. It consists of sulphur 48, gold 200.

Sixth. Phosphuret of Gold. This may be obtained by heating gold leaf and phosphorus in a vacuum, or by passing phosphuretted hydrogen gas into a solution of chloride of gold. The first process results in a grey substance of metallic lustre, the second process produces a brownish powder. When heated in the air it decomposes. The composition has not been exactly determined.

Seventh. Iodide of Gold. This may be obtained by mixing a solution of iodide of potassium with the solution of chloride of gold. The result is a yellowish brown precipitate, insoluble in cold water, soluble by alkaline solutions, and decomposing when heated. It should be boiled in water to separate a probable excess of iodine, when it is estimated to consist of—iodine 126, gold 200.

Such are the principal binary compounds formed by the union of gold with non-metallic elements. Neither azote or hydrogen combine with gold in any form.

THE PRINCIPAL ALLOYS OF GOLD.

Most metallic substances combine with gold under proper conditions by suitable manipulation, some more readily and perfectly than others. Of the compounds of gold with the metals of the alkalies and earths, such as potassium, calcium, etc., there is no information.

First. Arsenic and Gold. This alloy is made by heating gold leaf and arsenic together; by a gentle heat the arsenic vaporizes and combines with the gold. When one part of arsenic is added to 900 parts of gold, the color of the metal remains unchanged, but its malleability is destroyed. One part of arsenic added to 240 parts of gold, renders the metal grey and brittle. The alloy is readily decomposed by calcination.

Second. Tellurium and Gold. These occur in combination in a state of nature, mixed also with a considerable portion of lead; the varieties of this natural alloy, are known as "graphic tellurium," "yellow tellurium" and "black tellurium."

Third. Antimony and Gold. These make an alloy of a pale yellow color, with a fine grain. Gold loses its ductility when combined with but one part in 1920 by weight of antimony. The alloy is made by fusing the metals together. By long-continued calcination in an open crucible, the antimony may be entirely expelled and the alloy decomposed.

Fourth. Manganise and Gold. These make an alloy of a yellowish color, which breaks readily under the hammer, showing a spongy, coarse-grained substance.

Fifth. Zinc and Gold. These make an alloy of a pale greenish color, like brass. The addition of small quantities of zinc destroys the ductility of gold. The mixture of eleven parts of gold and one part of zinc forms a brittle composition, but large quantities of zinc may be added to gold and the ductility of the metal still remain. An alloy of gold and copper, with five-eighths of one per cent. of zinc, is perfectly ductile.

Sixth. Tin and Gold. These make an alloy of a very pale

whitish yellow color, which in bars of one-eighth of an inch thick may be easily bent, but when the bars are passed between rollers they break lengthwise into several pieces. The fracture in such cases shows a fine grain, of a somewhat earth-like appearance and pale yellowish-grey color. Gold alloyed with one thirty-seventh part of tin, has been found sufficiently ductile to be rolled and stamped into coin if the metal be annealed at a low temperature. In general, the alloys of tin and gold are hard and brittle, the combination of the metals causing a contraction of their substance.

Sixth. Iron and Gold. These make an alloy of a pale yellowish grey color; it is very ductile and may be rolled in bars from the thickness of three-quarters of an inch to that of the gold half eagle. An alloy of eleven parts of gold and one part of iron can be readily rolled without annealing. The density of this last-named alloy is less than could be calculated from that of the component metals.

Seventh. Nickel and Gold. These make an alloy of a rich light-yellow color; eleven parts of gold and one part of nickel forms an alloy resembling fine brass; with a greater proportion of nickel the alloy becomes brittle, and when tested by the hammer, breaks at once with a coarse-grained earthy fracture.

Eighth. Cobalt and Gold. These make an alloy of a pale dull yellow color, mixed with grey in the proportion of eleven parts of gold to one of cobalt; the alloy is brittle and breaks with a fine-grained earthy fracture.

Ninth. Copper and Gold. These make an alloy of a handsome reddish yellow, the effect upon the color of the gold being very small in comparison with other alloys. The alloying of gold with copper, diminishes the density, but increases the hardness of the metal. English plate and jewelry of gold, are manufactured of a fineness which varies from 375, 500, 625, or 750, to 916.6; the alloy for this purpose is of copper and silver, in different proportions. In France, the standards for articles of jewelry manufactured from gold, are 750, 840, or

920. The Japanese make an alloy of 70 of copper to 30 of gold, which they call Shi-ya-ku-Do, which being made into ornaments and exposed to the air, becomes coated with an oxide of an exceedingly fine and beautiful black color. An alloy of from one part of copper and twenty-five of gold, to one part of copper and fifty of gold, is used for making wire, though gold may be spun when pure. The composition of various solders for gold, has been stated in a preceding paragraph. Manufactured articles of gold ware which contain a considerable percentage of copper, are liable to tarnish by oxidation, but the color may be restored by treating the surface with ammonia. Copper is the most important alloy used with gold to fit it to endure the wear to which it is subjected when made into coin. The composition of the gold coin of Great Britain, is one of copper to eleven of gold; the specific gravity of this alloy is 17.157, its fineness 916.6. Twenty pounds Troy of standard British gold are coined into 934 sovereigns and one half sovereign. The United States of America, and the nations of "The Latin Convention" have established a standard fineness of 900 for their gold coin, the alloy being of copper with a small part of silver.

Tenth. Bismuth and Gold. These form a very brittle alloy of a pale yellow color. If one part of bismuth be added to 1920 parts of gold, the metal is made brittle. Eight parts of bismuth and ninety-two parts of gold, form a pale yellow and brittle alloy.

Eleventh. Silver and Gold. These combine well, and form a very ductile alloy of a very pale yellow color. Five parts of silver in one hundred parts of gold, is sufficient to effect a decided change of color in the metal. Silver combines with gold in a state of nature, forming *electrum*. The ancient Greeks were familiar with this natural product; it contained from 20 to 40 parts of silver to 80 or 60 parts of gold. The rough nuggets of *electrum* were often stamped by the Greeks to create the original Lydian coins. The *electrum* analyzed by Klaproth consisted of 64 parts of gold and 36 parts of silver,

almost the exact proportions of one chemical equivalent of each metal. Later, Boussingault found the electrum from different South American placers to consist of very different proportions of the metals, yet all were definite chemical compounds.

Twelfth. Lead and Gold. These form a very brittle pale alloy. One part of lead in 1219 parts of gold, is sufficient to make the metal brittle; the fumes of lead alone will destroy the ductility of gold which may be exposed to them.

Thirteenth. Mercury and Gold. These combine with exceeding facility and form a soft white alloy called an *amalgam*, which is extensively used in certain kinds of gilding. On account of its affinity for gold, mercury or quicksilver is much used to separate gold from various substances found with the metal in mining or during some process of manufacture. This procedure is termed amalgamation.

Fourteenth. Platinum and Gold. These combine in every proportion, making a pale fusible alloy. Two parts of platina in 98 parts of gold is sufficient to sensibly affect the color of the metal. The alloy of equal parts of platina and gold, makes a ductile alloy almost the color of pure gold.

Fifteenth. Palladium and Gold. These combine in every proportion. Equal parts of palladium and gold, make a grey alloy more brittle than either of its constituent metals. One part of palladium and four parts of gold makes a white, hard, and yet ductile alloy.

Sixteenth. Rhodium and Gold. These, when combined in the proportions of from 20 parts of rhodium to 80 of gold, or 25 of rhodium to 75 of gold, make a very ductile infusible alloy the color of gold.

Seventeenth. Iridium and Gold. When small quantities of iridium are added to a mass of gold, the ductility of the gold remains, notwithstanding the extreme hardness of iridium. When the alloy is fused, the iridium falls to the bottom of the vessel in which the melting is done; the inference is that it has simply been mixed with and disseminated through the

gold in particles, not forming a true alloy, and to this the preservation of ductility in the gold is supposed to be due.

THE SALTS OF GOLD.

The salts of gold based upon the oxide, are obtained with great difficulty; when the peroxide of gold is dissolved in nitric, acetic, or sulphuric acid, the result requires concentration, the acids are not saturated by the oxide, and the solutions may all be decomposed by water. Where the peroxide acts as an acid, but one of the salts of gold thus formed, possesses any remarkable properties; this peroxide is soluble in alkalis, potash and soda, but neither definite or crystalline compounds have been formed. When ammonia is added to a solution of perchloride of gold, the water is decomposed and a substance precipitated of a yellowish brown color, consisting of the peroxide of gold in combination with a portion of the ammonia. The product is called the ammoniuret of gold, or the aurate of ammonia; it is collected in a filter, and after being washed with a small quantity of water, dried at a temperature of 212 degrees Fahrenheit. Upon the application of heat, the ammoniuret of gold explodes violently, the gold being reduced to the metallic state; water forms by union of the oxygen in the oxide of gold, and the hydrogen of the ammonia, azotic gas being simultaneously evolved. The ammoniuret is supposed to consist of two equivalents of ammonia and one of peroxide of gold. Some of the most permanent salts of gold are the double chlorides. The sodio chloride is considered the most stable of all the salts of gold.

THE ANCIENT HISTORY OF GOLD.

The nature of gold, which is easily wrought into any form, of a beautiful yellow color, and capable of a high and permanent luster, has given that metal a remarkable value from the earliest dates of history. When gold was first discovered, used and preserved, is unknown, but prehistoric relics prove the exceeding antiquity of various manufactures of this,

probably the first known of all the metals. There is but little information in classical literature regarding the sources of gold, or the methods by which it was procured.

In the first recorded ages, the Phœnicians and Egyptians were well supplied with gold and various other metals. The oldest known mines were those of the Egyptians, who obtained gold, silver and copper in large quantities, from mines opened by them upon both the Ethiopian and Arabian borders of their territories. In the Sinaitic desert, may still be found traces of the ruins of mines, supposed to have been operated by the ancient Egyptians. Articles of jewelry, and vessels of gold, found in the tombs of Egypt, and drawings still to be seen upon the walls of these depositories of the bodies of the dead, prove the early people of that country, had developed a great degree of perfection in the art of working gold, even making use of the blow-pipe in an approved modern form, sometime before the reign of that Pharaoh, described in the Bible as the friend and patron of the Hebrew Joseph. The Hebrew scriptures make frequent mention of gold, both for money and ornament; it was recorded as part of the riches of Abraham, some 2000 B. C. The Hebrew poets described the process of refining gold by cupellation, as a common illustration in their writings.

The Phœnicians, who occupied the coast of Syria from the first dawn of history, obtained gold and iron, as well as other metals, from Sardinia, and other islands of the Mediterranean sea; they had also mines in Spain, and imported the ores of tin from Britain. The Etrusci, a cultivated people, residents of Italy, long before Rome was founded, perhaps 1000 or 1300 B. C., were experts in working gold; in Etruria, examples of their art in this particular have been exhumed, of light and beautiful workmanship, enriched with minute grains of gold upon the surface. This style of art remained unrivalled until Castellani rediscovered and revived the methods of the Etruscan goldsmiths.

The Greeks of Athens worked rich gold mines in Thrace

and Thasos. Gold was produced in Thessaly, and Mt. Tmolus, the source of the river Paetolus, now called the *Sarabat*, and Mt. Sipylus, near Sardis, or Sardes, past which city the Paetolus ran, were seamed with rich veins of gold. The Paetolus, rising on the north side of Mt. Tmolus, ran in a northerly direction through Lydia, and emptied into the Hermus. Though a small river, it bore from the region of its springs, an immense amount of gold, which was taken from its sands by the process of washing. Cræsus son of Alyattes, sole king of Lydia, about 568 B. C., inherited great riches from his father, to which, from the gold dust of the Paetolus, and from gold mines he owned in Asia Minor, he continued to make vast additions, until his boundless wealth became and still remains proverbial. To a woman who saved him from assassination by poison, Cræsus is said to have raised a statue of gold fifty feet in height.

In the mythological poetry of Greece, it was related that one of the first kings of Phrygia, called Midas, obtained from the god Bacchus, a gift, by virtue of which, whatever the king touched turned to gold. When it was found that even the food of Midas, became metal in his hands, it was seen he was in danger of starvation. In this unfortunate dilemma, the king again applied to Bacchus and asked a modification of his power, so as to save his life. Bacchus kindly told the suppliant, to go and bathe in the waters of the Paetolus for relief. This Midas at once did, and by the blessing of the god, found that he could thereafter, handle the necessaries of life without making gold of them, as he could still do of other things. But an unexpected result followed the presence of Midas in the river; he imparted his power to the water, thus dividing his energy, when wonderful to tell, the sands of the Paetolus were turned to gold, and though afterwards mixed with other deposits, were perpetually and eagerly sought for by those who would be rich!

The gold mines which belonged to Cræsus, were worked in the time of Xenophon, as described, about 400 B. C., but in the

days of Strabo, about the beginning of the Christian era, that distinguished author wrote they were exhausted. At the same date, the "golden sands" of the Pactolus had become too scarce to repay collection.

Ancient writers describe rich mines of gold in Arabia Felix, no traces of which remain. The tribes of northern Italy obtained gold by washing the sands of the streams and certain deposits. Britain formerly produced gold. The early Romans neglected mining, yet Rome under the Cæsars, became by conquest mistress of the metallie production of the world. According to Pliny, the metallurgists of his time, used mercury to separate the precious metals, and also in the process of gilding. Vitruvius describes in detail, the method of amalgamation, by which in the days of Cæsar and Augustus, gold was recovered from cloth into which threads of that metal had been wrought or woven.

Under the Roman republic, the mines were leased to persons who employed numerous slaves, and worked the mineral deposits with rapid and reckless wastefulness. From the first Punic war to the Roman empire, there was in consequence an immense production of metals, of gold among the rest, and many mines became exhausted. Under the Roman empire, the mines were placed in charge of regular officers of the government and managed with greater economy. A striking picture of ancient mining for gold, or other metals, is given in the Bible, Job xxviii 1-11, and by Pliny in his *Natural History* xxxiii, 4.

After the third century of the Christian era, the production of gold in the western Roman empire rapidly declined, and at the end of the fifth century ceased entirely. The Byzantines gradually gave up their mines to the Arabs, retaining those of Asia Minor, Thrace and Greece longest of all—finally, barbarism overran Europe, and during the dark ages of a thousand years, literature, art and civilization were in eclipse. Meantime, the Arabs, who from the earliest times, divided with their neighbors the Phœnicians the most of the commerce of

the world, beginning their progress anew from the era of Mohammed about A. D. 570, cultivated learning, grammar and poetry with the arts; made the conquest of the Moors in A. D. 700; with them invaded Spain A. D. 711; established themselves in Granada, and not only drew from Yemen, Africa, and Spain itself, gold to support their magnificence and embellish the Alhambra, but by intellectual vigor and industry enlarged the sciences and inscribed forever upon the text books of the world, the technical terms and characters of their remarkable language.

GOLD IN MODERN TIMES.

With the revival of learning in Europe, the enterprise of civilization and commerce was renewed, the spirit of discovery was aroused, speculative thinking became active, imagination was quickened, hope inspired, great undertakings were begun, and presently a new world was discovered. The voyages of Columbus and those who followed him to the Western Hemisphere, were attempted with a threefold object. First, as originally by Columbus and the scholars who were his only early and reliable friends, the glory and the perfection of learning, an increase of geographical knowledge; secondly, as with the pious Columbus, and the liberal among the ecclesiastics, and part of the Spanish court, for the spread of the Christian power and religion; thirdly, last and greatest with most, and potent in influence with all, for the discovery and collection of gold, and silver, then considered the only actual and integral forms of wealth.

Returning from his first American voyage, that to the West India islands in 1492, Columbus took back with him to the Spanish court then at Barcelona in Spain, "rich and strange" spoil from the lands he had discovered; he was privileged to present to the monarchs of his nation, Ferdinand and Isabella, "the gold, the cotton, the parrots, the curious arms, the mysterious plants, the unknown birds and beasts, and the nine Indians he had brought with him for baptism," into the Chris-

tian faith. During his second voyage in 1494, Columbus effected a settlement upon Hispaniola, now San Domingo, and founded the mining camp of San Tomaso, in the gold fields of that island. Although the Spanish voyagers and colonists had been instructed from the throne of Spain to treat "well and lovingly" the Indians, who, the monarchs assumed, were by virtue of a grant from the Pope, their vassals, yet during the absence of Columbus from Hispaniola, his officers so abused the natives as to make enemies of them. Under the circumstances, it became necessary to subjugate the Indians or abandon the colony. The Spaniards quickly availed themselves of this excuse for war. In the fighting which followed, the Spaniards were successfully led by Bartholomew, the brother of Columbus. The cacique Caonabo was captured by stratagem, five ship-loads of Indians were sent to Spain to be sold as slaves, and a tribute imposed upon those who remained. Thus the West Indian slave trade began, and thus began that system of robbing the Indians by taxes, called *repartimientos*, or *comiendas*, which, while bringing in one way and another, large amounts of gold and silver to the conquerors, was continually made the instrument of cruel extortion and oppression to the enslaved aborigines of all Spanish America.

After various voyages, Columbus in 1499 was in San Domingo, in charge of his colony, which he had reduced to order; gold mining was actively carried on there at this time, under his immediate direction, and so great was the product from the same, and so encouraging the prospect in this pursuit, that Columbus calculated, by the year 1502, the net revenue of the crown of Spain from the San Domingo gold mines, would be no less than 60,000,000 reals, or \$7,500,000. But the sympathies of Isabella the queen, had been aroused at the sight of the ruined captive Indian girls among the slaves taken to Spain by some of the adventurers, the enemies of Columbus clamored against him, and Bobadilla was sent to supersede him in office. On the arrival of this arrogant grandee, everything was thrown into confusion, industry was checked, the de-

velopment of the gold mines ceased for the time, and Columbus and his two brothers being stripped of power with every insolence, were put in irons and straightway shipped to Spain.

Restored once more to his power and dignity, Columbus in 1502 discovered the mainland of the American continent, at Honduras. Being driven by a heavy storm into the mouth of a river, he gave the name of Bethlehem to the gulf-like harbor he found, and effecting a landing there, soon learned that gold was very plentiful, and undertook to open mines and establish a colony upon the spot. In this, from various causes, he failed, and the great discoverer, yet unfortunate colonizer, soon after retired from action in America. But he had already done more than enough to prove the actual riches of the lands he had made known to Europe, and to fire the avaricious imagination of all Spain, and the rest of the civilized world, with the most wild, and extravagant, and fatal dreams of endless riches to be realized in the western El Dorado.

The Spaniards who came to America immediately after Columbus, had no intention of becoming permanent residents, and cared but little for colonizing the strange lands they visited. It was the policy of the government of Spain to Christianize and utilize the newly-claimed possessions of the crown, but the desperate adventurers to whom for the most part the execution of this purpose was entrusted, were principally controlled by private greed and ambition. Gold, or silver, was their only object. Instead of engaging in any undertakings of ordinary industry, all of which were beyond their comprehension and for which they had the utmost dislike, they merely sought to suddenly enrich themselves by robbing the feeble and defenseless aborigines of the gold and silver they had accumulated for centuries by simple means, and which, though really considerable in amount, fell immensely short of the monstrous estimates which had been made by all the enthusiasts of Europe. When Spanish adventurers reached a new country, any unknown coast, their

first demand was for gold. If this was found abundant, no degree of hostility on the part of the natives, no deadliness of the climate, could drive them from the locality until they learned, or at least heard, of more excessive riches in a farther region. If no gold was found, nothing could detain them. *Auri rabida sitis a cultura Hispanos divertit*, wrote Petrus Martyrus, at the time, in the *Novus Orbus* of Grynaeus, p. 511. To this spirit, and to the absurdly tyrannical rules and regulations of the mother country, is to be attributed the slow and unsatisfactory progress of the colonies of Spain, and, notwithstanding their subsequent achievement of independence, many of the evils which, despite considerable progress, still afflict those countries.

Mexico was discovered by Grijalva, a lieutenant of Diego Velasquez, governor of Cuba, in 1511, but no settlement was attempted. Chagrined at the lack of enterprise shown by Grijalva, Velasquez sent young Hernan, or Hernando, Cortes, whom he had made alcade of St. Iago in Cuba, to conquer Mexico. Cortes and his small force landed at Vera Cruz, where he received such rich presents from the natives, who regarded him and his men as gods, and was told of such opulence in the country before him, that he and all his force became quite beside themselves with avarice and ambition. They burned their ships behind them to make retreat impossible and advanced upon the capital of the Montezumas. After a series of most remarkable adventures, the city of Mexico was taken, Montezuma captured and loaded with chains, his ministers and officers burned alive, and the unfortunate autocrat of the Aztecs compelled to purchase a mere resemblance of freedom by a ransom of 600,000 marks of pure gold and a prodigious quantity of precious stones.

During the year 1524, Francisco Pizarro, a low bred, desperate, illiterate Spanish adventurer, while on a voyage southward from Panama, obtained a small amount of gold from the natives of New Granada, and at the same time heard from those Indians of the rich empire of Peru. On a second voy-

age, Pizarro plundered a small town on the San Juan, where he obtained a considerable amount of gold, with which he undertook to prepare for the exploration of Peru. In the early summer of 1528, Pizarro landed at Seville in Spain; with him he brought several natives of Peru, a few llamas, and many articles of Peruvian manufacture in gold and silver. Upon landing, Pizarro was arrested for debt and imprisoned, but upon application by his friends at court, his release was provided for, and he granted a hearing. The result of his representations and exhibits was, that Pizarro was granted a royal commission as governor and captain-general of Peru, with an annual salary of 725,000 maraveis.

The conquest of Peru by Pizarro and his associates, was characterized by the greatest rapacity, the most infamous perfidy, and monstrous, horrible cruelty. When Atahualpa or Ataba'lipa, the Peruvian Inca, had been captured by a dishonorable trick, he offered his kidnappers and jailers, as a ransom, to fill the apartment in which he was confined, described as 22 feet long and 17 feet wide, with gold, as high as he could reach, the Spaniard accepted the proposal, but after the temples and palaces of the vast empire had been stripped of their ornaments, and contributions of gold paid to the amount, when melted down, of more than \$17,500,000 value, Pizarro, upon a new or baseless pretense, caused the royal captive to be put to death the twenty-ninth of August, 1533.

By such ravages and extortions as those practised under Columbus and his successors in office, by Cortes, by Pizarro, and others to whom reference might be made, the gold and silver which the aboriginal Americans had gathered for generations and centuries, was in a few years acquired altogether by those marauders from Europe who invaded peaceful countries with the name of Christ upon their lips, and the banner of a civilized nation above their heads, with a pretended zeal for religious truth, and yet left upon the minds of the comparatively innocent pagans and savages they intruded upon, a reasonable doubt, whether Christians were men or devils,

since a greed for gold, an aptitude for lies, and a thirst for blood, seemed equal elements in their most cruel natures. For interesting particulars as to the Peruvians and their country under the government of the Incas, the reader is referred back to the article "The Primitive Forms of Money," pages 38 to 42 inclusive, of this volume.

The American Indians of the Spanish colonies having been subjugated, and robbed of their treasures, the adventurous Europeans who swarmed into the gold and silver-bearing regions of the new world, diverted their skill and energy to the often unproductive and frequently ruinous business of mining. A few large fortunes made in the search for the precious metals, excited the avaricious hopes of numbers, while the misfortunes and disastrous failures, seemed to pass unnoted. In this way the excessive and wild enthusiasm of adventure was kept alive, and the prodigious over-statements as to the enormous riches of American mines, made credible to the reckless gamblers who sought and expected unheard of profits from them.

The mines were of course without machinery, but the Indians who had been enslaved, were compelled to labor in the excavation of ores, or the washing of sands, and by thousands degraded to mere beasts of burden, and worked to a cruel death, bearing often from great depths, and for long distances, by terrible passage ways and most difficult paths, the ores upon their backs to places where they were operated upon by still other slaves for the separation of the metal. The really vast product of the Spanish American colonies in gold and silver, was thus obtained at an incredible cost of human labor and life. Ever since the establishment of these colonies, they and the territories formed from them, have been largely productive of the precious metals. Humboldt estimated the average yield of gold and silver in Peru at \$5,300,000 a year. Of late years very rich gold quartz, has been mined at Carabaya, on Lake Titicaca, in Peru, and valuable deposits opened at Caratal, in Venezuela, and at St. Elie, in French Guinea, the region of the "El Dorado" sought by Sir Walter Raleigh of

England, when in 1595 and again in 1617, he explored for gold the country along the Orinoco river, "the large, rich, and beautiful empire of Guiana." The empire of Brazil has also been productive of gold, and gold has been found thence northward in considerable amounts, in the United States of Columbia and all along the isthmus of Darien, not only in natural position, but also in ancient places of concealment, among ruins, and formed into idols which were buried in graves.

The search for gold was carried on all along the American coast, as far north as Hudson's Bay and Frobisher's Straits, where some kind of pyrites or ore having been discovered, an effort was made in 1578, to establish an English mining and agricultural colony in that frozen country. A dozen ship loads of the supposed gold ore was taken to London, but history is silent as to the result. The existence of gold in California, was discovered by the expedition under Sir Francis Drake, which sailed from England in 1577, and between that date and 1580, explored the Pacific coast of the western continents, plundered various Spanish settlements, took possession of California in the name of queen Elizabeth of England and circumnavigated the globe. In the account of California given by Hakluyt, the historian of this expedition, the gold of that region was particularly noted. The gold placers of California, were mentioned in the account of upper California by Loyola Cavello, which was published in Spain in the year 1690. In 1721, Capt. Shelvoeke wrote favorably of California, as a probably rich gold field, and deposit of metals. The "Historico-Geographical Dictionary" of Antonio Alcedo, which refers to dates as early as 1786-'9, declares positively that California contained an abundance of gold, of which lumps could be found weighing from five to eight pounds each.

Gold is said to have been discovered in Cabarrus county in North Carolina in 1799, and subsequently small amounts of placer gold, were found from time to time at various places among the hills on the eastern side of the Appalachian mountains, all the way from the Coosa river in Alabama, to the

shores of the Potomac. Nothing is known of the amount of gold thus incidentally gathered, and as there was no regular market for the sale of the metal, the gold fields of the southern United States received but little attention until the second quarter of the present century. In 1824, native gold from the region already noted, began to appear among the deposits at the United States Mint in Philadelphia, and the amount presented increased so rapidly, that in five or six years it was the principal supply of bullion for the gold coinage of the nation. During the year 1825, a Mr. Barringer discovered a gold vein in Montgomery county, North Carolina, and afterwards other veins of like nature were found and worked in various places in the same state, some of which were highly productive. The veins of gold discovered in Virginia were, however, more profitable than the average of those in North Carolina, the coarse gold being more readily obtained from the quartz through which it was conspicuously disseminated. Subsequently, traces of gold were found in the states of Maryland, Pennsylvania and Vermont, but nowhere in the eastern United States north of the Potomac river, except a small area in Vermont, have the indications of gold been sufficiently encouraging to induce a practical mining exploration. North of the St. Lawrence river, gold has been discovered and operated for on the banks of the Chaudiere river, near the city of Quebec, in Canada, and not far from Halifax, Nova Scotia, there are veins of gold-bearing quartz which, though not extensive are rich, and have been worked with good average results for years.

In 1830, the first deposits of Georgia gold were made, their amount being \$212,000.

To revert briefly to the era preceeding the discoveries by Columbus, it may be stated that during the period from the seventh to the fifteenth century, the metallurgists of Europe, instead of making discoveries of new veins and deposits of gold, to take the place of the ancient and exhausted sources of supply, were, in accordance with the spirit of the dark and

superstitious age in which they lived, engaged in the bewildering attempt to solve the secrets of alchemy, and by discovering the philosopher's stone, enable themselves to transmute baser metals to gold. Although modern chemistry may be said to have had its origin in the studies of these men, and philosophy owes them thanks for important suggestions, yet they failed in the object of their countless and costly experiments, leaving to Oriental nations, and to the Moors or the Arabians, the practical progress of the world, and the general working of its gold fields and silver mines. In consequence, it was estimated that at the time of the voyages of Columbus in 1492, the whole supply of gold and silver in the Old World, exclusive of that held in the more or less unknown countries of the Orient, had fallen to an amount to be valued at no more than £34,000,000, while the supply obtained from year to year was merely sufficient to make good the loss caused by the abrasion of coin and other forms of destruction.

After Columbus, the enormous amounts of gold and silver taken from America to Europe, soon made good the lack of supply from old sources, and, as in the classic days of Rome gold had been reduced at one time one-third in value by over-production, so at this time, the product of America exported to Europe, much reduced the value of the precious metals there in comparison with other things, and caused the abandonment of a number of gold fields and silver mines which had previously been worked with profit. From 1492 to 1500, the amount of gold yearly shipped from America to Europe, was stated by Humboldt to have been of the value of £52,000. Silver was not received from America until 1519. The supply of gold from America continued about the same until 1521, when upon the conquest of Mexico, as has been noted, the precious metals, especially silver, were secured in immensely larger quantities.

MODERN SOURCES OF GOLD IN THE OLD WORLD.

Having thus referred to the events which led to the discovery and development of the American gold fields, after the

disappearance of the dark ages, and traced in rapid outline the history of the production of gold in America, to as late a date as 1830, it is essential to a comprehensive understanding, that a statement should be made of the modern sources of gold in Asia, Europe, Africa and Australia, before giving an account of the two great gold fields of the United States, and the production of bullion from them for the last half century.

Of the production of gold in Asia, outside of the Russian provinces, comparatively little can be precisely stated. Doubtless, there are Asiatic gold fields of importance which are worked extensively, but it is only from the islands in the Indian archipelago that any considerable amount is forwarded for general circulation. In China, gold is said to exist in fourteen of the nineteen provinces; the Chinese placers, nuggets, and gold washings, form extensive sources of gold which have long been known, but the government of China is said to discourage the production of native gold, in carrying out some peculiar financial theory entertained by the rulers of the country. The gold-bearing formations of southern and central China, are supposed to extend into Chinese Tartary to the north, and so onward, and connect with those of eastern Siberia.

The empire of Japan formerly exported large amounts of gold, which was one of the chief articles of the trade carried on by the Dutch and Portuguese, who for a long time monopolised the foreign commerce of the country. It is stated by Hildreth, that the value of the precious metals exported from Japan, for two hundred years after 1540, must have been worth some \$200,000,000. The gold of the island of Yesso, or Yezo, occurs in fine scales, among the gravel along the streams, and in deposits on the high terraces of the hillsides. Extensive mines of gold and silver are worked upon a large vein of gold and silver-bearing ore on the island of Sado. The gold regions of Yesso, or Yezo, were surveyed for the Tycoon of Japan by Blake and Pumpelly in 1862; the estimated yield of the island is but \$25,000 in value per annum. The mines

of Sado employ 3,000 native miners, with modern machinery, under English superintendents; the yield of these mines was formerly kept a state secret. Gold is much used in the arts of Japan, for making fine bronzes, for gilding, and for inlaid or overlaid work in metals. According to a Japanese author, the amount of gold exported from Nagasaki, a principal port of Japan, from the year 1611 to 1706, was valued at \$68,000,000, silver being exported during the same time to the value of \$157,000,000. Like other Asiatic peoples, the Japanese formerly placed a higher proportionate value upon silver in relation to gold, than the nations of Europe and America, and when, after the United States expedition to Japan in 1854, that country was opened to foreign trade, speculators in bullion were for a time enabled to profit largely by the purchase of Japanese gold for Mexican and other silver. Since the political revolutions of the years 1863, 1869, 1870, 1871, Japan has, through an entire change of her former jealous and restrictive policy, entered upon a marvelous progress. There is a Japanese mint at Ozaka, with buildings, machinery and appliances in approved European style, which was of late under English supervision. All the old gold and silver coinage of Japan, has been called in, and with a part of the present probable increased product of the mines, is minted into coin upon a decimal system, to be noted in proper place hereafter. For the year ending July 31st, 1873, the Ozaka Mint issued \$25,162,614. During the year 1872, \$14,488,981 were coined in gold, and from 1871 to 1873, \$10,213,598 were coined in silver.

India produces but small quantities of gold, which are gathered by the natives from washings carried on in the hills of the south part of Bengal, or obtained from quartz veins of modern discovery and considerable value in the district of Wynaad in the southern part of the presidency of Madras. The island of Borneo in the East Indian or Malay archipelago, is notably rich in minerals, diamonds and gold being the chief; the diamonds occur in the beds of the rivers; the largest gem ever found there weighed 367 carats. The Dutch have long

found an abundance of gold in Borneo, in Sarawak, and the districts under their control, the yield being of small grains from alluvial deposits. The existence of gold throughout the island, in varying quantities, is asserted, and upon the river Kapola, gold is found with iron ores, sulphuret of antimony and diamonds. Gold is also reported among the products of Thibet, Ceylon, Sumatra, Celebes, the Phillippine islands and other Asiatic regions of less importance, or concerning which we have no reliable information.

Between Asia and Europe, lie the gold fields of the Russian empire, which have not only supplied the finest known specimens of native gold, but are more productive than any other in the Old World. Most of the gold taken from Russian sources, is from territories in Asia. The most important of the old Russian gold-bearing districts are situated on the eastern slope of the Ural Mountains, around Miask, Kamensk, Berezovsk, Nijne Tagilsk, and Bogoslowsk, covering more or less completely, a region some six hundred miles long, from 51 to 61 degrees, North latitude. Outside of these limits, the alluvial deposits of the Ural are continued northward to a vast region without population, and south into the Cossack and the Bashkir provinces. The richest of the Ural gold mines are those of Smolensk, not far from Miask, and those of Ouspensk, near Katchkar, 52 degrees North latitude.

The conquest of Siberia, the immense country of the Ural and the Altai Mountains, was made for Russia in 1581 and a few subsequent years. The Ural gold mines were discovered about 1745, and thereafter other mineral riches being found, geological explorations were finally made in a thorough and scientific manner. Some of the Siberian washings and deposits of gold show traces of prehistoric workings. Yekaterenburg, or Ekaterenburg, the principal city of the Ural gold region, was founded by Peter the Great, emperor of Russia, in 1722; a few years since, this place was famous for its metals and manufactures, and had an industrious population of from about twenty-five to thirty thousand. At the same time over

fifty thousand men were employed in the varied mines of the Ural mountain country. The produce of different metals, minerals, and gems, was very large and valuable; among these platinum was mined near Yekaterenburg, the amount secured each year being from eight to ten thousand pounds. Specimens of gold found near Yekaterenburg showed upon analysis a greater degree of fineness than any other known native gold. In 100 parts there were: gold 98.96, silver 0.16, copper 0.35; the specific gravity of the mass having been determined to be 19.099. In the Zarewo Alexandrowsk mine, in 1826, a nugget of native gold was found which weighed about twenty-three pounds, and others were discovered of from two to four pounds each.

The district of Miask contains the most valuable mines, and there the largest nuggets have been found. In the Katchkar very productive mines are worked, which are remarkable for yielding with the gold great numbers of pink topazes, emeralds, and other gems.

During the reign of Nikolai Pavlovitch (Nicholas I), emperor of all the Russias from 1825 to 1855, a new gold field, as large as all France, was discovered in southern and eastern Siberia, which has proved to be of greater richness than even the old diggings and washings of the Ural Mountains. The gold of this new field has been taken from crystalline rocks, found in a system of low ridges which, springing from the north slope of the great East and West extending chain of the Altai Mountains, run northward into the provinces of Tomsk and Yeniseisk. The working of these ridges, made Russia the greatest gold producing country in the world until the discovery of California. In 1843, the Ural district produced gold to the value of \$2,500,000; the same year, the Altai ridges yielded the same metal to the value of \$11,000,000. The average annual product of all the gold fields of Russia, is estimated to be worth \$15,000,000, or perhaps even more. The produce of Russia in gold during 1865 was given as 69,500 lbs. troy, \$17,032,080.00 in value. The gross value of

the amount of gold secured in Russia since about 1745 to the present, may be estimated in round numbers at \$700,000,000. The gold deposits of the Caucasus Mountains in Southern Russia, between the Caspian and the Black Sea, which were of classical notoriety and referred to in connection with the mythical account of the expedition of Jason and the Argonauts, are practically exhausted, the last attempt at working them, having been abandoned in 1875.

In Europe, various great rivers, the Rhine, the Rhone, the Danube, the Reuss, the Aar of Switzerland and other smaller streams springing from crystalline rocks of the Alpine mountain regions, and also the rivers which flow from the granitic formations in the center of France, deposit gold in their sands, but in such exceedingly small quantities that the washing of of the drift cannot be made profitable. The search for gold in such deposits is, however, carried on at various places by the gipsies or by the peasants of the neighborhood at irregular seasons when lacking better employment. The results of such operations are very small in proportion to the amount of labor expended. Few of the sources of gold in Europe are of importance compared with those in other parts of the world, yet from historical reasons or from certain peculiarities, some of them are worthy of note.

The grand duchy of Transylvania, forming part of the lands of the Hungarian crown, is surrounded by the Carpathian Mountains. The whole drainage flows to the Danube, the chief rivers being the Aluta, Maros, Great Kokel, Little Kokel, Bistritz, Szamos and the Körös. In all these and in most of the smaller streams, gold is found more or less abundant. A number of gold mines beside the washings mentioned, are worked in Transylvania and have had the reputation of being very productive. The mines of Nagy-Ag and Zalatna in the south-western part of Transylvania, produce a natural alloy of tellurium and gold. At the Rathausberg mines, near Gasten in the Austrian Alps, at an elevation of some 9,000 feet above the level of the sea, there are mines of gold-bearing

quartz which, though of small importance at present, are, with the mines at Zell in the province of Tyrol, famous as the places where the system of amalgamation in mills was first developed. It may also be noted that at Zell and at Boekstein in the province of Salzburg, gold is practically obtained from poorer ores than have ever been made to pay elsewhere. From the auriferous pyrites, argentiferous mispickel, grey argentiferous copper, and sulphuret of silver, contained in the quartz gangue and argillaceous slates of these mines, gold has been separated with a profit, when the per centage of metal obtained, was but 4, 6, or 15 parts of gold in 1,000,000 of the ore. With this, however, is secured six or seven times this weight of silver, of less than half the value of the gold. The gold mines of Hungary are richer, and yield a considerable amount of gold. The total product of the gold mines of Austria, has of late years, averaged from 5,500 to 5,800 ounces, being from \$113,635.00 to \$119,886.00 in value.

In Italy, the ancients obtained gold from various localities. For some time past, the Pestarena mines, a group of workings on the Italian side of the Austrian Alps in the Val-Anzasca and the Val Toppa above the Lago Maggiore, have yielded from 2,000 or 3,000 ounces of gold, to be valued at from \$41,340.00, to \$62,010.00 each year. There is also a rich vein of gold-bearing copper ore, a recent discovery, at Ollomont in the Val d'Aosta. There are important gold mines in the Val Antrona, and smaller ones in the Val Alagna, Val Sesia, and the Val Novara. The chief gold mines of Lombardy are at Peschiera and Minerva di Sotto. The total yield of all the gold mines of Italy may be valued at about \$100,000 each year. Gold is found in but few places in Germany, and those situated in the Hartz mountains and in Savoy, produce but small quantities.

Argentiferous galena is found among the minerals of Turkey in Europe, but the amount of gold separated from Turkish ores is small. The mineral resources of Turkey in Asia, are quite undeveloped. Gold is not reported among the natural

resources of modern Greece. In Prussia, a very small quantity of gold is produced. Gold is not reported among the products of Denmark. The scarcity of fuel in Norway, prevents the development of mines; iron ore is common, but no production of gold is recorded. Gold has been found in small quantities in the rich mineral districts of Sweden. Belgium, though very rich in common minerals, produces little if any gold. Holland has no mines, nor deposits of gold. No trace of gold has been reported from Iceland. The rivers flowing from the center of France, have as has already been noted, a little gold in their sands, but the greater part of the small amount of gold secured in France, is taken from the small streams which rise among the Pyrenees between that country and Spain. Galicia in Spain, was a well-known gold field in ancient times, but the veins and deposits are exhausted and no other noteworthy source of supply has been discovered. The small but famous kingdom of Portugal still yields a limited amount of gold.

During the occupation of Britain by the Romans, from B. C. 54 to A. D. 420, veins of gold-bearing quartz were worked at Ogofau near Llanpumpsant, in Carmarthenshire. In the time of queen Elizabeth, from A. D. 1558 to A. D. 1603, gold was obtained at the Leadhills in the south of Scotland, and within the last hundred years gold has been collected in the granite district of the county of Wicklow in Ireland, at the rate of \$50,000 worth of the metal in two months. These deposits were worked in 1876, but yielded only 4 ounces of gold, worth \$82.68. In ancient times, gold was gathered in the county of Cornwall, England, and it is still sometimes found there in small pieces, in the alluvial or stream-workings for tin, for the production of which last-named rare metal, the locality has a world-wide celebrity. Gold has also been found in recent years at Helmsdale, Sutherlandshire, England, and is known to exist in the English county of Devonshire. The largest nugget of gold ever obtained in the British islands, weighed but three ounces. The most productive British gold field has been found in a

district of an area of about 25 square miles in North Wales; the mines of this Welsh district are still operated, but the product has become very much diminished. During the year 1863, 5,300 ounces of gold were produced from gold-bearing veins of quartz at the Vigra and Clogau mine, in the Lower Silurian slates near Dolgelly. The product falling off presently, the mine was closed; but in 1875, the workings there were resumed, and by the process then used, a profit was realized; 288 ounces of gold, worth \$5,852.96, were secured in 1876, and in 1878, the mine produced 720 ounces of gold, worth \$14,882.40.

Africa was in ancient times the principal source of the known product of gold, and the continent is still rich in that metal. The mines of Abyssinia and Nubia in the upper valley of the Nile still produce a small quantity of gold, Nubia having been the "land of gold" known by the old Egyptians. Linant Bey describes very extensive ancient mines of gold in the district of Attaki, or Allaki, on the Red Sea, about 120 miles inland from the shore at Ras Elba, a headland midway from Berenice to Sauwakin. These mines were known to the Egyptians as early at least as the 12th dynasty of their political chronology, which ended 2,851 B.C. During the reign of Setee, or Seti I, king of Egypt, who died 1,288 B.C., at the end of the 19th dynasty, wells were opened along the route from the Nile to the district of Attaki, or Allaki, in order that the even then ancient gold mines there, which had been closed, should be reopened. These mines are supposed to be those described by Diodorus Siculus, the voluminous author of the *Bibliotheca*, who wrote about the beginning of the Christian Era, and at Turin, Italy, there is a map of the route from the Nile to these mines, which is considered the oldest topographical document in existence. Other old mines of the same character, were a few years ago discovered by the traveler Burton, in the ancient land of Midian, on the eastern coast of the Gulf of Alcabá.

During A.D. 1833, a traveler by the name of Russegger passed through Nubia, and in the account of his explorations

stated that the mountain chain which extends across the interior of Africa, from East North-east to West South-west, with the streams that flowed from the same, contained gold in undetermined quantities. There are placer deposits and quartz veins of gold, in Sennar and southern Abyssinia. There is also a gold-bearing region between Abyssinia and Darfoor, and a gold district in Kordofan on the Upper Nile. Gold is obtained in small quantities on the coast of Africa opposite the island of Madagascar. The greatest part of the gold produced on the coasts of Africa, is brought from the western side of the continent, being obtained from the mines of Bambook, south of the Senegal river, in the Kong Mountains, between Senegambia and Bambara, 55 degrees North latitude and 67 degrees East longitude, which are the most important sources of gold upon the continent.

In 1866, an elephant hunter named Hartley, and a traveling German scientist by the name of Maueh, discovered extensive gold fields in south Africa, between 17 degrees and 21 degrees 30 minutes South latitude, in the interior country, between the Zambesi west of Tete, and the middle course of the Limpopo river. The mines are 350 miles from the Portuguese settlement of Sofala, which is a port on the east coast of Africa, at the mouth of the river Sofala, in the southern part of Mozambique, latitude 23 degrees 57 minutes South, and longitude 36 degrees and 6 minutes East. Having been known to the Portuguese since early in the 16th century as a place of export for gold, Sofala is regarded by some, as the Ophir from whence the Hebrew king Solomon obtained the vast amount of gold said to have been used in the construction of his temple.

The mines found by Hartley and Maueh are said to have been known to the Portuguese in the 17th century. The region containing the gold, is an elevated table land of the Quatalamba Mountains, some 7,000 feet above the level of the sea, chiefly occupied by the Matabele, part of the warlike tribe of the Caffres. Extended over this table land, Hartley and Maueh found glistening beds of white quartz rock, which upon exam-

ination proved to contain gold. Gold was also found by them in the sands along the margin of the brooks of the country. The chief gold fields of Africa are on the western coast; the unmanufactured part of the gold exported, has been mostly in the form of dust, doubtless obtained by the negroes from alluvial washings. Such African gold dust, has long been famous as an article of export from the gold coast of upper Guinea and other points. Before the discovery of gold in California and Australia, the gold fields of Guinea in the Kong Mountains were esteemed an important source of supply. The discovery of the south African gold fields attracted much attention, and yet the production of gold in that part of the world has not been, in view of developments elsewhere, of very great importance. In recent years alluvial deposits in the Drakensberg Mountains of Transvaal, in the Leydenburg district, situated in 25 degrees South latitude, and 31 degrees East longitude, have been successfully worked and gold produced in considerable quantities, the form of the native metal being that of coarse nuggetty gold of various sizes, up to masses of eleven pounds in weight. It is difficult to form a correct estimate of the gold produced in Africa at present. A few years since the calculations of Birkmyre fixed the annual yield of African gold at the inconsiderable quantity of 4,000 ounces, which was valued at about \$900,000. Though the precious metals do not seem to be very generally distributed throughout Africa, iron and copper are found in the tropical part of the territory. Livingstone found seams of coal along the Zambesi river of south Mozambique, and salt is said to abound almost everywhere on the continent. In 1867, extensive diamond fields were discovered in the districts north of the Orange river, about 28 degrees South latitude, from which many stones of fine quality and large size have been obtained; the diamond "the Star of South Africa," found shortly after the opening of the diggings, brought £11,500 sterling, or \$55,964.75.

The probabilities are that with the increase of scientific knowledge regarding the African continent, and with the

possible future progress and measurable civilization of its people, new sources of gold may become known, and even some of the old fields worked by improved methods to advantage. At present, some of the African nations and tribes, though partly civilized in some respects, are quite unaware of the intrinsic value of the precious metals as such. In his recent highly interesting work upon "Moslem Egypt and Christian Abyssinia," William McE. Dye, formerly of the United States Army, and late Colonel of the Egyptian Staff, in giving his original account of military service under the Khedive, in his provinces and beyond their borders, as experienced by the American Staff, relates as an evidence of the benighted state of the Abyssinians, "that thousands of dollars in gold taken from them by the Egyptians who had fallen into their hands, were thought by them to be of little value," and that "During the peace negotiations, certain Egyptians took advantage of this ignorance by visiting Abyssinian camps and speculating with them for gold. Two Maria Theresa thalers, even one" (the thaler being worth but \$1,11.7825 each), "bought an Egyptian pound, or say five dollars."

Australia, the latest discovered of the great modern gold fields, next demands attention precedent to a description of the gold regions of the United States of America, since an account of the gold coinage of the latter country is to follow.

The great island formerly called New Holland, but now classed as a continent, under the name of Australia, by most geographers, forms a principal part of the Australasian (South Asian), division of the globe. Situated at the antipodes of the civilized portion of the world, this vast island continent long remained an unknown territory, though the existence of some such body of land was surmised by the ancient Phœnician sailors; it was reported to Marco Polo by the Chinese, and its shores may have been visited repeatedly before definite information regarding the same became public. The continent of Australia was probably known to the Portuguese by the name of Great Java early in the 16th century.

Upon a map made by some Portuguese navigators which bears date A.D. 1542, the position of Australia in the southern ocean is marked by vague outlines indicating land found thereabouts of unknown form and extent. Under the name of *Australis Terra*, Australia was mentioned by Cornelius Wytfliet in 1598, as a country of vast extent, south of all other lands, separated from New Guinea by a narrow strait, and which, if explored, "would be regarded as a fifth part of the world." The confusion of names given by the early navigators to lands visited by them in the Australasian seas, renders it impossible to determine with accuracy when Australia was discovered, or to whom the first voyage from any civilized country to its shores is to be credited.

In 1606, a Portuguese named Luiz Vaez de Torres, commander of a ship commissioned by the Spanish Government of Peru, having with Pedro Fernandez de Quiros, discovered Espiritu Santo, or the New Hebrides, sailed his vessel alone from east to west and passed through the channel now called Torres Strait, between the northernmost point of Australia, Cape York, and Banks and Mulgrave islands off that coast. During the same year, York peninsula was visited by a yacht called the "Duyfhen," or "Dove," which had been sent out by the Dutch from Bantam in Java, to explore part of the coast of New Guinea. The captain of the Duyfhen, who "saw the northern shore of the continent at a distance," considered the land to which he came a portion of the not far distant island of New Guinea. Other voyages followed; in 1616, under the Dutch commander Dirk Hartog; in 1618, by the "Pera" and "Arnhem," Dutch vessels from Amboyna; in 1622, by the Leuwin; in 1627, by the "Guldene Zeepard," with Peter Nuyts on his way to the embassy in Japan; in 1642 and 1644 by Tasman; in 1697, by Vlamingh; by an exploring expedition in 1705, and at different times by various Dutch traders, until in one way and another, the Dutch had pretty thoroughly circumnavigated the island they named New Holland, and had somewhat explored a number of points on the coast, but

whether they touched on the northern or the southern seaboard of the newly-discovered land, they had to report the country very generally of an uninviting appearance.

The famous English buccancer and navigator, Captain William Dampier, landed on the coast of Australia in 1688, and spent five weeks ashore at Roebuck Bay, on the North-western coast of western Australia. In 1699, Dampier visited Australia under a commission from the English Admiralty, and made explorations, of which he gave an account, but his representations were not very encouraging. The voyages of Captain Cook in the English expeditions from 1769 to 1777, made the civilized world acquainted with Australia, New Zealand, and Tasmania, and opened up the wonderful Australasian lands to European enterprise. Captain Cook came upon the mainland of Australia in April, 1770, at Gipps' Land, Victoria, South latitude 30 degrees, East longitude 148 degrees and 53 minutes. Botany Bay was so called at that time by Sir Joseph Banks, of Cook's expedition, on account of the wonderful floral display he found upon the plains of the country thereabouts. In 1788, the first English penal settlement of Australia was established in New South Wales, and the towns of Sydney and Port Jackson founded there. About 1790 to 1800, the voyages of two Englishmen named Bass and Flinders, begun on private account, and continued with great courage and perseverance, added much to the knowledge of Australian geography. Bass having died, Flinders made a complete and detailed survey of the coast of Australia, except the west and northwest portion. He was captured by the French and kept seven years in Mauritius.

The shores of the province of Victoria were explored by the English Captain Grant in 1800, who was followed in 1802 by Lieutenant Murray of the same country. In 1837, 1839, and after the settlement at Swan river, after 1843, coast surveys of west Australia were made for the British Government, being commenced by H. M. S. the "Beagle" and continued by Mr. Stokes and his party of assistants. This work was car-

ried on for the next three years by Baudin, Freycinet and Flinders, and subsequently perfected by others. For twenty-five years after the founding of Sydney and Port Jackson, the settlers in New South Wales knew almost nothing of the country, except a narrow strip some fifty miles wide between the sea-coast and the Blue Mountains. This range of precipitous mountains 3,400 feet high, intersected by abrupt ravines 1,500 feet deep, prevented travel to the back country until 1813, though several resolute attempts at a passage were made. From this time on, various well-equipped expeditions were made into the interior of Australia, and much hardship encountered, while a number of valuable lives were sacrificed, yet through the patronage of the Colonial Government, important geographical and topographical information was acquired, the resources of the continent, especially in all the eastern districts, were in part made known, and the area of progress and civilization slowly extended.

The original design of the British Government was to make Botany Bay and other points in Australia convict colonies. The plan was acted upon there and at Sydney, New South Wales, on Van Diemen's Land, now called Tasmania, and at King George's Sound. Owing to the opposition of the free colonists who emigrated to these countries, the transportation of convicts to New South Wales was virtually suspended in 1839, and none were taken to Van Diemen's Land after 1853. From 1821, the colony of New South Wales, though not rapidly settled, had made a fair start in free industrial progress. The history of the convict colonies under almost irresponsible military or naval governors, was full of the record of every kind of abuse and vice. In 1821, the population of New South Wales was 30,000, three-fourths of whom were convicts. Western Australia made slow progress, having acquired a population of less than 4,000 at the period from 1835 to 1840. In 1839, there was a population of 45,000 convicts and others in New South Wales, and yet in 1850, after the sixty years of effort at English colonization, and though the

general progress of the country was noted as satisfactory, so many discouraged emigrants had departed thence for the South American coast and other lands, that in 1850, the entire population of Australia was estimated at only fifty thousand persons, of whom the greater number were adult males. Meantime, however, the trade of the country had increased, the annual export of wool being about 45,000,000 pounds, various productive mines of copper, iron, coal and other minerals had been opened and considerably worked, while events were impending which were destined not only to revolutionize at once the condition of Australia, but to affect promptly and most powerfully the permanent commercial, social, and political interests, of the whole civilized world.

During the year 1839, Count Strzelecki discovered the existence of gold in the rocks of New South Wales, but as probably in duty bound, communicated the fact only to Sir George Gipps, then Governor of that colony. There were 45,000 persons, of whom three-fourths at least were convicts, under the immediate control of Sir George, and that official was apprehensive that a general knowledge of the startling and important information gained by the Count, would be destructive of discipline among that mixed and unreliable body of colonists. At the request, or order, of the Governor, Count Strzelecki postponed the publication of his discoveries, and "discipline" of the old-fashioned sort, was yet for awhile continued in New South Wales.

No further trouble arose from the gold mines and deposits, until 1841, when another geologist of New South Wales, the Reverend W. B. Clarke, following in the hidden footprints of the silent Strzelecki, again found the Australian gold. Like Strzelecki, and doubtless for the same reasons, Clarke reported that which he had found to none but Sir George Gipps, and upon Clark, as formerly upon the Count, the Governor strictly enjoined silence regarding that matter. Having, as it would seem, in carrying out that which he considered good policy, done all he could to hinder the spread of scientific knowledge

under his jurisdiction, and to postpone the progress of Australia, the Governor continued to govern. But science, in its development and benign application to the wants of civilized man, had already become too positive and too great, to admit of the suppression of truth by official presumption of any kind from any quarter, while its noble Professors were found too patriotic, and too entirely philanthropic to permit themselves, under any circumstances, to be long diverted from their legitimate work.

Without, according to report, any full knowledge of what had been done by the two explorers already named, the veteran geologist Sir Robert Murchison, of England, who had thoroughly and scientifically explored the auriferous region of the gold-bearing Ural Mountains of Russia, reasoning upon what had been made known concerning the peculiar geologic formation of Australia, in 1844, avowed his belief in the existence of gold in that country, and made a prediction of its early discovery. In 1846, Count Strzelecki submitted to Sir Robert Murchison a series of rock and mineral specimens which had been gathered in South Australia, when the distinguished explorer of the Ural at once recognized the resemblance of the specimens presented him, to those he had found in the Russian gold fields, and declared they were demonstrative of the abundance of gold he had assumed existed in the localities from which they were taken. Although unable to learn that gold had ever been secured in any part of Australia, Murchison was so certain that the precious metal existed there, and could be raised with profit, that he caused a circular to be printed and distributed among the miners of Cornwall, England, urging them to emigrate to New South Wales and seek for gold, in the same manner in which they had been accustomed to secure tin and zinc from among the alluvial deposits of the streams which flowed from their native hills.

Gold is said to have been discovered at Clunes, Victoria, in 1850, and it is not impossible that the same and other metals may have been found in other Australian localities, but if so,

the gold was in quantities too small to attract notice, or found by persons too ignorant to appreciate the importance of the knowledge probably gained by merest accident, as the Burra Burra copper mines were discovered. In 1851, the farmers of South Australia were prosperously turning up with the plough the rich gold-bearing alluvium, and their millions of sheep were grazing undisturbed above the most productive veins of the precious metal; pebbles of gold-bearing quartz were used to cover garden walks, and it is reported that a graduate of the English University of Oxford ornamented the walls of his Australian garden, by building into them masses of white quartz, handsomely variegated with portions of the unrecognised yellow metal.

It was, however, in the year 1851, that Mr. E. H. Hargreaves returned to Australia from California, which last state was then in the full rush of the wonderfully rapid development of its mineral and other resources. To the task of Australian geologic exploration, Mr. Hargreaves applied himself with a zeal born of the land he had visited, and at once began actively "prospecting," after the California method, near Bathurst on the Macquarie river, New South Wales, where gold was found in considerable quantities. A great excitement ensued. The time dreaded by the conservative Governor Gipps had come, and the old order of things in New South Wales disappeared forever. But the worst anticipations were not realized. The Government at once proclaimed its right of domain and possession over the newly-discovered treasure, and began to grant licenses to persons who engaged in digging for gold. The gold was soon traced along the range of hills from Bathurst, both north and south, and discoveries of deposits of surpassing richness were made in the colony of Victoria, near the southern coast, seventy miles to the north-west of Melbourne. By October, 1851, there were 7,000 men working the new diggings at Ballarat near Mt. Buninyong, all engaged upon a piece of ground less than a square mile in extent. In November, many of these removed to still richer de-

posits, which were opened around Mt. Alexander in the same district. In this second field ten thousand men were supposed to be at work before December, 1851, during which month 63,300 ounces of gold, then valued at £3. 19s. 6d., or \$19.34.45 the ounce, worth at that time \$1,224,506.85, were sent to Melbourne. From Ballarat and Mt. Alexander together, there were forwarded from September 30, 1851, to December 31, 1851, 124,835 ounces of gold, and the whole gold product of the colony of Victoria alone, for the time mentioned, was 345,146 ounces.

At this time began an emigration unmatched in the history of the world, and which, putting all foresight and calculation at defiance, notwithstanding the distance of Australia from Europe and America, quickly supplied the various parts of the Australasian continent with a most intelligent, energetic, enterprising and very numerous population. In 1852, the number of persons in the colony of Victoria, was more than doubled by an immigration of 104,000 souls, and within a year from the discovery of the gold at Bathurst, the European population of Australia had increased to 250,000, having been estimated, as has been noted, at but 50,000 in 1850. Estimates were made in London that up to the close of the year 1852, the whole amount of gold exported from Victoria, was valued at £16,000,000, or \$77,864,000.00 and from New South Wales during the same time to the value of £3,500,000, or \$17,032,750.00 or for fifteen months, about four times the amount supposed to have been produced in the whole world annually, for the five preceding years. The richest and largest gold fields of Australia, were in the colony of Victoria, the area of the mining region there, being about 725 square miles, comprising the districts of Ballarat, Beechworth, Sandhurst, Maryborough, Castlemaine, and Ararat.

The Australian gold is obtained from three sources, shallow placers, deep diggings and quartz veins. It is estimated that some 2,000 quartz veins exist in the colony of Victoria alone, and that these, which traverse the lower paleozoic strata and

are associated with granitic and igneous rocks, are the primary source of the whole of the gold found in that region. The early Australian gold diggers, were provided only with the simplest tools, and yet such was the richness of the placers, that they obtained for a considerable season a large amount of the precious metal they sought. After vast sums had been taken in this way, the placers being much exhausted, and none of equal productiveness discovered, resort was made to deeper diggings, with more effective appliances, where a great return for the labor expended was still realized. For a long time, mining operations were not pushed into the veins between the palæozoic rocks, known to be the original matrices of the gold, the presumption being entertained, that the quantity of metal decreased as the depth of the vein grew greater. Finally, at the suggestion of Mr. Selwyn, colonial geologist for Victoria, work was regularly and properly begun upon the quartz veins, and mines have thus been operated in various places to great depths, and with good results. As far down as 600 feet from the surface, no decrease of the product was noted. At Clunes, Victoria, the mines were over 1000 feet deep several years since. The veins vary in thickness from a mere thread, to 130 feet, the thinner veins yielding the largest percentage of gold to the ton of ore. The placer deposits are from 100 to 400 feet thick; they have yielded about double the amount of gold taken from the quartz.

The geologic features of the continent of Australia are very simple; they consist in outline of a vast interior concave tableland of sandstone, with a surface area of 1,500,000 square miles. The southern margin of this great plain, is a wall of sandstone cliffs along the sea-coast. On the east, south-east, west, and partly in the north, the interior plateau is bounded by terraced ramparts of mountains. The formation of these, according to locality, is of granite and syenite, or of sandstone masses, torn assunder and mingled with basalt and trap. On the west side of the continent, the mountains are from 1,000 to 3,000 feet high; at the southeast corner, the Australian

Alps are 7,000 feet high. On the north, in places, the sandstone cliffs along the coast are very lofty, the Alligator river cutting them into gorges 3,800 feet deep.

It is assumed that Australia emerged from the sea, at a comparatively recent geologic period, and for some time, the unexplored interior was thought to be an immense lake. The late Count Strzelecki, already mentioned as the original discoverer of the gold of New South Wales, being the author of the first scientific treatise upon the subject, in 1845, minutely describes all the mountain ranges of New South Wales, and from observations made from that region, all along the coast to Wilson Promontory, the southernmost point of Australia, concludes that the continent and the island of Tasmania are results of a similar volcanic upheaval. Tasmania certainly presents the same mineral wealth characteristic of the continental strata, but it has not been so fully worked. The principal Tasmanian gold mines are at Nine Mile Springs, Mathinna, and Hellyer river. The geology of New Zealand resembles that of Australia. Gold was first discovered in New Zealand in 1843; further discoveries of the same kind were made there in 1851, and mining operations on an extensive scale were commenced in 1856. The rock veins and alluvial deposits of gold in New Zealand, are deep and extensive like those of Australia. The Australian gold has a higher color and in a state of nature is finer than that of California. The native Ballarat gold is 23.5 carats, or 979.166 fine; other specimens from different places vary in quality, the poorest being about 20 carats, or 833.333 fine. Much of the Ballarat gold was in the form of nuggets, of which various specimens were found weighing from 28 to 60 pounds troy each. In 1858, a nugget of gold was found at Ballarat, which weighed 2,217 ounces and 16 pennyweights, or about 185 pounds troy, and which being exhibited in the Paris exposition of 1867, was valued at nearly £10,000, or \$48,665.00. A nugget from the colony of Victoria was exhibited in London, which weighed 146 pounds 3 pennyweights troy, and of which but

6 ounces were supposed to be matrix, or the rock of the vein. The largest piece of gold ever found, is said to have been the great Australian nugget known as the "Sarah Sands," which weighed 233 pounds and 4 ounces troy.

The International Exhibition of 1862, contained a gilded pyramid ten feet square at its base, and forty-five feet high, which represented the mass of gold exported from the Australian colony of Victoria, from October 1st, 1851, to October 1st, 1861. The weight of such a column of solid gold, would have been 26,162,432 ounces troy, which at an average estimate in round numbers of £4, or \$19.466 an ounce, would have been worth £104,649,728, or \$509,277,901.312.

Within twenty years from the discovery of gold by Hargreaves in New South Wales, in 1851, Victoria exported 40,750,000 ounces of gold, and New South Wales during the same time exported nearly 10,000,000 ounces of the same precious metal. Subsequent to the year 1860, the gold mines of Queensland displayed increasing promise, and up to the close of the year 1872, had yielded a little less than 1,000,000 ounces; since then, workings have been opened at Palmer river and other northern districts, from which good results have been anticipated.

The total of bullion, gold and silver, in various forms, exported from Australia, after deducting imports thither, which were chiefly intercolonial, varied during the fifteen years from 1858 to 1872, from £11,500,000, or \$55,964,750.00 to £7,500,000, or \$36,498,750.00. The average value of the gold exported from Australia each year, from 1860, fifteen years, to 1875, was £10,000,000, or \$48,665,000.00, a total of £150,000,000, or \$729,975,000.00, for the period named. Up to 1875, the colony of Victoria alone added gold to the value of £170,000,000, or \$827,305,000.00, to the wealth of the world.

Australia being second only to the United States, of all the countries of the globe, in the production of gold, its monetary statistics are of great interest.

Mr. O. M. Spencer, the United States consul-general at Mel-

bourne, has communicated information of importance in relation to the production of the precious metals and the circulation of the banks of Australia later than any officially published in this country.

The gold mines of Australia are yielding a diminished annual supply, the amount for 1877 being only about two-thirds the production of 1873, and a still further reduction is reported in the yield for 1878. The product for 1873, was 2,243,372 ounces, valued at \$42,779,908, that for 1877, was but 1,519,548 ounces, valued at \$29,018,223, showing a decrease in five years of 723,824 ounces of gold produced, to be valued at \$13,761,685. During this period the net exports of gold from Australia, although diminished, have not fallen off in a ratio corresponding to the decrease of production, owing, as is supposed by official experts, to the large stock of gold in the country held over from former years.

The gold coined by the Australian Mint at Sydney, New South Wales, from 1855 to 1877, was of the value of \$200,558,198.00. The following table shows the value of the gold coined at the Australian mints at Sydney, New South Wales, and at Melbourne, Victoria, from 1872 to 1877, inclusive:

YEARS.	SYDNEY MINT.	MELBOURNE MINT.
1872	\$ 9,698,935	\$ 3,640,142
1873	7,192,687	3,659,608
1874	9,854,663	6,681,705
1875	10,326,713	9,187,952
1876	7,995,660	10,336,446
1877	7,737,735	7,236,486
	<hr/>	<hr/>
	52,806,393	40,742,339
	<hr/>	<hr/>

Grand Total Australian Gold Coinage from

1872 to 1877, inclusive,

\$ 93,548,732

It may be of interest to state that for the 2,500,000 or more people of Australia, March 31st, 1879, the circulation

of coin was equal to \$38,275,913, and that of bank notes was equal to \$21,604,936, for which the banks held a special reserve of \$40,765,131.

In the year 1858, Australia had a population of 929,000, to which if there be added that of Tasmania 82,500, and of New Zealand 55,000, the European population of Australia is shown to have been 1,066,500 persons. Meantime, the eight merino sheep imported into Australia in 1793, had multiplied into vast flocks, numbering in all more than 16,000,000 head, which produced in 1857 over 54,738,718 pounds of wool. From that time forward the progress of the settled portions of the country has been most marvelous, its civilization original and unique, of rapid growth, founded on a basis of gold and enormous mineral wealth, sustained by boundless agricultural resources in a generally healthful climate, the grand work of a cosmopolitan free people emulous of every good practical example and aspiring to the pre-eminence and perfection of universal development.

AMERICAN GOLD.

The Spanish and other adventurers who, in search of slaves and gold, visited the continent of America, for more than a century after the voyages of Columbus, imagined they had reached the eastern shores of India, the land of endless wealth and unimaginable splendor, could they but find the great center of its unknown but supposed civilization. For a long time thereafter, the American seas were supposed to be an archipelago, and that between the islands called the West Indies a waterway could be found to the Orient.

Even when settlements had been made upon the North American coasts, the continent at its widest part was supposed to be no more than three hundred and fifty miles across, and every inlet and arm of the sea, every river and bay, from the Gulf of Mexico to Davis' Strait in the regions of the Arctic, was explored in search of the "north-west passage," a route to the Pacific, only found, by water, around the

far southern, stormy Cape Horn, opened up by the Railroads across the isthmus of Darien to Panama, and from the great Atlantic cities to San Francisco, or promised by way of the projected interoceanic ship canal of Central America.

That bold navigators ascended the Delaware and the Schuylkill rivers and landed near Fairmount Park, full of confidence in their ability to sail onward by that route to the Pacific ocean, that they ran their ships aground below Albany on the Hudson river, sailed up the St. Lawrence and crossed Hudson's Bay in the same faith, now seems as absurd as it was then true and deemed practical. But whatever miscalculations of geography or in navigation were made in those days regarding America, as to the one principal idea animating every voyager, explorer and colonist of the early days, there was neither error or failure. The Spaniard sought for gold, precious metals and gems, and these, through conquest, rapacity and by industry, he obtained in quantities to glut the market of the world. Other nations of Europe sought in the New World new lands, empire, independent states, liberty—and these too were secured. These achievements are of the past, but still the mineral and metallic wealth of America has increased with every generation, while the political and social greatness of its nations exceed the highest aspirations of their founders and offer nobler conditions of human existence, a broader field of general happiness, than any recorded in history or extant elsewhere among men.

Reference has already been made to the stores of gold and silver secured by Columbus and those who followed him, and to the methods employed by them in the unfortunate countries they subdued, the development of mining by means of slavery being the last of their operations. Having now reviewed the modern sources of gold in Europe and enlarged somewhat upon the discovery and production of the same precious metal in Australia, it is proposed to note the present gold-producing regions of all America and survey comprehensively, but more in detail, the gold fields of the United

States of America and their geologic connections. To secure a popular understanding of the proposed statement, a short and very general description of the grand American geological system is necessary, and as such, is here presented.

America, formed into two great divisions connected by the isthmus of Darien, reaches from the Arctic to the Antarctic ocean, and on its central line, 70 degrees west longitude, extends about 10,500 miles. From Labrador in the east, on the Atlantic coast, to British Columbia in the west, on the shores of the Pacific, in 51 degrees North latitude or thereabouts, the distance across the continent is rather more than 3,000 miles. Between Cape St. Roque in Brazil, on the east, to Parina of Peru, in the west, from the Atlantic to the Pacific ocean, in 5 degrees South latitude, the distance is also about 3,000 miles. In its narrowest part, the isthmus of Darien, near 10 degrees North latitude, is but thirty miles across.

The Isthmus of Darien, which throughout most of its territories, is called Central America, divides the American continent into two nearly equal parts; all that north of the isthmus, is known as North America, and all that south of the isthmus, as South America. North America, with Greenland, is estimated to contain an area of 8,000,000 square miles, while Central and South America are set down as having an area of 7,000,000 square miles. Estimates of the area of America differ, however, some authorities stating the limit of territory to be little more than 14,000,000 square miles, while others will have it, that the continent, with Greenland, is some 17,000,000 square miles, or even more, in extent. The area of America is about four times that of Europe, about a third more than that of Africa, and some sixth-sevenths that of Asia.

The geology of America is eminently noteworthy. The oldest strata, crystalline rocks, consisting mostly of gneiss, granite and trap, crop out from the region of the St. Lawrence river and the great lakes, and characterize the vast section which extends northward from that latitude to the Arctic

ocean. In North America, this formation lies on the western slope of the Rocky Mountains, and of the Andes. It extends from the North to the South about 1,500 miles, in this way, is about 200 miles wide, and seldom more than 800 feet high. The same strata extends over South America, in the east, though in the valley of the Amazon, hidden under enormous alluvial deposits. In the central portion of the continent, the crystalline rocks dip under the Silurian strata, though found free from superincumbent deposits, proving that even in the Silurian age they formed dry land, and have been less disturbed than most other formations.

The Silurian rocks, sandstone, limestone, slate, shale, &c., are divided into several periods, and are especially rich in various fossil remains. These strata dip beneath the Devonian, which is in part overlaid with conglomerate rock. The conglomerate forms the basis of the coal-bearing strata, occupying large districts in the state of Pennsylvania and the valley of the Mississippi. When the carboniferous era came to an end, the American continent, though nearly as large as at present, was not anywhere much above the level of the sea.

Since that comparatively modern geologic time, the various lofty and extensive American ranges of mountains have originated. These eminences were upheaved through the Silurian, Devonian and carboniferous strata, dislocating the coals, and upsetting the different layers of rock, which until that time had remained horizontal. The precious metals are generally found, in places where the ancient rocks have been broken through by volcanic forces, propelling vast quantities of lava-like matter, subsequently hardening into the igneous rocks. In the Appalachian Mountains, along the eastern coast of North America, the volcanic fires have been extinguished for ages, though rumors of subterranean noises, and of the occasional appearance of smoke far in the interior, continue to excite curiosity. The metamorphosed Silurian and carboniferous rocks of Pennsylvania and New York, though

long supposed to be primary granite, are found, upon more critical examination, to present proofs of volcanic action.

On the Pacific coast of the American continent, the whole range of the Andes and Cordilleras mountains, from Chili to the northern extremity of the coast in Alaska, contains a number of large and active volcanoes, at greater or less distance from one another. Within historical time, as related to the American continent, the most intense volcanic action has been manifested in Ecuador, within two or three degrees of latitude of the equator. In this district is found the great volcano of Cotopaxi, one of the two or three burning mountains of the world known to be in a constant state of eruption. In Ecuador, and nearly upon its line of latitude, though upon the other side of the continent, have in recent years occurred some of the most terrible and destructive earthquakes ever known to mankind.

The extreme geographical points of South America, are, Cape Horn, latitude 55 degrees and 59 minutes South, longitude 67 degrees 14 minutes West, and Cape Gallinas, latitude 12 degrees and 30 minutes North, longitude 71 degrees 30 minutes West; Cape Saint Roque, latitude 5 degrees and 28 minutes South, longitude 35 degrees and 16 minutes West, and Parina Point, latitude 4 degrees and 45 minutes South, longitude 81 degrees 26 minutes West. From Cape Horn, in the Fuegian archipelago, within a few degrees of the Antarctic ocean, to Cape Gallinas, west of gulf Maracaibo, on the shore of the Caribbean sea, the distance overland, in a straight line, almost directly under the 70th meridian of longitude, West, is 4,550 miles. From Cape Saint Roque, westward to Parina Point, is, as already stated, somewhat more than 3,000 miles. The area of South America, is estimated at from 7,000,000 to 7,240,000 square miles.

The most remarkable physical feature of South America, is the grand chain of the Andes or Cordillera mountains, which extends along the whole Pacific or western coast, from 50 to 100 miles from the shore. This range, begins in the

extreme south, not much above the level of the sea, presenting a few minor peaks upon certain rocky islands. From this region, northward, the mountains gradually increase in height. At a point near the Tropic of Capricorn, not far from the northern boundary line of Chili, or between there and latitude 22 degrees South, the mountains widen toward the north, developing a series of ridges mostly parallel to each other. The range, along the shore, is almost unbroken, and forms the true Andes or the coast Cordillera. This line runs north through Peru, Ecuador, and the United States of Colombia, and forms the isthmus of Darien. From the main range of mountains other considerable chains of mountains extend eastward, and to the north, one of the principle of them, reaching to the shore of the Caribbean sea east of the gulf of Darien. This range, is divided into several almost parallel and equidistant ridges, in the valleys of which the Atrato and Magdalena rivers gather their waters and flow north to the Caribbean sea.

Owing to the general continuity of the Andes and their nearness to the Pacific ocean, the westward-flowing rivers of South America, though numerous, are unimportant, but, for the same reason, the streams originating on the eastern side of the same mountains, unite to form vast rivers which receive tributaries for thousands of miles, and like the Amazon, enter the Atlantic ocean, through gulf-like mouths too numerous for full exploration. The ranges of highlands connected with the Andes on the east, are far extended, and divide the whole vast territory into a number of shallow basins, of great extent, which determine the character of the country and the course of its drainage.

The roots of the mountains are the home of the gold; the metal is brought to the surface by the action of the volcano; the matrix of igneous rock in which the treasure is locked and hidden, is broken by earthquake upheaval and disintegrated by exposure to the weather; the mountain torrents grind the auriferous boulders to fine fragments, the rivers

wash the pebbles into sand; nuggets of gold are found among the foot hills, and the precious fine golden dust is carried down the vallies—the finer the farther—and left by the current to await the hand of man in countless widespread alluvial deposits.

Those who retain in mind the very general idea of American geology presented in the few foregoing paragraphs, will be able to form an intelligent comprehension of the causes of the presence of gold, in the various localities now to be described, as the sources in America, from which that metal has been taken, and from which it is still obtained, in quantities, varying from such as are too small to be of commercial importance, or industrial profit, to others, so great, as to be unequalled in metallurgic records, the basis of numerous and enormous fortunes, the potent cause of mighty and rapid evolutions in the commerce and progress of nations, and the agent of most radical changes, in the currency of every country, the finance of the world.

The earliest colonies from Europe settling in America, were located in the southern portion of the continent, and there the earliest discoveries of gold were made, in localities which still continue to yield considerable amounts of the precious metals, yet, on account of the topographical character of the territories, from circumstances of climate, from political, social, and other causes, South America remains but partly explored, its resources slightly developed. Doubtless, in the future the effects of past disorders will disappear, and in the general progress an increase in the produce of gold and other metals will take place.

The oldest and most important country of South America is Brazil; it occupies more than two-fifths of the surface of that division of the Western Hemisphere, and next to the empire of Russia, has the most extensive contiguous territory of any nation in the world, its coast-line extending on the Atlantic nearly 4,000 miles. On April 25th, 1500, Pedro Alvarez Cabral took possession of the country now called Brazil,

for king Emanuel of Portugal. The settlement of parts of Brazil was almost immediate, the colonists engaging in the very profitable commerce in dye-woods. The Portuguese have ever since maintained their position in Brazil, and the government of the country is to-day a Portuguese monarchy—the only American empire. About one-half of Brazil is covered by hills, highlands and mountains. Mt. Itatiaiossú, north-west of Rio Janciro, is the highest Brazilian peak, being 10,300 feet high. The rivers of Brazil are numerous and large. The geology of the country is too vastly varied to be noted in detail here; its mineral riches are immense, comprising diamonds, sapphires, emeralds, euclases, rubies, topazes, aquamarines, zircon, gold, silver, copper, tin, lead, iron and other gems, metals, and minerals. The largest diamond known, of 138½ carats weight, was found on the river Abacté. The yield of diamonds for the first century was worth about \$20,000,000.

Brazilian gold is found in the metamorphic rocks, the drift gravel, clay, and alluvial deposits. The richest formations are clay slates, veined with gold-bearing quartz, the itacolumite rocks with quartz gold veins, and the beds of iron ores called itabirite and jacutinga. The province of Minas Geraes, which abounds in gems, is also rich in gold, the most prolific mines of that metal being worked near Ouro Preto, the gold being taken from quartz veins which traverse the metamorphic rocks, or found in a state of dissemination throughout the strata in a number of places. The mines of Cachoeira, Bahú, and Quebra Panella, of the Morro Velho in the valley of the Rio das Velhas, yielded in 1849, \$190,680 above the total cost of operation. In 1861, there was a profit of \$493,845; in 1865, \$404,190, from which must, however, be taken a loss of \$73,145, incurred for some reason during the preceding year. These mines are in English hands and worked by a Stock Company, which pays a dividend of from 13 to 15 per cent. on the capital invested. The mines of Gongo Soco, once very profitable, are abandoned. The gold of Minas Geraes,

when taken from veins in the alluvial soil, is generally associated with platina and iridium; the gold from other formations of the same district, is combined with tellurium and various other metals. It has been supposed that the gold mines of Brazil were exhausted, but this is denied by a number of good authorities, and a great yield of Brazilian gold is among the possibilities of the future, dependent upon more extended scientific exploration.

The Republic of Bolivia, lying between latitude 12 degrees and 24 degrees South, and longitude 57 degrees 25 minutes and 70 degrees 30 minutes West, is distinguished by its gigantic mountains, which are a part of the Andes. The peaks are Tacora, Tatasvaya, and Pomarapi, each about 21,700 feet above the sea; Parinacocha, 22,030 feet above the sea; Gualatiu, 21,960 feet above the sea; Iquimo, Toroni, Yabricoya, and the volcanic mountains Isluya and Sajama, all about 22,350 feet above the sea. With the exception of Mt. Aconcagua in Chili, latitude 32 degrees 39 minutes South, longitude 70 West, 22,422 feet above the sea, the volcano Sajama or Sahama, is the highest American peak. Though in the equatorial zone, all these mountains ascend above the limit of perpetual snow. The rivers of Bolivia are numerous, mostly the same that flow far through Brazil to the Atlantic. Bolivia has vast deposits of salt. The trachytic conglomerate rocks are the principal feature of the geology of Bolivia, though granite abounds in the eastern mountains of the Cordilleras. Gneiss and porphyry are also found in certain localities, the gneiss sometimes overlaid by foliated Silurian strata, in the depressions of which are recent deposits of sedimentary character, containing fossils of colossal mammalia.

Gold is found in many parts of the mountain region of Bolivia. Near Lake Titicaca in north-western Bolivia, somewhere about latitude 16 degrees 30 minutes South, and longitude 68 degrees West, stands the Nevado de Illimani, a mountain of three peaks, the loftiest of which ascends to 21,150 feet above the level of the sea. From one of the crags at the

base of Mt. Illimani, a huge mass of native gold was riven by a flash of lightning; this precious curiosity, was purchased at an immense cost and sent to the museum of natural history at Madrid, in Spain. The rivers flowing from the Cordillera Real to the Beni, or its tributaries, all bring gold from the mountains and deposit the same among the sands along their banks. The vast yield of Bolivian silver, will be described in a future page devoted to that metal. The national assembly of Bolivia, in October, 1872, imposed an export duty of 20 cents per ounce on gold, 50 cents per mark on bar silver; an export duty of 4 per cent. is paid on good coin.

Between southern Bolivia and Brazil, lies the Republic of Paraguay, extending from latitude 21 degrees 57 minutes, to 27 degrees 30 minutes South, and from longitude 54 degrees 33 minutes, to 58 degrees 40 minutes West, a territory at present of but about 90,000 square miles. The face of the country forms two great valleys, through which flow the rivers. The elevated lands are in the north, nowhere over 2,500 feet above the sea; the south of Paraguay is low, and often swampy, the apparent detritus from the distant Andes. There are iron ores in Paraguay, and copper has been found, but gold has not, as far as known, been discovered.

To the south of Brazil, and east of the Argentine Republic, between latitude 30 degrees and 35 degrees South, and longitude 53 degrees and 58 degrees 30 minutes West, is the Banda Oriental del Uruguay, or Republic of Uruguay; its territories have a sea and gulf coast of 625 miles, and a land frontier of but 450 miles. The interior is divided by numerous ranges of forest hills, nowhere over 2,500 feet above the sea, with countless streams which form many small rivers. The mineral resources of this country are undeveloped, yet gold has been found to a limited extent and mining enterprise is increasing.

The Argentine Republic occupies that part of South America between latitude 21 degrees and 41 degrees South, and longitude 53 degrees and 71 degrees 17 minutes West.

The northern and western portion of this territory, is generally mountainous, being occupied by the outspurs of Chilian Cordilleras. There are numerous active volcanoes along the grand chain of the Andes, whose crest forms the western portion of the Argentine Republic, and traces of former craters are found, over a very broad section. A cone near Jujuy, sends up every morning, a whirling spiriline column of dust, which rises to a great height, and spreads over the land for many miles, according to the force and direction of the wind. The Desoblado chain of mountains in the northern province of Salta, between the Tropic of Capricorn and 25 degrees South latitude, presents an elevation of 14,000 feet above the level of the sea, while the highest summit of the Aconquaja ranges, in the province of Catamarca, about latitude 27 degrees South and longitude 67 degrees West, is 17,000 feet above the level of the sea.

The Argentine rivers are most extraordinary streams. The principal, is the Rio de la Plata, or *River Plate*, as termed in English, which drains the whole region from the valley of the Amazon, to 35 degrees latitude South. The Plata is a river of rivers, formed of the great Uruguay, Parana and Paraguay, and up it and these branches or confluent, steamboat navigation is carried to great distances. Passengers are taken from the Uruguayan port of Montevideo, to Cuyaba in the Brazilian province of Matto Grosso, a distance northward, of over 2,000 miles. At Montevideo, the Plata is full 75 miles wide, and at Buenos Ayres on the opposite and southern shore, yet over 125 miles up the stream, the river is still 28 miles across. The waters of the Plate, however, are shallow, and navigation of the same is much obstructed by shoals and banks of mud. The Uruguay forms part of the eastern Argentine boundary; between it and the Parana to the west, lies the province of Entre Rios, with a surface divided between ridges of comparatively small elevation, great painpas or grassy plains, and marshes surrounding lakes of various sizes, liable to very extensive overflow. The streams and waters of the Entre Rios

are always fresh, and in this distinguished from many streams and lakes south of the Plata and west of the Parina.

The Rio Paraguay flowing from the territories of Brazil and the Paraguayan Republic, on its way to the head-waters of the Rio de la Plata, receives in its intermediate course, the name of the Rio Parina. On the western bank of these rivers, lies the province of the Grand Chaco, the surface of which, in the riparian part of the valley, consists of broad pampas rising to the west into a country of highlands and ridges, the foothills of the mountains in the distance, west. The region of the Rio de la Plata, and the country west of its head-waters, may be considered the indefinite boundary of two very dissimilar geologic districts included in the Argentine territories. The northern section, west of the Grand Chaco, the valley of the Parina and Paraguay, is as already noted, hilly and mountainous, with out-cropping rocks of granite, gneiss, clay slate, and almost every other variety of geologic formation, in a confused mass of broken and disordered strata. South of the line of the Rio de la Plata, all rocks have disappeared beneath the surface, upon which for hundreds of miles, to the south, and to the west from the Atlantic coast, not even a pebble can be found. This section over 300,000 square miles in area, may be regarded as one vast plain, subdivided by many water-courses into vast pampas of one general geologic character, but varied surface, deposits and vegetation. These pampas though drained by numberless rivers, some of which disappear in the earth, or lose themselves in marshes, are liable in the lower parts to extensive inundations in the rainy season. In the dry season, many of the pampean rivers, marshes and lakes, lose all their waters by rapid evaporation, when their very extensive beds present vast sheets or masses of dry salt, in deposits, varying from some which merely cover the ground, to others over three feet in thickness.

Below the valley of the Rio de la Plata, in the southern part of the province of Buenos Ayres, the hills called the Tapalquen, Tandil and Vulcan, of unstratified granular quartz,

break through the formation of the pampas. The range appears on some maps as the "C. del Volcan," "S. Ventana," and "S. Guamini," and extends from the Atlantic at Cape Corrientes, near latitude 38 degrees South, south-westward 400 miles; south and west again from these elevations, for some 380 miles, there are few crystalline rocks, and farther, into Patagonia, the lowest stratified formation of the Andes appears in a porphyritic formation. The grand feature of the Argentine pampæan formation, which includes broadly the valley of the Rio de la Plata, and to the north that of the Parana and Paraguay, is calcareo-argillaceous conglomerate earth, the deposit for ages of the largely-subsiding rivers, which have withdrawn their waters in consequence of a gradual geologic upheaval of the southern plains, to the height of 100 feet or more, an evolution still going forward. The diluvial deposits of the pampas consisting of detritus washed in cycles of time from the wearing away of the Andes, is everywhere mixed with marine and other fossils, and are considered by Darwin, as much a matter of astonishment as the gigantic Andes themselves.

The Rio de la Plata, River Plate, or silver river, was so called by the Spaniards, on account of the profusion of silver ornaments, worn by the cannibal Payagua, Timbus, and Guarani Indians, who were discovered along its banks when the adventurers from Spain, after the voyage thither of Juan Dias de Solis in 1516, and of Magalhaens in 1519, undertook, under the latter's command in 1527, the settlement of Buenos Ayres and the exploration of the surrounding territories. Various expeditions followed that under Magalhaens here noted. One under Mendoza, which entered the Plata in 1535, was the largest and richest which ever left Europe for the shores of America. Extensive explorations for gold, and for lines of communication, involved the Spaniards in numerous and of en disastrous conflicts with the Indians, sometimes ending in the extermination of the bands of Europeans, even when moving in parties of over 200 men. The settlements at Buenos Ayres were repeatedly broken up by hostile aborigines, and

it was not until 1580, and after an immense expenditure of labor, treasure and blood, that the colony became firmly established, and even then, the achievement was made in part by compromise, alliance, and intermarriage of the European adventurers and the native tribes, who as wandering bands, still control an immense region, covering, with the exception of limited areas, all the very sparsely inhabited country from the extreme south over the Patagonian plains, the central part of the pampas, and the middle part of the Grand Chaco, as well as portions of Paraguay and Bolivia.

The Argentine Republic is principally a pastoral country, though somewhat devoted to agriculture and a limited manufacturing industry. The mineral region is in the northwest; the resources of the various mines known to exist there are vast, but hardly at all developed. The entire export of metals in 1873, of copper and silver only, amounted to a value of but \$420,000. Gold exists among the mountains, between the ridges, and along some of the streams, but a change in the character of the population, and the permanent establishment of social and political order, must precede the regular development of the probably great but at present practically unexplored sources of supply of the precious metals, which the early settlers expected to develop, centuries ago, beside the broad-flowing Río de la Plata.

That part of South America lying south of the Negro river, which flows eastward in the region of the 40th degree, latitude South, is called Patagonia. The territory ends with Cape Horn, 55 degrees 59 minutes latitude South. Patagonia is about 475 miles wide, in the northern part, and gradually narrows toward the Cape in which it ends; it is 1,050 miles long, the 70th meridian, longitude West, running nearly along its center. This country was discovered by Magalhaens in 1520, and received its name Patagonia, *the country of the large-footed*, from him, on account of the size of the foot-prints of gigantic Indians found upon the shore. That part of Patagonia west of the Andes, which traverse the whole length of the

country near the Pacific, belongs to Chili; that east of the mountains, is claimed by the Argentine Republic. The Andes in Patagonia, rise gradually from mere ridges and hills at the south, to Mts. Cay, Yantcles and Coreovado, the two last being volcanoes on the Chilian border, and about 8,000 feet high. The head-waters of the Negro river, descend from a range of mountain spurs from the Andes, which sweep in a curve across Patagonia, from 41 degrees latitude South, northward, to the river, then southeast to Valedes Peninsula on the Atlantic. From the chain of curving highlands, the country descends in a succession of geologic terraces toward the south, broken, however, at various points by elevations, some of which rise to 3,000 feet in height. The center of Patagonia is occupied by a great desert of shingle, once the shore of the sea, which as the land was upheaved, receded, leaving the stony fragments washed smooth as they are now found.

The principal rivers of Patagonia rise east of the Andes, and flow to the Atlantic; they are the Negro, Chupat, Senegal, Desire, Chico, and Santa Cruz, the last being the most important stream after the Negro, and navigable to Lake Viedma, from which it falls. The mouth of the Santa Cruz, in latitude 50 degrees South, is three miles wide, and there the tide rises from 30 to 50 feet twice each 24 hours.

The geology of Patagonia is at once simple and interesting. From the Argentine river Cobo Leubu or Colorado, which flows into the Atlantic under the 40th parallel, latitude South, to the valley of the Santa Cruz river, extends one great deposit, including immense numbers of remarkable tertiary fossil shells, of supposed extinct species, among which appears an oyster a foot or more in diameter. Near the southern portion of this formation, the strata is fully 800 feet deep. The beds just described, are overlaid by a recomposed soft stone, of volcanic origin, yet containing gypsum, and having a chalk-like appearance, and largely made up of the remains of infusoria, of 30 or more forms, all of oceanic origin. These beds of chalk-like pumiceous stone, are throughout capped with grav-

el, in masses forming the most extensive shingle surface known in the world. The pebbles are well-rounded pieces of porphyry, derived from the Andes. The formation makes the shingle desert, and is estimated to be of an average width of 200 miles, the length over 800 miles, and the average depth of the strata about fifty feet. The whole surface of Patagonia has been raised by periodical upheavals from 300 to 400 feet, the movement extending as has been noted in the description of the Argentine Republic, to the shores of the Rio de la Plata.

The western mountains of Patagonia, are composed for the most part, of the primitive rocks, of which the eastern slopes, in the region of Lake Viedma, present immense disrupted and displaced masses. Geologists assume the mineral resources of Patagonia to be quite extensive and valuable, but the country is in possession of a few thousand ferocious Indians and a few colonists, and practically unexplored. In 1874, gold was found in the valleys of the Santa Cruz and Gallegos rivers, but mining operations have been discontinued. In the Gallegos, diamonds have been discovered, resembling the gems of Brazil; but an uninviting appearance, a severe climate, a generally desert surface, and a murderous, though scanty population, have limited at once our knowledge of Patagonia and the development of such resources as may yet be discovered.

The Republic of Chili, or Chile, derives its name from the Peruvian Indian word *Tchile*, meaning *snow*, which is always seen upon the summits of its mountains. The territories of Chili are a strip of mountain land from 40 to 200 miles wide, extending southward from 24 degrees latitude South, for 2,270 miles to Cape Horn, covering an area of 218,925 square miles. The Andes, as a general system, extend in two parallel lines, called *Cordilleras*, the entire length of Chili, though this outline is broken in places. The eastern range of mountains is the most important, and is regarded as the true Andes; centrally situated at intervals, is another mountain range, and along the shore of the Pacific runs *la cordillera de la costa*, the range of the coast. However, this structure varies ac-

ording to the region, and there are multitudes of detached elevations, and numerous independent peaks. The mean elevation of the mountains of Chili is variously estimated from 11,830 to 14,000 feet; the most of the principal cones are volcanic, or have been eruptive within a recent period. Chili is subject to frequent earthquakes, the slight ones, or shocks called *temblores*, being most common, and harmless, yet alarming, since often followed by actual and destructive earthquakes which are called *terremotos*, and are real movements of the land, as the name implies. The space between the Cordilleras, is occupied by table-lands, the elevation of which varies from 200 to 1,000 feet—the altitude of the northern plateau known as the desert of Atacama.

The loftiest Chilean mountain is the old and at present inactive volcano Aconcagua, 22,422 feet above the sea. Mts. Tupungato, 20,269; Lullailaco, 21,000; Villarica, and San. Jose, 18,150 or 20,000 feet above the sea, are intermittent volcanoes, as have been Mts. Peteroa, Llayma, Antuco, Panahue, Chillan, Calbuco, Corcovado, Osomo, Yantéles, Minchinmadom, and a number of others, 23 volcanoes in all being recognized. There are many mountains not volcanic of equal elevation. There are ten well known passes, from the Pacific to the Argentine Republic across Chili, besides others not so favorable or well traveled. The pass called the Planchon, 6,000 feet above the sea, has been surveyed for a railroad. The other passes range from an altitude of 11, 12, 14, 14,500 to 15,575 feet above the sea, at their summits. These passes are open only for a part of the year, six months or more, and passable only for mules or llamas and men. The western slope of the mountains is most difficult to ascend.

The rivers of Chili are numerous but short, and few of them are navigable; they all fall from the mountains, and when swollen with melted snows, discharge large streams of water and immense quantities of alluvium into the Pacific ocean; in consequence, almost all of them are obstructed at their mouths by considerable bars of sand and mud.

The Araucanian Indians of Chili, successfully maintained their territories and independence against the Peruvian Incas from A. D. 1433, and against the Spaniards who invaded the country in 1535 or 1536, being engaged in sanguinary war with the Europeans until 1722, when the Indians consented to a treaty and continue citizens of the republic at present, though a remnant of some 24,000 persons still occupy a province south of Biobio, have their own chief and an independent tribal form of government.

The territory of Chili is of exceeding interest to the geologist; the nature of its formations have, however, been sufficiently indicated for the present purpose, in that which has been stated in the preceding paragraphs in relation to the mountains of the Argentine Republic. Chili possesses immense and very varied mineral wealth of gold, silver, copper, lead, antimony, cobalt, zinc, nickel, bismuth, iron, coal, molybdenum and quicksilver, the different ores being found in all the series of rocks between the granite and trachytic strata, the last being barren in that country. Sulphur, salt, nitre, alum, gypsum, limestone, and other minerals are abundant in Chili.

Gold exists in Chili in very considerable quantities, though less sought after there than copper and some other metals. The gold-bearing veins of the mountains of Chili, run almost parallel to the imperfect cleavage of the granite rocks among which it is for the most part discovered. Certain Chilian copper ores, generally associated with micaceous specular iron, contain small quantities of gold. In some mines in Chili having quartz veins running north and south, gold is found mixed with a most remarkable variety of minerals, such as galena, blende, copper and iron pyrites and the peroxide of iron. Near Illapel about 31 degrees and 35 minutes latitude South, are some very poor gold mines, which are worked in the beds of the gypseous formation, the metal being taken from the altered felspathic clay-slate alternate with the purple porphyritic conglomerate. Gold is also found in the province

of Magellan, the part of Chili lying along the western shores of Patagonia. The principal mining districts are in the north of Chili, but new discoveries are continually made elsewhere, and the product of gold, being taken with other metals, must continue or increase.

Between latitude 3 degrees and 20 minutes and 22 degrees 20 minutes South, and longitude about 67 degrees and 81 degrees and 26 minutes West, lies the almost rectangular territory of the republic of Peru. The western part of Peru lies under the 70th meridian of longitude West, and along this line, from the river Loa in the south, to the junction of the rivers Javary and Amazon in the north, is somewhat more than 1,150 miles. The 70th meridian may be considered the perpendicular line of a right-angled triangle, of which the northern boundary of Peru, running 650 miles from west to east, about 5 degrees south of the equator, is the base, and the Pacific shore 1,500 miles long, from Cape Blanco to the river Loa, is the hypotenuse. The area included is about 500,000 square miles. For an account of the early history and conquest of Peru, the reader is referred to pages 275 and 276.

The Peruvian Andes traverse the entire country, from north to south, in two separate ranges called the Cordillera Oriental, or Andes proper, and the Cordillera Occidental, or Coast range. North of the town of Pasco, in about latitude 11 degrees South, a third and still more easterly range arises, which, a little above the 9th degree, latitude South, subdivides into three ranges. The Cordillera Occidental runs nearly north-west, and follows the indentations of the Pacific coast from which its steep ascents are some 20 to 50 miles inland. This range is quite unbroken, though crossed by roads for men and animals, and generally rises to 14,000 or 15,000 feet above the level of the sea. The snow-line of Peru, is about 16,000 feet above the level of the sea, so that but few summits are snow-capped, and these are all, as far as known, in the range along the coast. The passes of the Peruvian mountains, are among the most elevated in the world. The road from Lima to Tar-

ma and Paseo, ascends to a height of 15,760 feet above the level of the sea. The highest mountain in Peru, is the volcano Misti, in the department of Arequipa, and 20,300 feet above the level of the sea. The peaks of Pichn, Chareani, and the Pan de Azucar, from 17,000 to 18,000 feet above the sea, are in the same actively-volcanic district. In the 16th century, the old city of Arequipa, situated among these craters, was buried under the ashes of an eruption from Mt. Misti, and subsequently rebuilt on its present site, seven miles further from the volcano and toward the west. The tract of land designated as *la costa*, or the coast, lying between the Peruvian Cordillera Occidental and the Pacific, nowhere over fifty miles wide, slopes to the sea with a very rapid and irregular descent, the surface being broken by deep gullies dug out by the torrents flowing from the mountains to the ocean. Though generally the beds of rivers, most of these gullies are dry the greater part of the year. The ridges between the rivers are from ten to ninety miles wide and perfect deserts. Since its occupation by man, the coast of Peru is supposed to have been elevated by an interrupted upheaval some 85 or more feet. The crest of the Cordillera Oriental, or proper Andes, in Peru, is flattened into the table-land of Cuzco, having an area of some 15,000 square miles and ranging from 11,500 feet in the south, to 12,500 feet in the north, above the sea. The table-land of Paseo, north of Lima, is some 14,000 feet above the sea, and but about 1,500 feet below the line of perpetual snow. Some of the valleys enclosed by the Peruvian mountains, are among the hottest localities in all the American countries of the tropics. Flowing from the Cordillera Occidental on the eastern side, the rivers Marañon, Huallaga and Ucayali are important, as far as the volume of their swift waters is considered, they finding their way among the mountains and joining the Amazon as the chief tributaries of that stream on its course to the Atlantic. The Apurimac, Urubamba, Javary and Purus, are great rivers of the same region. The eastern part of Peru slopes to the valley of the Amazon,

forming a country of dense forests in an unknown rainy region of torrid heat and tropic vegetation, inhabited by roving or other Indians where not unpopulated.

The geology of Peru has not been thoroughly explored except in certain limited fields of observation. One of the prominent features of the whole territory, is the recurrence on the coast, and in the interior, of tracts of red sandstone often accompanied by vast deposits of salt. Granite and porphyry are the principal rocks of the coast and the highlands. Over 7,000 feet above the sea, and upwards, except the highest plateaux, called *paramos*, the mountain country of Peru is denominated the *sierra*, a region of which trachyte, augite, porphyry and orite, are the principal rocks. The great mountains of Peru north of 8 degrees, latitude South, are all of trachyte. The more elevated ground, bordering the valleys between Lake Titicaca and the famous city of Cuzco, is chiefly clay slate; in the neighborhood of the city of Arequipa, and between there and Lake Titicaca, the soil is very largely of volcanic origin. Peru has been famous for its mineral and metallic wealth, especially in the precious metals, ever since its discovery by the Spaniards under Paseual de Andagoya in 1522, and its conquest by Pizarro from 1531 to 1540. Even before these dates, the country of the Incas was widely known among the Indians for its abundance of gold and silver. In 1512, the son of the Indian cacique Comogra, informed Vasco Nunez de Balboa, then the governor of a small Spanish colony in Darien, that well to the south of his father's dominions, there was a great country and a wonderful people, where gold was in the most common use and considered of no more value than that given to iron by the Spaniards. That country Balboa sought, but failed to discover, yet the report of the Indian was subsequently learned to be at least founded on facts, as has been related in the early part of this article.

Gold is at present found in numerous places in Peru, and almost all the mountain streams bring it down in small particles with their torrents, and form deposits in their sands, often

of considerable richness. The mountains in almost every direction present veins of gold, with silver and copper, and often in quartz lodes. The gold mines of Carabaya are the most important workings of the country. As numerous as the sources of Peruvian gold are, the product of this metal has in modern times been small compared to the common yield of silver, an account of which will be given on a future page to be devoted to that metal. Since 1836, the principal wealth of Peru has been derived from the deposits of guano, and of nitre, with which commodities part of its territories superabound. Until a few years past, Peruvian mining has been in a backward state, but the introduction of railroads and improved machinery, with more modern processes, has brought about a favorable change in that and many other branches of industry. At present Peru, with Bolivia, against Chili, is engaged in a protracted and ruinous war; what the consequence to these countries, and the working of their mines, may be, it is impossible to predict. There is no good reason, however, why Peru should not be for the future, as in the past, one of the world's wonders as a producer of silver, while, as for ages, a fruitful, well-known and permanent source of gold.

Ascending northward the Pacific coast of South America, at 5 degrees 30 minutes latitude South, near the widest part of the continent, we enter the territories of *La Republica Del Ecuador*. The boundaries of Ecuador, which derives its name from its situation under the equator, are unsettled, and a large part of the country unexplored, but it is generally considered to be included between the latitude already named, and 1 degree 30 minutes North, and longitude 69 degrees 52 minutes and 80 degrees 35 minutes West. The extreme length of Ecuador is about 740 miles, from east to west, and the breadth some 520 miles from south to north, or the reverse. Including the Gallápagos islands, which lie under the equator (area 2,951 square miles), Ecuador presents a surface some 254,951 square miles, or by planimetric calculation, 248,580 square miles, in

extent. The sinuous coast-line of this country, with numerous indentations, is over 700 miles long.

Ecuador has a more varied topography than any other country in the world; nine-tenths of the whole region is occupied by immense snow-clad mountains, almost endless forests, and wide-spread *llanos*, or savannas. The Andes cross Ecuador from south to north. The range is divided, as in Peru, into the Cordillera Occidental, or coast range, and the Cordillera Oriental, or eastern mountains, which run parallel, about 40 miles apart, and enclose for 300 miles an elevated valley, which is divided by inferior ranges, and subdivided by ridges into the plains of Quito, Ambato, and Cuenca, and smaller irregular sections. The western or Cordillera Occidental, attains an elevation in the great volcano of Chimborazo, of 21,422 feet above the sea, but the range has no other point more than 17,500 feet above the coast. The Quito plain is 9,500 feet above the sea, the Ambato plain 8,500, and the Cuenca plain 7,800 feet above the sea. The Cordillera Oriental, or eastern range, presents a number of grand peaks and summits, more than 18,000 feet above the coast line. Nowhere in the entire Andean system of mountains, are the separate peaks so grandly developed as in the Ecuadorian region. The single valley of Quito is surrounded by twenty volcanic mountains of great elevation and remarkably perfect forms; one is a perfect truncated cone, another a smooth and snow-covered grand dome, while others are magnificent irregular crests, jagged and riven by the tremendous volcanic forces to which they have been subjected for cycles of time.

Beside the world-renowned Chimborazo, the Cordillera Occidental in Ecuador, shows a dozen or more peaks from 1,500 to 1,960 feet above the snow line, which under the equator, whereabout they are situated, is not less than 14,000 feet above the level of the sea. In the Ecuadorian Cordillera Oriental, about an equal number of similar mountains are found, but of even greater elevation; of these, Cayambi, a volcano

19,813 feet above the sea, is situated directly under the equator, and near 77 degrees 30 minutes longitude West, being the only volcanic snow-capped peak without latitude. Mt. Imbabura, between the Cordilleras, at the northern end of the great central valley, is a volcano 15,029 feet above the sea, and is celebrated for discharging vast quantities of mud and water. Cotopaxi of the Cordillera Oriental, about 19,500 feet above the level of the sea, is the highest volcano in the world. The crater is always smoking, and from time to time discharges great quantities of pumice stone, the principal product of its eruptions. Sangai, in the same range, is the most active and violent volcano in existence. The whole Quito table-land, is one vast volcanic hearth, underlaid by an ocean of lava, which breaks forth sometimes from one outlet and sometimes from another. Ecuador is pre-eminently the land of volcanoes; active or extinct craters are numerous and widespread. Earthquakes are common and have been terribly destructive. The eastern part of Ecuador is crossed from west to south-east, by numerous ranges of mountains, which continue to the banks of the Marañon or Amazon, and slope down into the valley of that river.

The rivers of Ecuador are numerous and many of them are great streams. On the west, many independent rivers flow from the Cordillera Occidental to the Pacific, while all the drainage of the mountains east of the coast range descends, often in sudden floods, by the channels of a number of important tributaries to the Amazon. Many of the mountain rivers of all sizes, have worn for themselves deep and extensive valleys. In the walls and terraces of these valleys, and upon the sides of the mountains, may be found the grandest, but for the most part unimproved, opportunities for geologic observation. Granite, gneissoid, and schistose rocks, are the principal materials of the bodies of the mountains; along their sides are found immense beds of gravel and volcanic debris, with a number of vast, old and cold lava streams; the mountain summits are capped with trachite and porphyry, rising in barren

desolation above the line of vegetation, and of perpetual snow, to fields inaccessible to the foot of man.

With all the grandeur of its geology and topography, and the energy of its volcanic action, Ecuador is, as far as explored, less richly supplied with mines and minerals than any other country of South America. Silver, gold, iron, mercury, lead, tin, zinc, copper, antimony, manganese, alum, sulphur and salt, are reported, but few of these have been found in sufficient quantities to become of great industrial or commercial importance. Gold, mixed with silver, has been procured for a long time from the neighborhood of Zarume in the province of Loja; the gold mines of the elevated regions of the Cordilleras were abandoned long since. Gold is said to be washed from the mountains by the greater part of the Ecuadorian rivers flowing to the Amazon, and is actually gathered by the Indians from the beds of the Napo and some of its confluent; in the Canelos territory, and more especially from the Bobonaza. The Canelos gold in the native state is 22 carats or $938\frac{2}{3}$ fine, and that secured from the valley of the Napo but 20 carats or $833\frac{1}{3}$ fine. The town of Azogues derives its name from its quicksilver mines, and similar ores are mined in the city of Loja. Nearly all the sources of quicksilver in Ecuador, have been found unprofitable since the discovery of that metal in California. Without unexpected discoveries, the product of gold in Ecuador must continue quite unimportant. At present, the few gold mines operated, are all in the mountains along the coast of the Pacific ocean.

To the north of Ecuador lies the territory of Estados Unidos de Colombia, the Republic of the United States of Colombia, extending from 2 degrees and 30 minutes, latitude South, to 12 degrees 20 minutes, latitude North, and from 65 degrees 50 minutes to 83 degrees 5 minutes, longitude West. Colombia consists of the confederated states of Antioquia, Bolivar, Boyacá, Cauca, Cuninamarca, Magdalena, Panama, Santander, and Tolima, and comprises a large part of the old Spanish vice-royalty of New Granada.

The area of this country is about 500,000 square miles. It has a coast line on the Atlantic, of more than 1,000 miles, with an abundance of bays and natural harbors. The Pacific coast line is less important, though of about equal extent, indented with the great bay of Panama and possessing several well-known seaports. The surface of Colombia is nearly equally divided into mountain, valley and plain. The western part is one of the most mountainous districts in the world. The Andes in the south, near Ecuador, form an extensive plateau, called the *paramo* of Vera Cruz, which has an elevation of about 11,695 feet above the sea. From this *paramo*, the mountains form three ranges, running north nearly parallel. The Cordillera Occidental, or coast range, which here bears the name of Cordillera de Chocó, is the least remarkable, being of comparatively low elevation, and in places worn away into what may be regarded as mere rounded hills. The Cordillera de Chocó is, however, the most extensive range, as at latitude 7 degrees 30 minutes North, it turns to the north-west and extends, almost unbrokenly, along the isthmus of Panama. The central range, or Cordillera of Quindiu, is at first the highest of the three, containing the snow-clad peaks of Huila, Ruiz, and Tolima, the last being the highest of the Andes north of the equator. In latitude 5 degrees 5 minutes North, the Cordillera of Quindiu sinks below the snow line, and some three degrees farther on, in the same direction, disappears in the valley of the Magdalena river, about longitude 67 degrees West. The eastern range, called the Cordillera de la Suma Paz, takes a more north-easterly course than either of the others. Between 7 degrees and 8 degrees, latitude North, at the *paramo* of Pamplona, the eastern range divides itself, the offshoot passing into the territory of Venezuela, and the direct line keeping almost due north to Gallinas Point, already noted as the northernmost land of South America. The highest summits of the Cordillera de la Suma Paz, are the Alto de el Trio, 9965, Boca del Monte, 12,735, and the Alto de el Viejo, 12,965 feet above the level of the sea.

Eastward from the slopes of the Cordillera de la Suma Paz, the surface of Colombia descends toward the valleys of the Orinoco and Amazon rivers; the north-eastern district, as far south as the river Vichada, at about the center of Colombia, is almost an unbroken plain, treeless, and, in the rainy season, grassy, and an immense cattle pasture. Swamps occur, but in the dry season, the plains are arid and sunburnt. South of these *llanos*, the Columbian valleys are covered with great tropical forests, often present considerable irregularity of surface, and in many places are broken by variform steep rocks, rising to some 300, 600, or more feet in height, above the level of the local surface.

The eastern boundary of Colombia is formed in part by the great river Orinoco, into which flow the rivers Guaviare, Vichada, Meta, and many smaller streams. On the South, the river Putumayo, which flows eastward, was considered the boundary between Ecuador and Colombia, but on recent maps, the line ascends the river Patia from the Pacific, and crosses the Andes to descend the bed of the river Cagueta, Japura, or Iiyapura, to the boundary in the east claimed by Brazil. The other Colombian rivers flowing to the Amazon, are the Vaupes or Ueayari, and the Rio Negro, of which the Vaupes is a tributary, and minor streams. Along the Pacific coast of Colombia, south of latitude 5 degrees North, are many short rivers and torrents flowing from the coast range, like the streams on the same coast farther south, already described. The greater part of the territories of Colombia are drained northward into the Atlantic ocean, by way of the Caribbean sea and the gulf of Darien. The principal river flowing north, is the Magdalena, or Rio Grande, which rises in a small lake called the Laguna del Buey, or Ox Lake, situated near the boundary of Ecuador. The Magdalena crosses the whole of Colombia along the great central valley between the Cordillera of Quindiu and the Cordillera de la Suma Paz. On its eastern bank, the Magdalena receives the rivers Sanza, Rio Neiva, Cabrera, Prado, Fuzagasanga, Bogota, Carare, Ofen,

Sagamoso, and Rio Cesar, all of which are considerable streams, and some of which, in particular the Rio Cesar, are very noble rivers. From the west, there flows into the Magdalena the rivers La Plata, Paez, Saldana, Cuello, Guali, Samana or Miel, Nare or Rio Negro, a number of minor streams, and that great and almost coequal confluent, the Cauca. This last river rises near Popayan, between the Cordillera de Chocho and the Cordillera of Quindiu, and flowing north in the valley formed by these ranges of mountains, joins the Magdalena about 130 miles from the Caribbean sea. The Magdalena is a rapid river, but is navigable for steamers to Honda, 5 degrees, latitude North, or passable to Neiva, near latitude 3 degrees North, something like 700 miles up the river, which is in all some 850 miles in length. The river Cauca is, on an average, 1,750 feet higher than the Magdalena, and therefore very rapid. Another grand and most interesting Colombian river, is the Atrato, which rising on the western slopes of the Cordillera de Chocho, in latitude 5 degrees 20 minutes North, flows 300 miles to the north, midway from this range to the Pacific coast, until at the isthmus it breaks through the mountains and falls with a mouth 1,000 feet wide and seventy feet deep into the gulf of Darien. Ninety-six miles from its entrance into the gulf, the Atrato is 750 feet wide; 180 miles from the gulf the largest ships find an abundance of water in this river; at Quibdo, 220 miles from the gulf, the Atrato is 850 feet wide and from 8 to 20 feet in depth; the fall of the stream is but 3 inches to the mile, and steamboats can ascend to Certigui, 252 miles from the gulf, while canoes continue navigation still farther toward Popayan.

During the year 1788, or about that time, an enterprising monk is said to have cut a canal from the Atrato, near Quibdo, along a ravine called the Raspadura, across the lands intermediate, to the river San Juan, which lapping the valley of the Atrato, in latitude 5 degrees 20 minutes North, flows with a navigable stream southward and eastward into the Pacific ocean. The truth of this story is doubted, but it is not in-

credible; Colombia has many stupendous ruins, built in freestone as early as the time of the Incas, and there are also public works created by the energy of the old Spaniards who ruled the land before its independence. Dr. L. D. Tousley, now a physician in successful practice in Philadelphia, while traveling and prospecting through the United States of Columbia in 1857, came upon a canal made by the old Spaniards for the transportation of troops while Carthagena, having been captured by the expedition under Sir Francis Drake in 1585, was held by the English. This canal, some twenty-four feet wide and eleven feet deep on an average, was opened from a place called Calamar, situated on the Magdalena river, 89 miles from its mouth, to Carthagena, a large walled city, a seaport on the shore of the Caribbean sea, in the province of New Granada. This canal was known to the people of the country as the *Dique*, and yet, although after the expulsion or extermination of the English, used for the transportation of goods, had during the political disturbances been neglected, and when first seen by Doctor Tousley, was overgrown with a mat of floating vines peculiar to the swamps of the climate, forming a safe bridge for the passage of mounted men. With characteristic North American enterprise, Doctor Tousley purchased this canal from the Colombian Government, and returning to New York, fitted up a machine, with which, by the help of the current, he freed the canal from the obstructing growth, and in 1858 re-established boat, or *bongoe* navigation, between Calamar and Carthagena, and also in connection, a very profitable line of steamboats on the Magdalena river. The business thus created was sold to an English corporation and is still continued.

While all the rest of the commercial world was seeking for the northwest passage to India, Spain holding control of all Central America, claimed an exclusive right to navigate the southern seas. Fearful that a channel for ships would be found somewhere across America, by which foreigners and Protestants would pass to the Pacific, and encroach upon the

religiously-protected monopoly they claimed as their own, the Spaniards became exceedingly jealous of those who sought to explore their American rivers. So important was this matter considered, and so well were the Spanish statesmen acquainted with the wonderful topography and geography of their South and Central American colonies, that as early as 1730, Philip II, king of Spain, promulgated an edict, denouncing the penalty of death upon all those who undertook the navigation of the Atrato, its tributaries, or any of the rivers of the isthmus of Central America. Needless as this pronunciamiento was found to be, its provisions were for some time kept in force; quite in keeping with the tyrannical and often absurd policy, by which the government of Spain, in its eagerness to increase its revenues, and aggrandize the royal power, continually sacrificed the interest of its colonists, hindered the development of its vast foreign possessions, and finally, created the industrial, social, and political conditions, which led to rebellion, revolution, and the absolute independence of all the South American Republics.

The geological features of Colombia are extraordinary and complex. Traces abound everywhere of the most stupendous earthquakes and floods, resulting in such a displacement, derangement, and heterogeneous intermixture of the primitive and sedimentary strata, as to be most perplexing to the observer, and render even an outline classification almost impossible. Great rivers, and even small streams, have in places cut their channels through mountains of the hardest rock to an immense depth. The bed of the stream of the Rio Minero lies at the bottom of a chasm, a canyon, or valley of erosion formed by the force of the current, to a depth of 10,650 feet. Vast subsidences occur in the surface, and there are many great caverns resplendent with glittering stalagmites. In other localities, and often near the chasms and abysses described, immense masses of rock have been upheaved, far above the general level, over which they hang in toppling and impassable grandeur. Wonderful changes have been wrought in parts

of Colombia by fire and flood even within the past four or five centuries; the same volcanic causes are still active; in Batan, near Sogamoso, in the heart of the Andes, where the elevation would indicate a temperature so low as to destroy any but the hardiest growth, the soil is so much heated by subterranean fires as to produce all the fruits of the tropic zone. None can predict what may occur in such a region at any time, to change the condition of the surface, or perhaps divert the course of an important river.

The underlying formations of the geologic strata of Colombia, are the igneous and metamorphic rocks, the great masses of the mountain ranges being made up of gneiss, granite, porphyry, and basalt. In places, the Carboniferous strata have been developed to a considerable extent, but are now to be observed in a strange state of confusion, the consequence of some unknown disturbance. The slopes of the Cordilleras are very often covered by deep beds of gravel, while the valleys are filled with various alluvial deposits of quite different periods. From the boundaries of Costa Rica, midway of the great isthmus to the north, all along the borders of the Caribbean sea, to the western line of Venezuela, the territories of Colombia abound with rich gold-bearing alluvions of a very extensive formation. There is probably no Colombian state that has not at some point, or at many places, a soil containing gold in quantities sufficient to pay for working. Among other districts, those of Choco, Antioquia, Mariquita, Popayan, Pampolona, Ocana, and Bucaramanga, are said to have auriferous beds of exceeding richness. The gold-bearing sands of Antioquia are reported to yield nearly as good results as those of California. The washings for gold along the valley of the Attrato river are extremely productive. The mining operations of Colombia were, until of late, all carried on with the rudest machinery, and yet gold has been secured in very considerable quantities; more would probably be done, but many of the deposits of the northern valleys are in localities oppressed with torrid heat and an unhealthy climate, where, as at Car-

thagena, the yellow fever is endemic, or native and peculiar to the place, and the myriads of insects make life almost unendurable. Diamonds are found with the gold dust at Antioquia, and emeralds, amethysts, and other rare and precious stones are procured from different localities. The emerald mines of Muzo, in the state of Boyaca, among the mountains of the Central Cordillera, in the valley of Tunja near Bogota, are worked in a rude and careless manner, yet are the only source of the genuine stone, and yield enough to supply the constant demand for their product made from Europe and the rest of the world.

Of all the abundant metals of Colombia, gold is most widely diffused, and has been taken from the still prolific soil for ages. Before the arrival of Europeans in South America—the Spaniards under Alonso de Ojeda reaching Colombia in 1499 and 1501—the native Indians of the region now included in Colombia, made free use of gold. The Muisca or Chibchas, a very remarkable aboriginal tribe or people of the northern part of South America, who located their government on the tablelands of Bogota and Tunja, not only used gold for decorative purposes in general, like the Quichuas to the south of them under the rule of the Incas, but actually had money of gold, cast in uniform pieces of exact weight, and everywhere current. The gold produced in New Granada, now mostly included in Colombia, was at one time a source of great revenue to the Spanish government, thousands of Indians and of Negroes being compelled as peons or slaves, to labor in gathering the precious metal for the benefit of the crown. During recent years, greater tranquility has obtained in Colombia; transportation routes and roads have been multiplied and improved, education has been encouraged, made compulsory for the first time in America, and in part popularized; meanwhile industrial pursuits and commerce have made remarkable progress. The gold of Colombia is principally secured by washings of the sands and alluvial deposits, but hydraulic mining, as practised in California, was introduced in 1870, and the hill

and valley workings for the precious metals are alike gradually being brought under a more systematic and scientific method of operation. The state of Antioquia is the most important gold-producing region of Colombia; 15,000 or more men and women are employed in mining. The export of gold and silver from the capital of Antioquia during the year 1875, was valued at \$2,403,241, the yield of more than eighty different lodes of the precious metals. Rich as the ores of Colombia are, the mines, on account of the want of routes of transportation, unfavorable climate, civil war and misgovernment, have often been operated at a loss; with the establishment of the reforms already noted, better general results are certain, and doubtless the United States of Columbia will continue, as their territories have been for centuries past, one of the important gold-producing countries of the world.

North of Brazil, and east of the United States of Colombia, between latitude 1 degree 8 minutes South, and 12 degrees 16 minutes North, and longitude 60 degrees and 73 degrees 17 minutes West, lies the country governed by the Republic of Venezuela. The greatest length of Venezuela is about 900 miles, from east to west, and its greatest width, from north to south, 770 miles; the area, including the islands of the coast, has been variously estimated from 403,000 to 431,000 square miles. The coast line from the boundary of British Guiana on the southern shore of the main mouth of the river Orinoco, runs in general west-north-west to Cape Chichibacoa, the northeastern extremity of the Goajira peninsula, to the west of the mouth of the gulf of Maracaybo. The length of this general line is some 1,584 miles, although to follow the shores of the various bays and inlets, increases the distance to 2,000 miles. Of this coast, but a tenth, or about 200 miles, is directly exposed to the Atlantic ocean. From the Boca de Navios, the principal mouth of the Orinoco, 65 miles wide, the coast runs west-north-west, west of the British island of Trinidad, to the shore of the gulf of Paria, a distance of some 200 miles. The first 90 or 100 miles of this line, lies across the northern part

of the great delta of the Orinoco, and over very low lands, part of which are covered by the sea at high water.

The surface of the delta of the Orinoco is divided into many islands formed of alluvial deposits, and is generally overgrown with trees. The peninsula of Paria, between the Caribbean sea and the gulf of Paria to the north, is a ridge of high rocks. As far as Barcelona, near latitude 65 degrees West, the coast continues rocky, though it becomes by degrees less elevated and more even. To the west of Barcelona, the coast is low and sandy, but at Cape Codera it rises into a rugged rocky precipitous wall, which forms the shore to the gulf of Triste. To the west of the gulf of Triste, the beach is low and sandy, broken by mangrove marshes, or rising into an occasional bluff. The peninsula of Paraguaná, east of the gulf of Maracaybo, is rocky, and the northern part of the coast of Goajira, west of the gulf, to Cape Chichibacoa, presents an unbroken perpendicular precipice of rock, of considerable elevation. There are 71 islands along the coast of Venezuela; a few of them are in the mouths of rivers, or in Lake Maracaybo, and these are formed of deposited mud and sand; but the greater number are more or less off shore, and of volcanic origin. The largest of the islands is called Margarita, and of itself constitutes a state; the others are of less importance and some quite small and unproductive. Venezuela has 32 seaports, some of which are the finest harbors in the world.

Venezuela contains three mountain regions, which altogether cover a territory of some 107,000 square miles. The mountains, which are in the north-west, north-east, and south-east portions of the country, form two separate systems. The first is connected with the Andean range in Colombia. At the paramo of Pamplona, in Columbia, west of the north-western border of Venezuela, the mountains form a node or knot, in latitude 7 degrees 15 minutes North, and longitude 73 degrees West. This knot of mountains divides; the first branch runs north, and under the name of the Sierra de Ocana, reaches the boundary of Venezuela, in latitude 9 degrees

North. On the frontier, the range is called the Sierra de Perija, and under that name continues north to the peninsula of Goajira, where its elevations are known as the Montes de Oca. The Sierra de Perija, or the Montes de Oca, are nowhere over 5,000 feet above the level of the sea. The second and principal branch from the Pamplona mountain node, receives the name of the Sierra Nevada de Mérida, and inclining to the north-east, crosses the country about a hundred miles south of Lake Maracaybo, with a mean elevation of 6,000 feet, to terminate in the Sierra Costanera, the Venezuela coast range, with a mean elevation of 4,800 feet, at longitude 68 degrees 30 minutes West. The Sierra Nevada de Mérida comprises 31 summits over 10,000 feet high. The highest land in Venezuela is found in two peaks of the Sierra Nevada, one being described variously, as from 15,000 to 15,310, the other, from 15,066 to 15,342 feet above the level of the sea, the only points in the country above perpetual snow.

The second system of the mountains of Venezuela, is that of the immense region, south and south east of the Orinoco river. This district is occupied by the Parima, or Parime mountains, and contains the Sierra de Pacaraima, which forms part of the boundary of the country on the south. The summit of the Parima is 7,603 feet in height, and beside Mt. Maraguaca, which has an elevation of 8,151 feet above the level of the sea, the range contains a great number of lofty summits. There are also a number of isolated peaks in this most mountainous section of Venezuela, chief of which, the Duida, stands 8,823 feet above the level of the sea. The state of Guayna, which comprehends that part of Venezuela south of the Orinoco river, is to a great extent an unknown region, difficult to explore, and almost, as far as inhabited, the home of various tribes of uncivilized Indians.

Venezuela is in general a very well watered country, with the exception of some arid plains and table-lands, a number of which are treeless deserts. There are many lakes and lagoons in various portions of Venezuela; over 200 such bodies of

water are known, and more, doubtless, remain undiscovered. The lake Valencia, which the Indians call the Tacarigua, is on the southern margin of the pleasant valley of Aragua, and situated 1,599 feet above the sea; there are 22 islands in the lake, and its waters are decreasing from evaporation. The most important lagoon is the so-called Lake Maracaybo, in the state of Zulia, and nearly 100 miles long. Lake Uuare produces excellent salt. Lake Lagunillas in Mérida, is famous for yielding *urao*, called *trona* in commerce, which is the sesqui-carbonate of soda.

The rivers of Venezuela are numerous, and many of them important as large navigable streams, though sometimes flowing through an unexplored and mostly uninhabited country. The Orinoco, the third in size of the rivers of South America, is 1,500 miles long from its origin among the mountains of the state of Guayana; it drains an area of some 250,000 square miles, and after receiving the waters of more than 400 navigable rivers, enters the Atlantic ocean in vast volume through 17 distinct mouths, the principal of which forms a very turbulent bay sixty-five miles across. There are more than 1,000 rivers in Venezuela, and only 12 of the number have their origin beyond the limits of the republic. The Caribbean sea, with the gulfs of Venezuela and Paria, receive 230 rivers, and 400 lesser, yet considerable streams. One hundred perennial rivers flow into the lagoon of Maracaybo, and in the rainy seasons, 400 other streams discharge themselves into the same body of water. However, the great body of water flowing from the territories of Venezuela, falls to the Orinoco valley—and so to the ocean. In the lower lands along the Orinoco, the Indians live in huts elevated on platforms, and sometimes built in trees, in order to secure themselves from the great and not unfrequent inundations. Some of these people seem half-amphibious in their manner of existence.

The geology of Venezuela has not been well explored, except in certain districts which were more or less examined by

Humboldt and Schomburgk. The Sierra del Bergantin, and the mountains in the north-west of the country, which are connected with the Andes, as far east as about longitude 70 degrees West, are granitic; the rocks of the Sierra Costanera or Venezuela coast range are metamorphic; but the surface rocks of the states of Falcón, and Zulia, in the north-west, lying east and west of the lake and the gulf of Maracaybo, are for the greater part of the carboniferous strata. The great llanos or plains of the interior and south-east of Venezuela, supposed to have once been the bed of a vast inland sea, have an argillaceous surface, while beneath the clays and earths is found a sub-stratum of Calcareous rocks. The islands off the Venezuela coast present, in the structure of their rocks, traces of their volcanic origin. The details of the geology of this whole region await discovery and investigation.

Venezuela is one of the most notorious earthquake areas on the globe; considerable shocks are frequent, and actual earthquakes, or movements of the strata and surface of the earth, quite common. These last, are often very disastrous, and sometimes, terribly destructive and desolating. An earthquake which occurred in the month of February, 1610, destroyed a number of towns in Tachira and Mérida; another taking place in October, 1796, laid the whole town of Cumna in ruins; but the most fearful convulsion of all, came on March 26th, 1812, and with a horrible loss of life, utterly overthrew the city of Caracas, which at the time had about 3,000 inhabitants.

The most eastern part of Venezuela, and the island Margarita, were discovered by Columbus on his third voyage during 1498. The next year, Ojeda, and Vespucci, explored a large part of the coast, to which they gave the name of Costa Firme, and Christobal Guerra made a voyage from Spain to discover the commercial value of the new-found country. The aboriginies of the islands and coast of Costa Firme, were found to possess an abundance of pearls, taken from the bays, and large quantities of gold, which last the Spaniards imag-

ined must have been obtained from excessively rich mines in the interior. The Spaniards gave the name of *Costa Firme*, to all the north-eastern part of South America; the present name of *Venezuela*, was derived from the circumstance that when the first explorers entered the gulf and lake of Maracaybo, they found an Indian village built upon platforms supported above the water on piles or poles driven into the bottom of the lake, as is now done by the aboriginies of the Orinoco valley. The appearance of the Indian lake town, as described, reminded the Spanish voyagers of the famous pile-founded, canal-divided littoral Mediterranean city of Venice, and in great good humor, they named the town over lake Maracaybo, *Venezuela*, which signifies, Little Venice; and from this small beginning, this name became that of a great territory, as at present; the old title of *Costa Firme*, being called to memory only by the firm and rock-bound shores of a large part of the country.

The first European settlements in Venezuela, were at Cumana in 1520, and at Coro in 1527. The emperor Charles V at about this time, entrusted the whole northern part of *Costa Firme* to a family of Augsburg merchants named Welser, who held those lands as a fief of the crown of Castile. The agents of these merchants made great, but ill-directed efforts to obtain gold, and about 1540, the precious metal was discovered at several places on the coast, but the Welser's were ignorant of the management of colonies, and their agents neglected everything in their anxiety to kidnap the Indians, who being taken from their homes were sold into slavery. In 1542, the Emperor of Spain resumed possession and direct control of all *Costa Firme*, but the gold mines were found too poor to pay the expenses of working, and the pearl fisheries, which had for a time been productive, became exhausted. It was not until 1634, when the Dutch took possession of the island of Curacao, and began to cultivate cacao and indigo, and to smuggle the same from the main-land, that the natural resources of Venezuela came in part to be developed.

Diamonds have been found in Venezuela in the state of Nueva Esparta, or Margarita; and in the state of Bolivar, amethysts have been secured. In the great southern state of Guayana, gold mines have been opened, and some of them are still productive. The state of Bolivar, on the north of Venezuela, contains gold in a number of places, and gold dust is found in the sands of many of the rivers which in different states flow into the Caribbean sea. Beside the gold, silver occurs in several states, to be noted hereafter; copper is abundant in the Sierra Costanera along the sea shore, yet the mines once productive, were of late unworked; tin, zinc, lead, quicksilver, antimony, and fine beds of iron are known, in various parts of Venezuela; but owing to an ignorance of mineralogy and mechanics, among the people, and to the frequency of political broils and disruptions in the country, the mines of Venezuela are still in an undeveloped condition. With the progress of the republic in civilization, industry and commerce, now well begun, a larger yield of the various metals, gold included, may be expected.

The territories of British, Dutch, and French Guiana, Guyana, or Guayana, east of Venezuela, lying with a low muddy shore on the Atlantic ocean, are more distinguished for their remarkable topography and fertility, than for any known mineral wealth. These Guianas extend from latitude 0 degrees and 55 minutes, to latitude 8 degrees 40 minutes North, and from the coast in longitude 51 degrees 30 minutes, to 61 degrees West, comprising an area of 195,000 square miles. The coast line is 740 miles long; the surface of the land along shore, when drained and cultivated, sinks a foot or more below the level of the sea, from which it has to be permanently protected by dikes. Inland, the lowlands rise into grassy plains or level forests, which rise into hills, succeeded by mountains, some of which are very remarkable and picturesque, the highest point, Mt. Roraima, being 7,500 feet above the sea, crowned with an immense plateau of rock, and presenting an extensive precipice 1,500 feet high. Thus far, the principal im-

portance of Guiana in connection with the history of gold, is in the fact that it was visited by Sir Walter Raleigh in search of that metal in 1595, and unsuccessfully explored by him for mines of the same in 1617.

As a natural geographical division, Central America would include all the narrow, devious portion of the continent which lies between the isthmus of Tehuantepec, and the isthmus of Darien, connecting North and South America. Politically, Central America includes the five independent Republics of Costa Rica, Nicaragua, Honduras, San Salvador, and Guatemala, the isthmus of Panama being regarded part of South America, since assigned to the United States of Colombia; while the isthmus of Tehuantepec and the peninsula of Yucatan, are made parts of North America, being incorporated with the states of Mexico. By this arrangement, the limits of Central America are fixed at latitude 7 degrees and at latitude 18 degrees North, and between longitude 82 degrees and 93 degrees 12 minutes West, a territory from 800 to 900 miles long, and varying in the actual breadth of the lands included from 28 or 30 to some 300 miles, the area of the same being some 175,000 square miles.

The mountain ranges of Central America, are geologically distinct from the Andes of South America, being of a different age and general direction. The Andes may be considered as ending at the neck of the Panama isthmus, where the Naipi and Cupica valleys, reach from the Atlantic to the Pacific, and are nowhere more than a few hundred feet above the level of the sea. Most of the surface of the isthmus, between latitude 8 degrees and 9 degrees North, is less than 130 feet above the sea, and the region, for a hundred or more miles in width, must be regarded as a space between separate systems of highlands. The mountains of Central America, though described as a chain, form numerous detached ranges, which are divided into groups, each taking its name from the locality wherein it is situated. The mountain groups, present peaks from 3,000 to 11,000 feet in height above the level of the sea. There are

many volcanoes, among which those of Fuego and Agua are respectively, 13,000 and 14,000 feet above the sea. During the Tertiary period of geology, the Central American isthmus was the bed of a broad strait, and so remained to the end of the Pliocene, or to the commencement of the Post Pliocene period and the occurrence of the upheaval. The geologic base of Central America is a substratum of granite, gneiss, and mica slate, while an abundance of basalt and other igneous rocks, are scattered over the surface, and prove the intensity of former volcanic action. The extended development of trachytes indicates a still precedent age of volcanic eruptions, during which fiery period, the greater part of the Tertiary strata were changed to porphyritic rocks. Such at least is the supposition, from the fact that the porphyries rest in Central America upon the cretaceous limestones. The clays and sandstones of the Cretaceous age have been metamorphosed in many places, where they are now presented as granitic rocks. The mineral wealth of Central America consists of gold, silver, iron, lead, and mercury; the mines of gold, silver, and iron are worked, but not extensively, and the principal interest of the country is in the fact that it presents two or three and possibly more practicable routes for an inter-oceanic canal from the Atlantic to the Pacific, one or more of which in the hands of Corporations now organized and active, may soon become the channel of a vast commerce, which will change the whole condition of that entire section of the American continent.

The territory of the independent state of Costa Rica, contains many and great mountains, several of which are volcanic. Earthquakes are common; the town of Cartago was destroyed by a very severe earthquake in 1841. Of the 21,495 square miles of land in Costa Rica, but 1,150 square miles are under cultivation. The Atlantic slope of the country, is nearly covered with almost impenetrable forests, the abode of many utterly uncivilized and often hostile Indians. The Costa Rica country toward the Pacific, is more open, present-

ing wide savannahs or llanuras bordered by accessible woodlands. The rivers of Costa Rica are numerous, but small, and flow both into the Atlantic and Pacific oceans. Costa Rica has no manufactures worthy of note, but the country is rich in minerals and metals; the mines have been less developed than in some adjoining states. The gold mines of Costa Rica have received more attention than any other metallic deposits, and have been found very rich. The most important of these are said to be the mines of Trinidad, four miles inland from the seaport of Punta Arenas, and 1,200 feet above the sea, and worked on a small scale by a company of Costa Ricaians. The product of the mines of Trinidad is taken from quartz veins, and is naturally about $17\frac{1}{2}$ carats, or about 729 $\frac{1}{8}$ fine. Next to the mines of Trinidad—perhaps equal—sometimes declared superior, are the mines of the Cerro del Aguacate, in the forest of Aguacate, between San Jose and the coast of the Pacific. The Aguacate gold mines have been worked ever since 1821; they were recently owned by the Costa Rican corporation called "Compania de la Montana del Aguacate," which although employing a poor method, in an imperfect manner, secured good results. Another of the gold mines of these mountain forests, is called the Sacra Familia, situated a slight distance from the old workings previously noted, and 3,000 feet above the level of the sea. The mine of the Sacred Family has two chief veins, one of galena, zinc and silver, with grey copper ore-bearing silver; the second is a lode of gold-bearing quartz, resembling the veins wrought at the mines of Trinidad. The Sacra Familia veins, worked on a small scale by private persons, yield gold of about $15\frac{1}{2}$ carats, or 645 5-6 fine. The mines of the forest of Aguacate, were expected to produce gold to the value of \$10,000,000 during the year 1872. There certainly is gold in the great unexplored forests of Costa Rica, and in time important discoveries of the precious metal in that section, would not surprise the geologist or practical miner, but for the present, the climate, the population, and the natural inaccessibility of the district, turn aside

the course of the prospecting traveler to fields where greater safety is sure, and equal success probable.

North of Costa Rica, the isthmus widens into the territories of the state of Nicaragua, which has an area of about 58,000 square miles, containing numerous highlands, many considerable mountains, and a number of volcanoes of considerable elevation. Of these, Chonco Viejo rises to 6,266 above the level of the sea, and Coseguina is celebrated from the fact that though but 3,835 feet above the sea, during an eruption in 1835, it scattered its ashes, over a circle 1,500 miles in diameter. There are beside the great volcanoes, extinct and active in Nicaragua, many small craters, mostly extinct, and numerous vent holes, called *infernillos*, emitting smoke and sulphurous gases. The whole center of the territory has been a field of intense former volcanic action and earthquake violence, the force of which still remains in part, and is constantly more or less exerted, among the rocky evidences of its former great activity. The rivers of Nicaragua are numerous, and some of them are as extensive as the country, and in part fit for navigation of the lighter kind. The Rio San Juan del Norte, which flows from the lake of Nicaragua to the Atlantic ocean, is passable for bongos and boats for its whole length of 120 miles, and has been made famous by the proposal to make it, as the only possible channel, part of the inter-oceanic canal.

The region of Nicaragua of interest to the miner, lies among the mountains in the northern part of the country; there the strata are in connection with the metalliferous ranges farther north in the territories of Honduras. In the district of Segovia, the rocks are for the most part quartz and gneiss, overlain in many places by sharply-inclined contorted schists, containing fine quartz veins. Unstratified beds of gravel, some 200 or 300 feet thick, are found near Ocotal; they are principally composed of quartz sand, and contain many blocks of quartz and talcose schist, which are riven into angular boulders sometimes as much as fifteen feet in diameter. The great mining center of Nicaragua is the gold field Chontales at Lib

ertad, where over 300 different mines of gold have been discovered, several of which were of late profitably managed by English, German and French corporations. The gold of Chontales is taken from rich auriferous quartz lodes, lying in fissure veins, mostly running from east to west, and cutting almost vertically through beds of dolerite. The quartz lodes vary in thickness from 1 to 17 feet, in a length of no more than 100 yards. The gold procured here, is an *electrum*, formed of about 3 parts of gold to 1 of silver. The gold lodes are also found to contain, in places, sulphide of silver, peroxide of magnesia, peroxide of iron, sulphides of iron and of copper, and occasionally ores of lead. There are several mines of silver in Nicaragua, but slightly worked, to be noted in a future page. Copper, iron, lead, tin and zinc, antimony and quicksilver are among the metals of the country. Coal has been found, but doubtless the full development of the mineral wealth of the state depends upon the hoped-for progress of the future.

To the north-west of Nicaragua, and between latitude 13 degrees 10 minutes and 16 degrees 5 minutes North, and longitude 83 degrees 12 minutes and 89 degrees 47 minutes West, lie the territories of the republican state of Honduras. The country is supposed to have derived its name from the Spanish word *hondura*, meaning depth, on account of the deep waters of the bay of Honduras. From the island of Guanaja, or Bonacca, off the coast of Honduras in the Caribbean sea, Columbus first saw the main-land of Central America during his voyage in 1502. Honduras is 440 miles in length from east to west, and its greatest breadth is 200 miles from north to south; the area of the country is about 50,000 square miles. The Atlantic coast-line is continuous for 400 miles, but the Pacific coast extends but 60 miles to where the territory of San Salvador occupies the north-western shore of the very commodious bay of Fonseca. Honduras comprehends the greater part of the mountain region of Central America, the Sierra Madre, and the branches of that moun-

tain range occupy the western part of Honduras. The Sierra Madre enters the country from Guatemala, and at the mountain node or knot of Merendon, divides into the range called the Espiritu Santo, or the Grita, which having an average elevation of 8,000 feet, ends in Mt. Omoa, 9,000 feet above the sea on the shore of the bay of Honduras, near the 88th meridian of longitude, and into a second range called the Pacaya mountains, which taking a course more in general to the south, ends in the group of mountains called the Selaque, the highest of which being also the highest land known in Honduras, stands 10,000 feet above the level of the sea. There are numerous minor ranges of mountains in the country, running in various directions, a number of them joined together between the valleys of the principal rivers which flow to the Caribbean sea. There are numerous mountain groups and many wide table-lands and terraced plains. The Sulaco-mountains, are quite lofty, and from them streams descend to either ocean. It is to be noted, although traces of former eruptions are abundant in Honduras, the mountains of the country do not display the present volcanic activity to be observed in Central Nicaragua, in Guatemala, in San Salvador, and along the Pacific coast elsewhere. The bay of Fonseca is, however, supposed to be of volcanic origin.

The principal rivers of Honduras are the Segovia, Coco, Oro, or Wanks; the Ulua, formed by the Santiago and Humaya and their tributaries, the Santa Barbara and Sulaco; the Rio Tinto; the Patuca and its tributaries, among which is the Guayape; the Chamelican and other streams flowing to the Atlantic. The Goaseoran and Choluteca are two considerable streams which empty into Fonseca Bay. Large tracts of eastern Honduras are but partly explored, and considerable districts of great beauty and fertility are inhabited only by independent semi-civilized or savage Indians.

The geology of Honduras, though corresponding in general to that of the territories of Central America already described, presents a great wealth of valuable marbles, minerals and

metals. Although the forests of the country have been a source of great profit since the 16th century, the mines of Honduras have been the most important of its industries. Silver and gold are the most abundant metals found, the veins and deposits of these metals discovered and worked here being the richest of any known in all Central America. The silver mines of Honduras are mostly in the south-western mountains, while the gold is more abundant along the shores of the Caribbean sea and the bay of Honduras, which form the eastern coast. Many of the mines of Honduras were formerly successfully worked by foreigners, Englishmen and others, but of late, owing to the want of roads and the political disorders, mining has much decreased. Few gold mines are now operated, the most important and almost only ones open being those of San Andrés in the department of Gracias, and those near San Juan Cantaranas in Tegucigalpa. There are abundant and rich deposits of gold in the sands of various streams in Honduras; extensive and very profitable washings for gold dust are carried on along the banks of the rivers Guayape, Jалан, and Guayambre. The portion of Honduras occupied by Indians exclusively, is known to be rich in precious metals, and it may be expected that in time the supply of bullion from this country, reported at \$600,000 value for the year 1872, may be much increased.

The extreme north-eastern corner of Central America for an area of some 13,500 square miles, is a British colony under the name of British Honduras, or the Balize. The surface of this country is rough, but none of the many mountains present an elevation of more than 4,000 feet above the level of the sea. The principal rocks are of the primary or calcareous strata. The forests yield an abundance of valuable wood and lumber, which constitutes the greater part of the export trade. The rivers are the Hondo, Balize, New River, Manatee, Sibun and others. In the sands of some of the streams of British Honduras, gold has been discovered, but the actual amount hitherto secured is unknown.

The republic of Guatemala, or Guatimala, occupies the lands which lie between from latitude 13 degrees 42 minutes or 50 minutes, to latitude 18 degrees or 18 degrees 15 minutes North, and from longitude 88 degrees or 88 degrees 14 minutes, to 93 degrees 5 minutes or 12 minutes South, the boundaries of the country and of part of the adjoining states not being accurately determined. The greatest length of Guatemala is from north-east to southwest 325 miles, and the greatest breadth about 300 miles, the area being about 40,777 square miles. The eastern coast of Guatemala at the head of the bay or gulf of Honduras, there some 50 miles wide, extends in a general but irregular line toward the northwest, and is, with its indentations at Amatique Bay and elsewhere, some 75 miles long. The western or Pacific coast, which forms a regular but slightly convex line, also toward the north-west, is 175 or more miles in extent. The country has neither been carefully explored or completely surveyed.

Guatemala is mountainous in the greater part of its extent, yet no continued range of mountains crosses its territories. The principal mountains of this region are in an irregular chain along the Pacific coast, generally from 40 to 45 miles inland, having an average elevation of some 7,000 feet, but nowhere rising above the line of perpetual snow, or about 14,500 feet above the level of the sea. In the south-west these mountains are called the Sierra de las Nubes, in the north west the Sierra Madre, and at the boundary of the Mexican state of Chiapas the mountains of Istatan. The table lands of the Mexican state of Yucatan extend southwest into the territories of Guatemala, covering the greater part of the surface of the country. Toward the coast along the Pacific, the elevated surface descends rapidly, and its abrupt declivities present to the sea the appearance of a continuous range of mountains, the crest of the slope being moreover marked by a series of volcanic elevations, a number of which are still active. The elevated levels of Guatemala are not true plateaus such as are found in Mexico, but broad valleys among the extremely va-

ried mountain slopes and terraces. From the Pacific coast, various ranges of greater or less extent extend toward the east, among which the Sierra de Chama, of various local names, the Sierra de Santa Cruz and the Sierra de las Minas, are noted. The Sierra de Copan forms the boundary between Guatemala and Honduras. The volcanoes of Guatemala are numerous and in the same line with those of San Salvador and Nicaragua; at the center of their greatest elevation and action, the Volcano de Fuego, is the principal volcanic hearth of Central America. Counting the extinct and active volcanoes of this country, over 30 considerable craters are known. Among the active volcanoes are Mts. Pacaya, on the southern shore of lake Amatlan; Volcan de Fuego, 12,821 feet above the sea, in latitude 14 degrees 27 minutes 25 seconds North, which is in a state of permanent eruption, discharging masses of lava and smoke every day; Atitlan, 11,849 feet above the sea; Quetzaltenango, 9,358 feet above the sea; Tajumulco, which was in eruption during the earthquake of 1863, and most famous of all, near the Volcan de Fuego, the Volcan de Agua, or Water volcano, 13,108 feet above the sea. This last-named volcano is so called because in 1541 it discharged down its side a deluge of water which destroyed the old city of Guatemala, the ruins of which are now called Ciudad Vieja. This cataclysm is supposed to have been caused by the bursting of a lake in the crater of the mountain. The mountain groups which, forming parallel ridges, intersect, as has been described, the eastern slope of the surface of Guatemala to the bay of Honduras, are nowhere more than 500 or 600 feet above the valleys which lie between them. In the volcanic district, the table-land is some 5,000 feet above the sea.

Guatemala is a well-watered country. On the Pacific slope, the rivers are numerous, but short, small and rapid. Of the streams flowing eastward, there are some of considerable size and importance. The Rio Grande, which flows into the Motagua, forms with that river a stream nearly 300 miles long, navigable to within 90 miles of the capital. The Usumasinta,

or Usumacinta, is 350 miles long, but not at all navigable for craft of any importance. The Polochie, or Polochique, is a beautiful stream 150 or more miles long, but too rapid for navigation by anything but rafts and bongos. An immense number of minor streams unite to form these principal rivers, and in their rapid course convey from the mountains and uplands such an amount of alluvium as to form in several instances bars and shoals at the mouth of the main rivers.

Neither the mountains or the rivers of Guatemala have been fully explored, and the maps of the country in common use are quite unreliable.

The geology of Guatemala has never been thoroughly examined; the only authorities upon the subject are two Frenchmen, Dollfus and Montserrat, members of the great French expedition sent out a dozen or more years ago to explore Mexico and the adjacent regions. The report of these gentlemen was published in Paris in 1868, and in it the savants merely claim to have made a general and preliminary survey of the Guatemalan strata. The basis rock of the district is said to be granite, which with trachytes and various forms of porphyry mixed with and overlain by the products of volcanic action, forms the great body of the Sierra Madre mountains. A curious natural feature of the volcanic region of Guatemala, is to be observed in one of the many lakes of the country. Lake Amatitlan, twelve miles long and three miles wide, situated near the town of the same name, is famous on account of the large masses of pumice stone which lie upon its shores, and of which, large pieces are constantly floating about on the surface of the water.

The slope of country eastward from the Pacific coast range to the Atlantic, exhibits an abundance of mica schists and calcareous formations, supposed to be sedimentary deposits of the Jurassic period. From the crest of the Sierra Madre to the Pacific, the abrupt declivity is covered with alluvium washed from the summits and uplands. The bones of the mastadon and elephant are to be found in places. The porphyritic

rocks determine the structure of the country. Some of the strata are essentially metalliferous, and gold, silver, copper and iron could be mined to a profit, yet Guatemala has no mines of any considerable importance. Under the rule of the Spaniards, some 40,000,000 pesos, \$6,400,000, of silver were secured at Alotepeque, where the mines are still worked, but with less satisfactory results. There are extensive mines of lead known in the departments of Huehuetenango, Vera Paz and Totonicapan. The only working for lead of which report is made, and the sole mining industry of Guatemala, is carried on in the neighborhood of Chiautla in Totonicapan, and chiefly by the Indians of that region.

The republic of San Salvador, one of the smallest independent countries of the world, is the most populous state of Central America, and has a better educated body of citizens than any other member of the confederacy to which it belongs. The territories of San Salvador lie between latitude 13 degrees and 14 degrees 30 minutes North, and longitude 87 degrees 30 minutes and 90 degrees 20 minutes West, along the Pacific coast about 160 miles, with an average breadth of from 40 to 50 miles, comprising an area which has been variously estimated from 7,500 to 9,600 square miles. A narrow tract of low fertile land, about 20 miles wide, formed of alluvial deposits from the interior, extends along the coast of San Salvador for some 125 miles north-west of Fonseca Bay to the town of Libertad, beyond which the surface becomes elevated and irregular. The interior of the country is traversed throughout its length by a chain of mountains formed of several short ranges of moderate elevation. Some 12 or 15 miles from the coast, there is a series of volcanoes, as follows: Apameca, 5,826 feet; Isaleo, an unceasing volcano, 4,060 feet; San Salvador, 7,376 feet; San Vicente, 7,500 feet; San Miguel, 6,680 feet; Santa Ana, 6,615 feet; Cojutepeque, 5,700 feet; Tecapa, 5,200 feet; Usulután, 4,250 feet; Chinameca, 4,750 feet; and Conchagua, 4,750 feet above the level of the sea. San Salvador has frequently suffered from earthquakes.

The chief river of San Salvador is the Lempa, a deep but rapid stream which rises in the lake of Giuja on the north-eastern boundary of the state, and flows first east, then south, for 150 miles in all, more or less, and empties into the Pacific ocean some 60 miles north-west of the southern boundary of the country. The only good seaport of San Salvador, is the very safe and commodious harbor of La Union, on the western shore of Fonseca Bay. Although San Salvador has a well-endowed University, and compared to her sister states, a fairly-educated population, a profitable agriculture and some manufactures, yet owing to political and social causes, the general progress of the state has been hindered. The hills, highlands and mountains of the country contain countless veins of various metals, among which those of the precious kind are not wanting; excellent iron ore is mined near Metapa, but the rich lodes of silver are almost entirely neglected; the product of gold is too small to be known, and the mineral wealth of the state quite undeveloped.

NORTH AMERICA.

The territory of North America presents the general form of a triangle, extending from its apex in the south, at the boundary line of Mexico; in latitude 15 degrees North, and about longitude 92 degrees 12 minutes West, from Greenwich, to Boothia Felix in Bellot strait, latitude 71 degrees 55 minutes North, and longitude 92 degrees 25 minutes West, and from Cape St. Charles on the coast of Labrador, in latitude 52 degrees 17 minutes North, and longitude 55 degrees 35 minutes West, to the Prince of Wales cape in Behring strait, in latitude 65 degrees 30 minutes North, and longitude 167 degrees West. To the north of the mainland, the islands of North America form an Arctic archipelago, which extends toward the North Pole beyond the limits of present discovery. The area is estimated at from 7,400,000 to 8,657,500 square miles. The eastern coast is indented by many great bays, and extends along the main sea and around the shores of Hudson's

Bay, the gulf of Mexico, and other smaller bodies of water, from Barrow strait, above the 75th parallel of latitude North, between longitude 90 degrees and 100 degrees West, to the southern boundary of Mexico, on the Caribbean sea, in latitude 18 degrees 30 minutes North, and longitude 88 degrees West, a distance of 13,000 miles. The western or Pacific coast of North America, extends from Barrow strait to the southwestern corner of Mexico, in latitude 16 degrees North, but on account of the regularity of the shore, and the absence of any considerable gulfs or bays, it is but about 11,000 miles long, making the entire coast line of North America 24,000 miles. If to this is added the shore lines of the adjacent islands, the extent of coast is increased to about 29,969 miles.

The mountains of North America form three great systems, which with their extended water sheds, divide the whole immense region, into four vast hydrographical basins. These discharge their rivers respectively into the Pacific, the Arctic, the Atlantic, and the gulf of Mexico. Minor ranges of mountains subdivide these basins into two or more parts each. As a whole, the mountainous and the level regions of North America, nearly equal each other in extent of surface. The principal mountains are on the Pacific coast, and in general terms may be said to extend the whole length of the territory. To the main range, the old Spaniards gave the name of Sierra Madre, and the whole system has been regarded as a continuation of the Andes, but for reasons already given in the account of Central America, it may be considered a separate, yet somewhat similar geologic structure. By English-speaking people, the North American Sierra Madre or Mother Range, has been called the Rocky Mountains, which title is made to cover in a somewhat indefinite manner, all the highlands of the broken chain from the low valleys and plains extended across the isthmus of Panama, to the extreme north in Alaska. Specifically, the Rocky Mountains are included in the central range in the United States and the British possessions. The Rocky Mountains include several almost parallel ranges like

the Andean Cordilleras. The average elevation is from 5,000 to 9,000 feet above the sea, but there are many lofty summits.

North of the gulf of Tehuantepec, in Mexico, in latitude 16 degrees North, and longitude 16 degrees West, a mountain range arises, which under the name of the Sierra Madre, extends northward, growing wide as it continues, to latitude 21 degrees North, covering, in a broken and irregular way, the country from the gulf of Mexico to the Pacific ocean. The highest peaks in Mexico are Mts. Orizaba, 17,809 feet; Cofre de Perote, 14,310 feet; and Popocatepetl, or Popocatepetl, 17,744 feet above the sea. North of the 21st parallel of latitude, the isolated peaks and table-lands of the Mexican mountains are resolved into three connected chains forming the Cordillera de Sonora, the Sierra Madre, and the Cordillera Oriental, which continue into and cross the United States in three main ranges known as the Sierra Nevadas, the Rocky Mountains, and the Sierra Madre. In the United States, from latitude 35 degrees to 40 degrees North, the Rocky Mountain system is most elevated; there are many peaks more than 14,000 feet above the sea, and the passes between the summits are not more than from 3,000 to 6,000 feet less in height. The Mount of the Holy Cross in the Rocky Mountains, is 17,000 feet; the Big Horn, 15,000 feet; and Mount Lincoln, 14,300 feet above the sea. The Sierra Nevadas and Coast Range are united in the Cascade mountains, which continue north near the Pacific coast of British Columbia and end in Alaska; the highest peaks are Mt. Fair Weather, 14,735 feet, and Mt. St. Elias, in latitude 60 degrees 17 minutes 35 seconds North, 17,900 feet above the sea. In the United States territories of Utah, Wyoming, Idaho, and Montana, are several ranges, the Wasatch, the Bitter Root, the Wind River, and Big Horn, known in general as the Rocky Mountains, the grand chain continuing north, and under the name of the Chippewayan mountains, crossing British America some 500 miles eastward from the Pacific coast, forming the watershed west of the Mackenzie river, and ending upon the coast of the Arctic ocean in lati-

tude 70 degrees North, and longitude 70 degrees West. The Pinal and the Mogollon mountain ranges, are found in Arizona; the Sierra Madre crossing New Mexico, is in Colorado broken into many short ranges and numerous famous peaks, north-east of which, in Wyoming and Dakota, are found the isolated groups of the Black Hills, beyond which lies the great valley of the Missouri river.

The mountains of North America which lie along the Atlantic coast, from 50 to 200 miles from the sea, and thence inland, are included in the Appalachian system, consisting of several parallel ridges which form the two main ranges of mountains. The Appalachian mountains rise in the northern part of the state of Alabama, in the United States, about latitude 34 degrees North, and longitude 86 degrees West, from the level of the local slope toward the gulf of Mexico, and extend to the north-east for 1,300 miles, ending at the promontory of Gaspe on the gulf of St. Lawrence, about latitude 48 degrees 45 minutes North, and near longitude 65 degrees West. The eastern range of the Appalachian system is formed of the Blue Ridge of Georgia, North Carolina and Virginia, the South mountains of Pennsylvania, the Highlands of New York, and the Green mountains of Vermont. The western range is formed of the Cumberland mountains of Alabama, Tennessee, Kentucky, Virginia, West Virginia and Pennsylvania, the Alleghany mountains, which run parallel to the Cumberland mountains for almost their whole length, and the Catskill and Adirondack mountains in the state of New York. Between the two great Appalachian ranges, lies a nearly continuous valley, called according to locality, the valley of Tennessee, the great valley of Virginia, the Cumberland valley, the valley of the Hudson river, and the valley of Lake Champlain. The greatest elevation of the Appalachian mountains is in their southern portion, whence northward they gradually decline. The highest summit is Mitchell's peak in North Carolina, 6,732 feet above the sea; in the same section are many points over 6,000 feet above the sea. Mount Wash-

ington in New Hampshire, one of an isolated group detached from the Green mountains, is 6,285 feet above the sea. Mt. Marsfield, the highest summit of the Green mountains, is 4,359 feet, and Mt. Marcy, the loftiest of the Adirondacks, 5,337 feet above the level of the sea. The entire Appalachian ranges are broken across in places by gaps, low passes or valleys, through which rivers flow, canals have been dug, and railways constructed, by means of which an active commerce is readily maintained between the states of the Atlantic coast and the great region of the valley of the Mississippi river.

North of the gulf of St. Lawrence, the Appalachian system of mountains is traced in a range called the Watchish, the greatest height of which is but from 1,500 to 2,000 feet above the level of the sea. Nevertheless, such is the severity of the climate of Labrador, that the summits of the Watchish range are covered with perpetual snow. West of Hudson's Bay, a range of mountains extends in a broken line from about latitude 50 degrees North, to the shores of the Arctic ocean. Still to the west is the great region of Lakes Winnipeg and Manitoba and the valley of the Saskatchewan river; north of which, extended to the Rocky Mountains, is another lake country containing Lakes Deer, Wollaston, and Athabasca, the Great Slave Lake, Great Bear Lake, and the great Mackenzie and other important semi-Arctic rivers. At a varying distance north of the 52nd parallel of latitude, the country becomes quite unfit for cultivation, and the geography of the north part of the continent is better known to the hunter, the fur-trader, and the Indian, than to the rest of mankind.

From a district on the northern border of the United States, east of the Rocky Mountains, and about latitude 50 degrees North, and longitude 30 degrees West, there gradually arises a broad low swell of land which having no definite summit and seldom rising over 1,500 feet above the sea, extends thence eastward. This upland is so broad and rises by such moderate declivities, that the direction of its slope can be determined in casual observation only by noting the direction of

the streams flowing across the surface. Before reaching the head of Lake Superior somewhere about longitude 17 degrees West, the elevated land divides into two broad ridges which diverge to the north-east and south-west, and form the basin of the great lakes Superior, Michigan, Huron, Erie and Ontario, and connect with the highlands of the valley of the river St. Lawrence, through which, after passing the falls of Niagara, the waters of these lakes, the vast drainage of the center of North America, are discharged into the Atlantic ocean.

North of the great lakes and of the river St. Lawrence, are a number of short rivers which flow south into them, but about 75 miles from the north shore of Lake Superior, there are springs, the head-waters of rivers flowing north into Hudson Bay and toward the Arctic ocean. The watershed toward the great lakes from the south, is very low, narrow and inconsiderable. At the City of Chicago, in the state of Illinois, 18 miles north of the southern end of Lake Michigan and in latitude 41 degrees 50 minutes North, and longitude 87 degrees 33 minutes 40 seconds West from Greenwich, a bayou or lagoon called the Chicago river extends about five-eighths of a mile westward from the lake; this body of water then forms two branches, each about two miles long, extending the one toward the north-west, nearly parallel with the lake shore, and the other south-west in the same manner, and then west. This is the harbor of Chicago, the most important grain port of the world. Into the harbor flow several sluggish streams by which the surface water of the adjoining prairie was formerly gradually drained into the lake. From the head of the south branch of Chicago river there was formerly a portage of only about three miles to the Illinois river, and in seasons of high-water the Indians used to pass entirely over this interval, paddling in their canoes. The Illinois and Michigan canal was dug along this route, 96 miles to La Salle on the Illinois river. During the years from 1866 to 1870 inclusive, this canal, being 160 feet wide, was deepened at a cost of \$3,251,621, the highest level, 26 miles long, being

excavated with the bottom on a line $8\frac{1}{2}$ feet below the common level of Lake Michigan. In consequence, the navigation of the canal was improved, and more important and remarkable, a current was created which keeps clean its own channel, drains the harbor of Chicago, and carries its sewage, with the waters of Lake Michigan, at the rate of a mile an hour, into the Illinois river, to be borne by that stream and the rapid Mississippi, into which it flows, onward even to the distant gulf of Mexico. The south shore of Lake Erie is bolder and in places well elevated, as at Cleveland, Ohio, yet it is nowhere more than a hill ridge, but still is part of the slight barrier which diverts the waters of half the territories of North America, dividing them, as its gentle slopes may tend, to the Arctic or Atlantic ocean, or to the gulf of Mexico.

The great rivers of North America, are the Missouri, the Ohio river, and Mississippi, the St. Lawrence, the Mackenzie, the Kwichpak, or Yukon, the Columbia river, the Colorado river, and the Rio Grande del Norte. The Missouri and Mississippi form one great stream which flows from near the center of North America, through one of the most remarkable and extensive valleys in the world, southward into the gulf of Mexico. The Missouri river (Mud river), rises in several small streams among the Rocky Mountains near the boundaries of Idaho and Montana, near latitude 116 degrees West. The Wisdom river, one of the principal streams which unite to form the head-waters of the Missouri, rises within a mile of the springs of Clark's Fork, a tributary of the Columbia river. The waters of Wisdom river entering the Missouri, flow southward 2,988 miles into the Mississippi, and thence 1,286 miles into the gulf of Mexico. The distance from the confluence of the Wisdom, Jefferson, Madison and Gallatin rivers, which form the Missouri, to the gulf of Mexico, is 4,194 miles. The waters of the springs of Clark's Fork flow into the Columbia river of Oregon, and westward for some 1,400 miles into the Pacific ocean, in latitude 46 degrees 20 minutes North. Thus a single square mile of land divides its drainage between

outlets which by the course of the streams are more than 4,000 miles apart.

The Ohio river, known as *la belle riviere*, to the early French emigrants, is the largest branch of the Mississippi flowing from the east. The Ohio is formed by the confluence of the Monongahela and Alleghany rivers, at Pittsburgh, in the state of Pennsylvania, in latitude 40 degrees 26 minutes 34 seconds North, and longitude 80 degrees 2 minutes 38 seconds West. The Alleghany river rises in Potter county, Pennsylvania, near the southern boundary of the state of New York, and at first flows north a few miles into the last-named state, in about latitude 42 degrees 20 minutes North, and longitude 79 degrees West. At a point but 35 miles south of Lake Erie, the Alleghany turns toward the south-west. In Pennsylvania, the Alleghany receives the waters of French Creek, a stream which is ascended by small steam-boats, to the town of Waterford, but 14 miles from Lake Erie, the head-waters of the Creek being still to the north, and very near the lake shore. Small steam-boats also ascend the Alleghany river 240 miles to Olean, New York, about 45 miles from the head of the stream. At the springs of the Alleghany river, there are a few acres of land, the drainage of which flows, as chance, or very slight irregularities of surface may determine, either southward, by way of the Susquehanna river to Chesapeake Bay; northward, by way of the Genesee river into Lake Ontario and the gulf of St. Lawrence; or nearly west-south-west, by way of the Alleghany, Ohio, and Mississippi rivers to the gulf of Mexico. From the springs of the Alleghany to the outlet of the Ohio into the Mississippi, at Cairo, in latitude 36 degrees 59 minutes, and longitude 89 degrees West from Greenwich, by the course of the stream, is 1,260 miles; the length of the Ohio below Pittsburgh, is 975 miles; its width from 1,000 to 3,000 feet. In a direct line, the distance between the points named, is about three-fifths of that traversed by the tortuous rivers.

The area drained by the Ohio is the center of the eastern

part of the United States, a region some 214,000 or more square miles in extent. The valley of the Ohio is in general uniform, the rivers rolling smoothly through a mostly level country, but having in some places eroded channels of some depth in the limestone and other strata, the abrupt, sloping or terraced walls of which, though seldom picturesque and never grand, are yet of great geologic interest. From the extent of surface drained, the Ohio is liable to great fluctuations in its volume; the entire river rises 45 feet above low-water during its floods, and its upper portion at such times increases in depth 50 and sometimes 60 feet. At the lowest stage of water, boats come up no farther than Wheeling, West Virginia, 86 miles below Pittsburgh. The Ohio is often frozen over in winter, and for a number of weeks, according to the severity of the season, navigation is obstructed by floating ice. At Louisville, Kentucky, nearly 600 miles from Pittsburgh, the Ohio river descends a rapid, or "falls," over limestone rocks, falling for $2\frac{1}{2}$ miles some 27 feet, with a current of from one to three miles an hour. These rapids are ascended by some of the steam-boats, but there has long been a canal around them which admits and passes steam-boats of 3,000 tons burthen. The valley of the Ohio is extremely fertile, and is the scene of an immense agriculture; manufactures thrive there; coal, iron, and other mines are enormously productive; considerable cities are frequent, and these, with other circumstances, make the Ohio one of the most useful and important rivers of North America.

The Mississippi river (Indian *Miche-Sepe*, Great River, or Great Father of Waters), is in connection with the Missouri, the longest river in the world, unless the Nile of Africa may measure more. The Mississippi itself rises in a beautiful lake, clear and deep, 7 miles long, and from one to three miles wide, in latitude 47 degrees 14 minutes North, and longitude 95 degrees 2 minutes West. This lake was called Omoshkos Sagainon by the Chippewa Indians, Lac la Biche by the French traders, and Itasca by Schoolcraft, who saw it in 1832. Lake

Itasca is 1,575 feet above the level of the sea, and its waters flow rapidly south all the length of the Mississippi river for 2,616 miles into the gulf of Mexico. The Mississippi river receives through its many tributaries the drainage of about 1,350,000 square miles of territory, the various streams contained therein having a navigable length of about 35,000 miles, varying with the stage of water.

The St. Lawrence river flows directly from the eastern outlet of Lake Ontario eastward 750 miles to the gulf of St. Lawrence. The St. Lawrence is $2\frac{1}{2}$ miles wide where it leaves the lake, and more than 30 miles wide as it enters the gulf. The early French geographers regarded the great lakes of North America as part of the St. Lawrence river, and stated its source to be the river Nipigon, on the north side of Lake Superior, or the St. Louis river, flowing into the south-western extremity of the same lake. From the head of either the Nipigon or St. Louis rivers to the gulf of St. Lawrence, is more than 2,000 miles. The St. Lawrence river drains a territory of over 600,000 square miles, and its basin has been calculated to contain "more than half of all the fresh water on this planet"; the recent discovery of the great African lakes makes the conclusion doubtful, however. The St. Lawrence river is navigable by sea-going vessels for 600 miles to the city of Montreal. Above this point there are rapids, which though descended safely by steam-boats drawing seven feet of water, are very difficult of ascent even by the same boats; in consequence, canals have been constructed along the river, and by these, as supposed to be completed and ready for use, the summer of 1880, vessels of 270 feet of total length, with a beam or width of 45 feet, and drawing from 12 feet to 14 feet of water, can pass from Duluth, Minnesota, in latitude 46 degrees 48 minutes North, and longitude 92 degrees 6 minutes West, or from Chicago, and without breaking bulk, convey the grain and other produce of "the great North-West" to any port in the world.

The Mackenzie river, named after Alexander Mackenzie,

who discovered it in 1789, flows from the Great Slave Lake west, in latitude 60 degrees 30 minutes North, and longitude 40 degrees West, and runs to the north-west 1,200 miles to the Arctic ocean, which it enters through several mouths in about latitude 69 degrees North, and longitude 60 degrees West from Greenwich. The head-waters of the Maekenzie river are really found in the springs of the Athabasca, Athapesco, or Athapescow river, which rises in the Rocky Mountains in latitude 52 degrees 10 minutes North, and longitude about 40 degrees West, a short distance from the source of the Columbia river of Oregon. From about the first of June, the Mackenzie river is free from ice and navigable all summer for small steam-boats from the Great Slave Lake to the Arctic ocean. The row boats of the voyagers of the Hudson Bay Company, ascend with but two portages the Maekenzie river and its tributary, more than 2,000 miles from the Arctic ocean.

The Columbia or Oregon river, was discovered and navigated in 1792, by Capt. Robert Gray, who crossed its bar in the ship *Columbia Rediviva*, of Boston, Mass, and gave the name of his vessel to the rapid stream. This river was first explored in 1804 and 1805, by Captains Lewis and Clarke, under orders of the United States War Department. The Columbia river rises in Otter lake, on the western slope of the Rocky Mountains, in latitude 50 degrees 30 minutes North, and longitude 39 degrees West; the river flows north-west, west, and south into the United States, and so across Washington territory to latitude 46 degrees North, where on the northern boundary of Oregon, it turns quite abruptly West, and continuing that general course, forms the same boundary to the Pacific ocean, which it enters after a course of over 1,200 miles in latitude about 46 degrees 15 minutes North, and longitude 47 degrees West. Though of great volume, the Columbia river has a very rapid current; the violence of its flow expels the sea-water, and its waters are very little brackish, even on the bar at its mouth. Ocean steamers, draining less than 20 feet of water, can enter the Columbia river at low

tide and ascend the stream 115 miles to Vancouver. Small steam-boats of 200 or 300 tons, ascend the river 165 miles to the Cascades. Here, there is a portage by railroad for six miles, when navigation is continued for 40 miles to the Dalles. Above this, by means of portages around various falls and rapids, the lighter kind of navigation is pushed northward beyond the boundary of the United States and to Upper Arrow lake, in latitude 50 degrees 30 minutes North. The Columbia river flows through a nearly wild and remarkable country but partly known, and presents along its course among the mountains, the most sublime and beautiful scenery.

The Colorado river, otherwise the Rio Colorado (Red River), or Colorado river of the West, formed by the confluence of Green and Grand rivers in the south-eastern part of the territory of Utah, about latitude 38 degrees North, and longitude 33 degrees West, is in many respects a very remarkable stream. The Colorado river is about 1,200 miles long, but its principal tributary, the Green river, rises at Fremont's Peak on the borders of Wyoming territory, whence southwest to the gulf of California is more than 2,000 miles. Between longitude 35 degrees and 38 degrees West, the Colorado river, as a mighty torrent, forces its way across the line of the mountain ranges, creating for some 200 miles a Grand Canon, gulch or ravine, the nearly perpendicular walls of which are from 4,000 to 7,000 feet in height above the water. There are other Canons along the Colorado and its tributaries, of a tremendous nature, but less important than the one described. The Grand Canon of the Colorado has been passed on a raft, and by a United States Government exploring party, but the undertaking was found extremely difficult and most terribly dangerous. The head of navigation for boats and barges on this river is at Callville, 612 miles from its mouth.

The Rio Grande, Rio Grande del Norte, or Rio Bravo del Norte, is a very singular river; it rises in the south-western part of the state of Colorado, between the mountain ranges of La Plata and San Juan, about latitude 38 degrees North, and

longitude 30 degrees West, whence it flows with a general south-eastern course to the gulf of Mexico, forming, east of the 30th meridian of longitude, the boundary between Texas and Mexico. The entire length of the Rio Grande is estimated at 1,800 miles. The upper portion of the stream descends over many ledges and cataracts; the river lower down is obstructed by numerous wooded islands and sand-banks; small steamers have, however, ascended the Rio Grande to Kingsbury's rapids, about 450 miles from the gulf of Mexico. In April of each year, the melted snows of the Sierra Madre begin to swell the volume of this river, which is soon flooded. The waters are at the highest early in May, and fall again in the later part of June. Soon after, the bed of the Rio Grande is fordable, almost anywhere above tide-water. The Rio Pecos, the most important tributary of the Rio Grande, which in the spring is a powerful river 700 miles long, presents at the dry season a bed of dry rock or dust. These rivers flow through a rocky, arid region for the most part, and even their valleys, from 1 to 4, or in places 10 or 15 miles wide, are fertile only when irrigated.

There are many other large rivers in North America, beside the principal ones already described. Among these may be named the St. John, in New Brunswick; the Kennebec, Penobscot, and Androscoggin, in Maine; the Merrimac, in New Hampshire; the Connecticut, flowing south across New England; the Hudson, in New York; the Delaware, flowing into Delaware Bay, between Pennsylvania and New Jersey; the Susquehanna, rising in New York, flowing across Pennsylvania and part of Maryland, to the Chesapeake Bay; the Potomac, between Maryland and Virginia; the James river, in Virginia; the Tennessee, the Cumberland, and Wabash rivers, tributaries to the Ohio; the Red river, Arkansas river, Des Moines river, and Minnesota river, flowing into the Mississippi; the Tombigbee, and Alabama rivers, in Alabama; the St. John's river, in Florida; the Chattahoochee river, between Georgia and Alabama; the Santee, and Great Pedee

rivers, in North and South Carolina; and, west of the Mississippi, in Mexico; and north in the Dominion of Canada, an uncounted number of streams, large as these, but less famous in history, and for the most part requiring no notice in this very general statement.

To the geology of America, both North and South, reference has already been made in this essay, upon pages 305-6-7, and brief as the account already given is, but little more can be done regarding so vast and complex a subject, in the space to which the matter must in this connection be confined, and so with a mere glance across the continent, the student must be referred to the numerous and well-known works of the American geologists themselves, and the voluminous reports of the various explorers. Only a protracted and thorough study, can do even partial justice to the most interesting and important subject, or to the elaborate works of those who have applied themselves for many years to its investigation and illustration. To the possibly careless, or preoccupied reader, it may seem that so much as has already been given, regarding the configuration, extent, and natural features of North America, is not altogether necessary to an account of *American And Other Gold*, under which head the whole description of the mountains, valleys, and rivers, of its vast territories have been introduced. It must, however, be remembered, that something more than mere statistical statement is intended, and in the broad general geographical, topographical and geological description, those who choose to read, may gather the special information needed for an intelligent comprehension of the subject of the mineralogy of the country described, and the natural causes which have operated to form the varied mineral and metallic deposits—the coal, iron, copper, and other mines, the great veins of silver, and richest of all, the superlatively productive gold fields of North America.

Crossing North America from the east, along the line of latitude 39 degrees 57 minutes North, which runs along Chestnut street in the center of the city of Philadelphia (and through

the office of the publisher of this work), the geologic formations are discovered in the following order :

First. As in the state of New Jersey, and along the shore of the Atlantic to the South : The Tertiary and Cretaceous strata, the drift of adjacent mountains, or sedimentary matter from receding seas.

Second. Gneiss rock, in geologic order underlying the Tertiary and Cretaceous formations, and presented in the surface of the Alleghany or Appalachian mountains, though covered in parts by the New Red Sandstone.

Third. The Palezoic rocks, of the Silurian, Devonian, and Carboniferous strata, "curiously bent into parallel folds with synclinal and anticlinal axes, the crests of the latter forming the ridges of the Alleghany mountains" which at their summits in central Pennsylvania, are 2,500 feet above the sea. Upon these Palezoic rocks, rest the great Appalachian, Illinois, and Michigan coal fields, covering an area of about 100,000 square miles, a large part of the territories from the Alleghanies to the Mississippi river.

At Louisville, Kentucky, to the south of the line of observation we have chosen, and in latitude 33 degrees 3 minutes North, and longitude 85 degrees 30 minutes West, the erosion of the Ohio river has denuded the Palezoic rocks, which are there presented in a manner equalled in very few places elsewhere. Along the banks of the Ohio, and at Louisville in particular, the rotten limestones which form "the Blue Grass region of Kentucky," in the process of disintegration supply the geologist with many remarkable fossils. Fine specimens of Palezoic remains have often been taken at low water, from the rocky shoals of the Ohio river at this city.

From the Mississippi westward along the original line of observation, in or near the latitude of Philadelphia, through Missouri, in the neighborhood of the town of St. Joseph, and still west, near the northern boundary of Kansas, and across Colorado, just north of the town of Denver, through Utah west, passing north of the town of Nephi in that territory,

the Paleozoic rocks continue, and are found in great mountain folds, between which are broad areas of Triassic, Oolitic, Cretaceous and Tertiary beds.

The rocks of western Nevada and California, are mostly the metamorphosed secondary strata, covered in part by Tertiary sediments.

British America, north of the great lakes, shows an enormous development of Laurentian and Huronian rocks, which are the oldest known geologic formations. The island of Newfoundland, and the Maritime provinces of the Dominion of Canada, are formed of the Pre-Silurian, Silurian, Devonian, Carboniferous, and Triassic rocks. The Carboniferous strata there include bituminous coal-beds of considerable extent and commercial importance.

Immediately west of the valley of the Mississippi, the Ozark mountains present elevations of from 1,500 to 2,000 feet, the geologic structure of which contains the same granitic, carboniferous and other higher forms of rocks as are found on the opposite side of the great central North American basin, a thousand miles to the east in the Alleghanies.

From that which has already been stated, regarding the general character of North America, its configuration, mountain structure, watersheds, lakes, rivers and geologic history and development, the careful student will have inferred the existence of two principal gold fields in this division of the Western Hemisphere of the globe, the indications pointing to the situation of these fields in the west, along the ranges of mountains, or the beds of the rivers on the Pacific coast, and in the east, in the region of the various highlands which, under the general name of the Appalachian mountains, stretch along the borders of the Atlantic. And such is in fact the position of the deposits of gold, the veins, the mines, the "pockets" and other sources of that precious metal in North America.

The western North American gold field, extends comprehensively over the whole mountain region west of the Mis-

Mississippi river, and north of the isthmus of Tehuantepec, and Yucatan, to the extreme northern line of Alaska, all along the shore of the Pacific ocean and far eastward toward the interior. The chief production of gold has, however, been from limited districts of this great area, and in those districts are found the oldest and most recent North American discoveries of gold, as well as decidedly the most important sources of the precious metals heretofore known, at least in modern times.

As to the abundance of gold found in the possession of the Indians of the Pacific coast of all America, at the time of the original Spanish explorations and conquest of the country, after 1492, the reader will recall or refer to pages 272 to 280 of this article. In addition to the account there given, it may be noted that the great architectural ruins of aboriginal edifices abound in the region of southern Mexico, as well as in the countries lying either side of the equator. Beginning by wholesale extortion, and robbery of the Indian temples, palaces, tombs, and other grand public buildings, the Spaniards continued the strenuous search for gold by excavations amid the ruins they considered it their Christian duty to aid slowly-working time in creating. The amount of gold thus exhumed, after the visible stores of the same had been exhausted, is, notwithstanding the statistics of the Spanish officials, utterly unknown, except in certain cases.

A single instance, may give some idea of the wealth, which must have been obtained, by those who in earnest efforts to annihilate the evidences of a high and beneficent yet "heathen" civilization, Christianize their slaves, and enrich themselves, continued their work of Vandalism and rapine for generation after generation, until even in the present, the search for treasure among the ruins of the central part of the American continent is continued, and is sometimes successful. In 1577, a Spanish explorer named Toledo, dug into one of the *huacas*, or vast pyramidal structures, tombs, or temple sites, of Northern Peru, and from the excavation he made, obtained a quantity of gold and silver valued at \$4,450,284. The enthusiasm of

avarice aroused by this and similar discoveries, was such that the mines and natural sources of gold in America were for a time measurably neglected. Waiving the question of morals, it is easier to overreach the weak and plunder the helpless, than to create wealth.

Mexico, or in the language of the country, *Estados Unidos de Mejico*, derives its name from the Aztec word *Mexilli*. The territories of the federal republic of Mexico are included between latitude 15 degrees and 32 degrees 42 minutes North, and longitude 86 degrees and 117 degrees and 7 minutes West. The shores of Mexico are bordered by a strip of low land of sandy character some 30 miles wide, and seldom if ever over 1,000 feet above the sea. This tract appears to have been covered by the sea at a recent geologic age. Inland, immense terraces arise to a vast table-land having an average elevation of 8,000 feet. To the north, away from the seas, the table-land extends far into the territories of the United States. The journey from the city of Mexico to Santa Fé, some 1,200 miles, can be made over this flattened mountain crest, with comfort and safety in a four-wheeled wagon. Mexico contains, however, nearly a score of mountains from 9,041 to 17,540 feet above the sea. Ten of these principal peaks are volcanoes, four of which, namely : Popocatepetl, Orizaba, Toluca and Iztaccihuatl, have summits from 1,705 to 3,540 feet above the line of perpetual snow. The evidences of volcanic action are most abundant in the south of Mexico; the most active crater is that of Mt. San Martin, or Tuxtla, near the town of the same name in the state of Vera Cruz. This volcano is crowned day and night with a column of flame, which constantly ascends to such a height as to be visible far off shore over the waters of the gulf of Mexico, forming thus a most remarkable natural pharos, or light-house for the mariner approaching the dangerous coast.

Mexico, though discovered as early as 1517, by Francisco Fernandez de Cordova, who visited the coast of Yucatan that year, and known to the world as a country rich in metals and

minerals ever since Juan de Grijalva, in 1518, made a voyage thither, explored in part the coast, opened friendly communication with the Aztecs and freighted a ship with gold, jewels, and other treasure; and controlled by Europeans since its conquest under Hernan or Hernando Cortes, or Cortez, 1519-1521; has never been scientifically explored. The geology of Mexico is but partly known. The extreme south of the country presents mountains composed for the greater part of porphyry, with limestone and clay slate, the last two formations being least in extent, but most important, on account of containing frequent veins of silver, copper and lead. The mountains of the state of Oajaca, or Oaxaca, included between latitude about 16 degrees to 21 degrees North, are mostly granite, this form of rock being most conspicuous in the loftiest summits of these ranges. The great central table-land of Mexico, already described, rests upon a substratum of granite, above which are masses of porphyries containing rich veins of gold and silver, the other superincumbent rocks consisting of basaltic lavas in immense fields, trachyte, clay slate, amygdaloid, syenite, serpentine, dolorite, limestone and sandstone. Among the rocks are many and large caverns, that of Cacahuamilpa being considered the most extensive cave in the world.

While an exploration and study of the geology of Mexico has been neglected, it has been found a country of pre-eminent mineral wealth; so far as already known, the varied mineral and metallic resources and products of Mexico, exceed those of any country, not excepting even the famous riches of Peru. Passing without further notice the valuable quarries of marble, alabaster, gypsum and rock salt, the deposits of sulphur, the numerous small, almost entirely unworked beds of coal, and the great number of wide-spread mineral springs, it may be said that the base but useful metals abound in Mexico. Immense masses of iron are found at Coalecoman, in the state of Michoacan, and at Lagos, in the state of Jalisco. The Cerro del Mercado, in the state of Durango, is one vast and solid mass of magnetic iron ore. In the Mexican states of Chihua-

hua, Sonora, Guanajuato, Mexico, Guerrero, Jalisco and Michoacan, copper has been found in considerable quantities, generally in association with a greater or less amount of gold. In the states of Jalisco and Michoacan, are ores of tin. Silver abounds in practically illimitable quantities in many parts of Mexico, and lead frequently is found in the same connection. A further reference to Mexican silver will appear upon a succeeding page. The richest ores of lead are in the state of Oajaca, or Oaxaca. The Cinnabar, or red sulphuret of mercury, has been discovered in many of the Mexican states. The usefulness of mercury and its ores in the reduction of silver, was first discovered in the sixteenth century by a Mexican miner of Pachuca, by the name of Barlolomé Medina. Since then, the various uses of mercury have increased, and of late immense quantities have been consumed in processes for securing gold. In consequence, though new sources of supply have been discovered in California, the price of mercury has been high, and under the stimulation of a good demand, valuable mines of Mexican quicksilver have during recent years been developed in the states of Morelos and Guerrero. The states of Tlaxcala and Hidalgo have of late been found to contain platinum, a metal almost as valuable as gold, and on account of its power of resisting heat and chemical action, extremely useful in the arts.

The Aztecs, a highly-civilized race of Indians, described in part on page 38, who governed most of Mexico before the advent of the Spaniards, found the placers of the country they had conquered from still other Indians, abounding in gold, in grains, coarse gold and nuggets; these forms of the precious metal were collected by primitive processes, but to vast amounts. The silver being found for the most part in ores too obdurate for very successful treatment by such simple methods as were known to the Indians, was but little used by them. In consequence, Mexico was first known in Europe as a rich source of gold, but when improved machinery and more scientific processes were brought to bear upon the ores of sil-

ver, the country was regarded by the capitalists of Europe as almost one vast silver mine, and the yield of gold, though still considerable, was found to be of minor importance. Ever since, the coinage of gold in Mexico proper, has been small in comparison with the vast number and value of silver pieces issued by the numerous mints. The total product of the precious metals in Mexico, since its discovery by the Spanish adventurers, and up to 1880, is estimated at a value of \$4,404,627,696, of which the Mexican mints had coined \$2,151,581,961.81. In 1881, there were eleven mints in Mexico, coining an average \$21,644,261 each year, of which amount, an average of but \$743,595 a year was in gold. The product of gold from Mexican mines during 1879, was officially estimated at a value of \$989,161.

In 1870, there were, beside workings for silver, 40 gold mines in the state of Oajaca, or Oaxaca; in the state of Sonora, there were at the same time 144 mines, yielding gold for the most part, and beside 583 very rich mines in which work was, nevertheless, suspended. Of late years, the gold mines of the states of Guerrero, Mexico and Michoacan, have been made profitable, the placers have become too much exhausted to make rich returns to such manipulations as the Aztecs or their immediate successors, the old Spaniards, employed, yet with modern machinery and methods, a large yield and heavy profit can be obtained from these and many other half-wrought deposits. Vast as the yield of precious metals from Mexico has been, however numerous the failures of rash foreign speculators in the known mines of that country, there is every reason to expect that with the maintainance of a stable government, and the general progress of the republic, still richer mines of silver and gold may be discovered through geologic exploration.

The state of California, lying between latitude 32 degrees 28 minutes and 42 degrees North, and longitude 114 degrees 30 minutes and 124 degrees 45 minutes West, bears the name once applied by the Spaniards to the territories claimed by

them from about latitude 23 degrees North along the Pacific coast outside of Mexico, and indefinitely east over the Great Basin, and northward to the Arctic Circle. This name of California is supposed to have been derived from a Spanish romance published at Seville, Spain, in 1510, entitled *Las Sergus de Esplandian*, or the Sugas of Esplandian, the son of Amadis of Gaul. California is twice mentioned in this book, a portion of which reads: "Know that on the right hand of the Indies, there is an island called California, very near to the Terrestrial Paradise, which was peopled by black women without any men among them, because they were accustomed to live after the manner of the Amazons. They were of strong and hardened bodies, of ardent courage, and of great forces. The island was the strongest in the world, from its steep rocks and great cliffs. Their arms were all of gold, and so were the equipments of the wild beasts they rode"; and elsewhere: "In the island called California, are many griffins, on account of the great savageness of the country, and the immense quantity of wild game to be found there."

The name of California appears in the writings of Bernal Diaz del Castillo, an officer in the army led by Cortes to the conquest of Mexico, but in this case, the name was given merely as that of a bay on the coast of the Pacific. Lower California was first discovered in 1534, by Ximenes, a Spanish explorer. The territories included in the present state of California, were discovered by a Portuguese named Juan Rodriguez Cabrillo, in 1542, at which time he was a navigator in the Spanish service. Cabrillo explored the Pacific coast as far north as Cape Mendoza, now called Cape Mendocino, in latitude 40 degrees 30 minutes North. It is presumed that the officers of Cortes, or the discoverers named, being impressed by what they believed to be the resemblance of the country to the imaginary land described in the then popular romance *Las Sergus de Esplandian*, gave the name of California to the regions so long known by the same. The Spanish Americans continue to call the peninsula lying west of the

gulf of California, *Baja (Lower) California*, the state of California in the United States, *Alta (Upper) California*, and the two, *Las Californias (The Californias)*.

In 1578, Sir Francis Drake of England, being on a notorious buccaneering expedition, and at the same time bent on discovery, colonization, and the circumnavigation of the globe, arrived off the western coast of North America, in latitude 37 degrees 59 minutes 5 seconds, and finding an anchorage for his vessels in a body of water still called Drake's Bay; or perhaps in the harbor of San Francisco itself, made a landing. Ignorant or regardless of the claims of the crown of Spain, Drake assumed to take possession of the country in the name of Queen Elizabeth of England, and to what he regarded as the newly-discovered or rightfully-acquired territories around his landing place, he gave the name of New Albion. There, for a time, the expedition remained. The historian Hakluyt, Secretary of Drake, makes particular mention of abundance of gold to be found in New Albion, but the fleet under Drake's command was loaded already with the spoils of Spanish towns and ships, and he was more eager to refit and refurnish his ships to find a safe way back to England, than take time to make extensive explorations.

The Spaniards, whose success in America fired their imaginations with boundless expectations of sudden wealth, came to consider every new country they discovered the true *El Dorado*, found at last; conceived the Californias to be immensely rich in gold; neither could they be persuaded otherwise, though of all the numerous expeditions thither in pursuit of the precious metals and gems, every one resulted in a miserable failure. In 1602, General Sebastian Viscayno, under orders from Philip III of Spain, explored the coast of California as far north as the bay of Monterey. However, for the greater part of a century after this, California was supposed to be an island, and for some time bore the name of *Islas Carolinas (Carolina Islands)*, in honor of Carlos, or Charles II of Spain.

The first settlement in Lower California, was by the Jesuit missionaries in 1683. The first settlement in Upper California, was by the Franciscan Fathers at San Diego in the year 1767. On October 25th, 1769, a party from San Diego, discovered and named the bay of San Francisco, being probably the first white men ever there. In 1776, the Franciscans founded a mission at San Francisco, now known as the Mission Dolores. Within a half century, the Fathers of the Order of St. Francis, established more than a score of missions in California. The conversion and civilization of the Indians, was made to mean their reduction to abject bondage for the benefit of the Fathers and their dependents. The Mission lands were extended to cover nearly all the coast to latitude 39 degrees North. Some 20,000 Indians were kept as slaves, worked, whipped, tortured, but few were at all educated. The Missions were walled villages, defended by the Indian farm slaves; free-traders were expelled, though there was a considerable commerce with Russia.

The Franciscans made a monopoly of California, and preserving their knowledge of the country, became enormously wealthy, in stock of all kinds, in specie, in bullion, and in gold and silver ornaments, statues, crucifixes, and the like, displayed in their churches.

For a definite knowledge of the mountains, rivers, and other geographical features of California, having relation to the product of gold, reference must be made to that which has already been stated herein, in the general description of North America, and farther, to the various well-known works upon the subject.

The geology of California is partly described in the "Geological Survey of California" and the "Progress of the Geological Survey, 1870-'71," works made up of the reports by Professor Josiah Dwight Whitney, of Northampton, Massachusetts, of a survey made under him, as State Geologist, by authority of the state of California, from 1860 to 1874; beside which scientific authority, there are many modern books on

California, by S. Hittel, Franklin Tuthill, K. Ruhl, Titus Fey Cronise, Charles Nordhoff and others, which though of varied purpose and private origin, still contain much of reliable information concerning the rocks, minerals, and metals of the state. The special and elaborate works of Blake, Phillips, Dana, Delmar, Davies, King, and other writers upon the subject of gold, must also be studied.

The strata of California are of comparatively simple structure, belonging chiefly to the palaeozoic and tertiary periods, the rocks being mostly granitic and of the secondary and tertiary ages; the secondary formations are found in the high mountains, and the tertiary beds in the valleys.

The *Sierra Nevada*, or Snowy Range, consists of a number of minor ranges, which form the grandest and most interesting mountain system in the United States. This aggregation of mountains, considered most comprehensively, covers the eastern portion of California, for a breadth of about 75 or 100 miles, extending from Mt. San Jacinto, 600 miles northward, to Mt. Shasta, an extinct volcano, 14,442 feet above the sea, in Siskiyou county, and about latitude 41 degrees 15 minutes North. More critically regarded, according to exact geologic indications, the Sierra Nevada extends south from Mt. Shasta but 450 miles. The central axis of the Sierra Nevada, and almost the entire body of its mountains, in the south, are of granite. The highest points of the Sierra, in the most elevated section of the system, are all of granite. In the central and northern region, there are a few high peaks of metamorphic rock, while numerous extinct volcanoes are found crowned with volcanic matter, such as basalt and other lavas, breccia, and heavy beds of ashes. The proof of very recent igneous action is everywhere visible. Geysers and hot springs are numerous, and earthquake shocks occasionally occur. The snow falls on the Sierra Nevadas to the depth of 40 or 50 feet, and though the torrents and rivers flowing from the heights where it melts, have denuded the rocks and scored the mass of the mountains with many deep ravines and great canons, yet much

of it remains through the whole summer. Enormous glaciers are thus formed, and the worn and rounded granite masses of these ancient mountains, bear on their scarred faces, a record of the tremendous force and long continued action of the vast and ponderous weight of immense moving ice fields.

The flanks of the Sierra Nevada are covered by very heavy bodies of metamorphic slates of secondary age. These rocks are chiefly argillaceous, chloritic, and talcose formations, but include a great variety of other metamorphic rocks in smaller quantities and some large seemingly disconnected patches of limestone. This limestone belt follows the line of direction of the axis of the range, and except a few carboniferous fossils found in two or more localities in the extreme north of the state, is destitute of organic remains. In the southern part of California, the limestones are metamorphosed and often appear as marble. The slates which flank the Sierra Nevada are auriferous, and in them occasional fossils have been found near well-marked and productive veins of gold-bearing quartz. These fossils of the slates are of the jurassic age, no silurian or devonian forms having been discovered in the Sierra Nevada ranges. Triassic fossils have been found in one locality of limited extent in Plumas county. The eastern ascent of the Sierra Nevada is short and precipitous, in some places 1,000 feet to the mile, to an average elevation of from 4,000 to 5,000 feet above the level of the sea. From the crest whose highest peak is Mt. Whitney, 14,886 feet above the sea, the Sierra Nevada slopes toward the west by comparatively easy descents of 300, 240, and 100 feet to the mile. The western slope is marked here and there along the valleys of the Sacramento and San Joaquin rivers by undisturbed marine, tertiary and cretaceous strata.

The Californian Coast Ranges, along the Pacific, consist for the principal part of cretaceous and tertiary marine strata, the rocks being mostly sandstones and highly bituminous shales. The cretaceous formation appears, most prominent in the south; above San Francisco the mountains become rougher

and more lofty, the rocks have been metamorphosed to a great extent, and through these strata the granite has been uplifted. Everything in the Coast Range indicates recent and very great geologic disturbances, the effect of seismic forces. In certain places in the Coast Range, large masses of strata, of the Pliocene age, have been found turned on edge. Elsewhere, in the same range, the strata of the Miocene Tertiary age have been upheaved, near to the perpendicular, by the protruding granite. However, the evidences of volcanic action at a late date, are most noticeable in the north-eastern corner of the state, among the Sierra Nevadas.

The mineralogy of California is to be noted for its simplicity. Of the 700 or more known mineral species, but about 100 are there to be found. The volcanic rocks of other countries abound in silicates, and their vein stones contain fluor spar and barytes, but in California these are of rare occurrence. The absence of Zeolites is another remarkable fact. The minerals and metals mined for in California with success, are very few, mostly gold, mercury, copper, and silver. Tin is found in the Temescal Range of mountains, about 40 miles south-east of Los Angeles, but the mines were abandoned. Zinc and lead occur in sulphurets bearing small quantities of the metals in gold-bearing quartz veins, which are worked only for the gold. The iron ores of California are abundant, but unavailable, for want of good and cheap fuel. There are extensive deposits of lignite and imperfect coal in California, but the only important mine is that at Monte Diablo, which yielded some 175,000 tons a year. The coal raised at Monte Diablo is used only for domestic fires, as it is highly sulphurous and contains some 10 or 12 per cent. of water. Borax is produced in California to the value of more than \$400,000 a year, and sulphur has been successfully mined, for the manufacture of acid.

The gold product of California will be considered at large on immediately succeeding pages. Large amounts of money have been expended in California in efforts to develop the

silver-bearing lodes of the state, but without any very great success. The particulars regarding these silver mines will appear upon future pages devoted to that metal. Next to gold, the most important metallic product of California has been quicksilver, or mereury. Of this metal, so important in the processes of amalgamation used for obtaining the precious metals, there are mines in various parts of the world, notably at Almaden, in Spain (which rich deposit was leased by the Spanish government to the great Hebrew bankers the Rothschilds); at Idra, in Illyria, Austria; in the Palatinate of Bavaria; at Ripa, in Modena, Italy; at the Vall' Alta, in Venetia, Italy; at Montpellier, in France; in Chili; at Huancavelica, and elsewhere, in Peru; and in many localities in Mexico, the present annual production of them all, being reported in Paris, in 1867, at 3,123,120 pounds of the pure metal each year, beside a large amount of cinnabar.

Quicksilver (*argentum vivum*, or *hydraargyrum*), or Mereury, was first discovered in California by the Indians, at a place now known as New Almaden, 12 miles west of the town of San Jose, Santa Clara county, the last-named place being 40 miles south east of San Francisco. The aborigines used the native product of the New Almaden deposit, as a pigment, and so well pleased were they with the paint they were able to produce, that they dug openings from fifty to sixty feet deep into the mountain in search of it. During the year 1824 and for some time afterward, the Spaniards attempted the working of these New Almaden ores for silver. The New Almaden mines are in the Coast Range, in a belt of altered cretaceous slates, between beds of serpentine; they were first operated for quicksilver, by Captain Castillero, in 1845. The New Almaden cinnabar is found in a series of irregular cavities, without apparent connection. Though suspended during the war, work at these mines was resumed in 1848. A company of Mexicans and Englishmen, held the property from 1850 to 1858, when they were enjoined, pending legal proceedings, regarding the title. Up to 1858, the whole value of the quick-

silver which had been taken from New Almaden, was reported to the courts as having been worth \$8,000,000, and in 1858, when closed, the mine was said to be yielding quicksilver to the value of \$1,000,000 a year. The United States Attorney then appraised the value of the mine and works at \$15,000,000.

The entire amount of quicksilver taken from the New Almaden mine alone, from September 30th, 1852, to December 31st, 1873, a period of 21 $\frac{1}{4}$ years, was 573,150 flasks, of 76 $\frac{1}{2}$ pounds each, or 43,845,975 pounds. During the time, the Enriquita, another mine in the same neighborhood, produced 10,571 flasks of quicksilver, or 808,681 pounds; making up the amount to 44,654,656 pounds of the metal, taken from these two deposits, during the given period. Beside the Enriquita, there are the Providencia, and the Gaudalupe mines, which have been worked near New Almaden. The New Idra quicksilver mines in Fresno and Monterey counties, ninety miles south of New Almaden, include the San Carlos, Aurora, Idra, Molino, Washington, Benada, and Victorener workings, and are of cinnabar in sandstone and slate. The Panoche Grande quicksilver mine, also in Fresno county, the subject of the "McGarrahan claim," is famous in the records of the courts, and of the journals of Congress. The Redington quicksilver mine, near Knoxville, Lake county, presents a formation similar to that of the New Almaden deposit, and is one of the most important of the many deposits of cinnabar in Napa and Lake counties north of San Francisco. In 1867, California was reported as producing 3,960,000 pounds of quicksilver of a total of 7,083,120 pounds produced by all countries. In 1868, California produced 3,404,709 pounds of quicksilver; the yield for 1870 was 2,187,900 pounds; that for 1873 was—from the New Almaden, 11,042 flasks; New Idra, 7,600 flasks; Redington, 4,200 flasks; Great Western, 651 flasks; Mahattan, 4,200 flasks; Summit, 75 flasks; American, 128 flasks; Napa, 199 flasks; California, 995 flasks; Phoenix, 880 flasks; Washington, 197 flasks; a total from all these

mines, of 26,588 flasks, containing 2,033,982 pounds. It may be noted, that the New Almaden mine had fallen off, from an annual yield of some 2,500,000 to 3,500,000 pounds, once taken from them in a year, to but 844,713 pounds for 1873; that notwithstanding, the total product had not decreased in proportion; that some mines formerly reported, are no longer mentioned; and that a number of new mines appear in the list. The partial or total exhaustion of the old deposits of quicksilver in California, up to 1870 and thereabouts, without a cessation of demand for the metal, induced a rise in price. During 1873, quicksilver could be sold in California at an average price of one dollar a pound, and by the end of that year, it had increased in value to one dollar and twenty cents a pound; the product of the state for the year must, therefore, have been worth about \$2,250,000. The discovery and development of the quicksilver mines of California, must be regarded as of the greatest possible importance to the state. It not only furnished an enormously valuable article of export in the quicksilver itself, but by supplying the California gold fields with the metal for amalgamation, freed the gold-mining industry of the whole Pacific slope, and of the world, from an oppressive monopoly—thus enlarging the product of the precious metals.

The early Spanish adventurers and explorers for gold in America, were not guided in their researches by the geologic science which directs the prospector and miner in the same fields in the present. When on his voyage of discovery, Columbus arrived off the shores of Cuba, believing that he had reached the Indies and saw the continental coast of Eastern Asia, he made entry upon his journal—"From the great heat which I suffer, the country must be rich in gold." When Hernando de Grijalva, or "Grixalva," discovered the arid, rocky peninsula of Old or Lower California; he sailed up the Gulf of California, the *El Mar de Cortez*, Sea of Cortes, *El Mar Vermejo*, the Red or Vermilion Sea, "the Adriatic of the New World," along a coast belonging to a country counted the hot-

test part of North America, where the thermometer frequently indicates the high temperature of 100, 110, and even, as reported, 140 degrees in the open air. If intense heat and excessive dryness were reliable indications of the presence of gold, the peninsula of Old California should be superlatively rich in that metal. But as has already been stated, every expedition into California for gold resulted in miserable failure to the old Spaniards. From the time the Jesuits entered Lower California as missionaries, and established the Mission of Loreto in 1697, to their expulsion in 1767 to make way for the rule of the Franciscans, followed by the Dominicans, and down to 1822, during which time the rule of the Franciscans was gradually extended all along the Pacific coast of Lower and Upper California, the whole region was governed in a manner even more fatal to progress than Spanish colonial management in general.

The downfall of Spanish power in Mexico came in 1822, and the power of the Friars became rapidly less. About 1825, emigration to California began, being mostly to the upper part of the country, and year by year increased in volume. The emigrants were firstly Mexicans, who were attracted by the fine climate and fertile soil; next American trappers, citizens of the United States who entered the region from the desert lands east of the Nevadas, and finding abundant game, fine climate, fertile soil, and comparatively peaceful Indians, remained and roamed the whole domain as if its independent proprietors; to these were added Russians from Russian America, now Alaska, who established a trading post called *Russ* (Russia), and seemed ready to attempt the occupation of the whole territory; beside these, were constantly added to the population numbers of sailors who escaped from merchant vessels trading to California, or were left behind at their own request, and adventurers of various kinds from almost all countries, and finally, as the fame of the climate extended, some invalids from the eastern United States, seeking relief from pulmonary and other diseases.

The Mexican republic left the Californias in an almost independent position politically; from 1822, for a series of years, the usages, laws, institutions, and administration of that part of the new federal Union were irregular and unsettled. There was no great disturbance or violent anarchy, but individuals took great liberties with the country, assumed on various pretenses possession of lands, and without much regard for Mexican jurisdiction kept their position, and conducted business according to their personal sense of right, and with a special view to their own interests and satisfaction. The Muscovites descending from their possessions in America at this time, established their town of *Russ* upon Mexican territory, regardless of boundary lines, the citizens of the United States "walked through the land as if it had been their own." Speculators from Europe, and from New England, engrossed most of the trade.

Black or Spanish cattle were introduced into Upper California in 1766 and increased rapidly, so that their hides and tallow became in a few years the principal and almost only article of export. By the year 1830, the Franciscans, beside other property, owned over 300,000 of these animals, of which some 60,000 were killed each year. The Missions, where the Franciscan Friars still kept up their establishments, were all within a day's journey of the Pacific coast. The larger part of Upper California was, even as late as 1836, not only an unexplored country, but a region almost unvisited by white men. By this time, the pearl fisheries, which had been carried on in the *El Mar de Cortez*, Gulf of California, since the time of its first navigation by Cortes, from whom it took its original name, had become so far exhausted as to yield a value of less than \$500 a year. In 1836, there was a gold mine called the San Antonio, in Lower California, the workings being some ten or twelve miles north-west of the town of La Paz, the present capital of the territory; but the amount of gold secured was inconsiderable, owing to the poverty of the vein. In Upper California, a small silver mine was found east of San Ines, but

operations there were presently discontinued. Gold was also found in one of the rivers flowing into the southern Tulare Lake, but the amount was small, and as late as 1837, the washings for the gold dust of this deposit had not been found very profitable. At this time the population of Lower California, was supposed to be no more than 8,000 persons of all conditions, whites and Indians. In Upper California, there were 6,000 or more whites, some 20,000 "converted," that is to say, subjugated, domesticated, and enslaved Indians, and 100,000, more or less, of aborigines, in numerous wild tribes speaking many languages or dialects. The interior of the Californias was known to be a dangerous and difficult country to traverse, and the region of the Rio Colorado, and the great canons, was justly famous as about the nearest approach to an uninhabitable and impassable country, to be found in equal extent, anywhere on earth.

On the second day of the month of July, 1839, a vessel was stranded in the bay of *Yerba Buena*, by which accident, Col. John Augustus Suter, or "Sutter," was landed upon the coast of the present harbor of San Francisco. This distinguished California pioneer, was born at Kandern, Baden, Germany, on February 15, 1803. He was educated at the military school of Bern, Switzerland, from which he graduated as an officer of the Swiss army, and hence has been generally considered a native of Switzerland. In 1834, Col. Suter emigrated to America, and establishing himself as a trader at Santa Fé, New Mexico, carried on for some time, a profitable business with the trappers and Indians of the Far West. Hearing from his customers favorable accounts of California, Col. Suter crossed the Rocky Mountains in 1838; went to Fort Vancouver, Oregon, and took a further voyage to the Sandwich islands, thence to Alaska, and southward along the coast of the Pacific to the bay of San Francisco, where his vessel was stranded, as has been already described. From *Yerba Buena*, Col. Suter penetrated the interior of California to the confluence of the American and Sacramento rivers, about 140 miles

east-north-east of San Francisco county, and under great difficulties and discouragements, founded the earliest white settlement made on the site now occupied by Sacramento city, Sacramento county, the capital of California. Col. Suter, or "Sutter," having become a naturalized American citizen, obtained from the Mexican authorities in California, on account of his settlement, and for the improvement of the country, a grant of eleven square leagues of land, and upon it, in 1841, he built a fort which, with the grant around it, he called New Helvetia. The garrison of the fort was made up of a few white men its owner and commander gathered around him, the surrounding domain was occupied by Indians he took into his service; he was a man of great force of character, and this, with his remote position, and the number of his adherents, gave him great influence and importance. Col. Suter is said to have bid independent defiance to the Mexican authorities at times, and yet he was appointed by them Governor of the northern frontier country of California, in which office he served to the benefit of all concerned.

In 1841, gold was discovered in the southern part of California, at a point near the San Fernando Mission, in an alluvial deposit, where washings were carried on with moderate success. Without any especial reasons, other than those of climate, soil and the general features of the country, and its probable future, as an agricultural state, emigration to California had become very popular with the bold pioneers who, year after year, carried the western frontier of the civilization of the United States, farther and farther toward the setting sun. Impelled by a wonderful spirit of enterprise, more than 5,000 persons crossed the terrible Sierras during the period from 1840 to 1845 inclusive, to make their homes in California. The hardships of this tremendous journey, afoot, on horseback, or in wagons, over vast arid plains and across mighty mountains, were often fatal. In 1846, the party led by Captain Donner perished on the route, other companies were decimated, some utterly destroyed, by thirst and starvation, or

overwhelmed amid the sudden snow storms of the Nevadas. To such as made the journey, "Sutter's Fort," which had meantime grown somewhat famous, became the first stopping-place in California, and from that point, the emigrants dispersed, and settled according to circumstances and their own inclinations. As might have been anticipated, the wealth and prosperity of Governor John Augustus Suter rapidly increased, until it fully equalled his very considerable social and political prominence.

From about 1840, the relations between the governments of the United States and of Mexico became more and more unsettled. In October, 1842, Commodore Jones of the United States navy, took the town of Monterey, a sea-port of Central California, on the Pacific coast, and declared the state part of the territory of the United States. Learning that war had not begun, Commodore Jones apologized, and the next day withdrew his forces. On February 28th, 1845, Texas was admitted to be one of the United States. In defense of the assumed boundary of Texas, the troops of the United States, on May 8th, 1846, under Gen. Zachary Taylor, fought and won, the battle of Palo Alto against the Mexican forces, and immediately crossing the Rio Grande, began their famous march "for the Halls of the Montezumas." On July 7, the same year, Commodore John D. Sloat of the United States navy, repeated the capture of the port of Monterey, California, held so briefly by Commodore Jones in 1842. Again, California was declared a territory of the United States, and now, the proclamation was maintained, Commodore Sloat assuming the office of Governor. On the 9th of July, San Francisco was occupied by the United States troops. Meantime, a party had been organized under Col. John C. Fremont, and the independence of California from Mexico, proposed at Sonoma, July 5, 1846. On July 12, 1846, the troops of the United States occupied Sutter's Fort. Various military operations against Mexico followed in California and New Mexico, under Col. John C. Fremont, Com. Robert F. Stockton Gen. Stephen W.

Kearney, Col. Richard B. Mason, Capt. (after Maj.-Gen.) Henry W. Halleck, and other officers of the United States. Out of a possible white population of 10,000 in Upper California, some 7,500 were already in practical revolt against Mexican rule. The occupation of California by the United States, was made complete, and the whole region pacified by June, 1847. By the treaty of Gaudalupe Hidalgo, signed during February, 1848, Mexico ceded California and New Mexico to the United States, the latter power subsequently paying a very considerable sum of money as compensation for part of the lands acquired.

The army of the United States, during the war with Mexico, contained a remarkable number of Mormons. These Mormon soldiers became aware of the existence of gold in California, and were known to have gathered more or less of the precious metal from placers on the banks of streams where they happened to be posted. Certain Mexicans and various Indians also collected gold during the war, having, perhaps, learned the business of the soldiers. Thus, the existence of great gold fields in the mountain ranges of the western part of North America, north of Mexico, believed in by the old Spaniards from 1511; noted by Hakluyt, 1577-9; published by the priest of San Jose, Loyola Cavello, 1690; by Capt. Shelvocke, 1721; by Antonio de Alcedo, 1786-9; recognized by Prof. J. D. Dana, 1838-1842, and announced by Mr. Sloat, in *Hunt's Merchant's Magazine*, April, 1847, became once more a matter of rumor, with a number, and to an uncommunicative few, a partly demonstrated fact. Still, there was no excitement in relation to the subject, it being generally supposed in the United States and in all Spanish-American countries, that gold dust could be found in many places, but almost always in such small quantities, as to make labor spent in collecting it the very poorest kind of business.

While the diplomats and statesmen of the United States and Mexico, in the great capitals, were negotiating the terms of an international treaty, which was to change the map of

half a continent, and arrange the relations of scores of millions of men, a mere child, a little girl, at play beside a wild stream of unexplored California, was fated to make an accidental discovery, the consequences of which have done more in the third of a century, to revolutionize the arts, commerce and finance of the whole civilized world, than could have otherwise been achieved in an age by the joint efforts of all the great powers on earth. Among his other enterprises in California at this time, Governor Suter, or "Sutter," had erected a mill, at a point on the American fork of the Sacramento river, near the present town of Coloma, in El Dorado county. During the winter of 1848, the race-way of "Sutter's Mill" became damaged by the freshets of the rainy season. On February 9th, 1848, three Americans, of whom two were Mormons, were at work repairing the race-way. The overseer of the party was a man named Marshall, and with him he had his little daughter, who amused herself with the pebbles she found among the freshly-dug gravel. This little girl found a considerable lump or nugget of gold in the race-way, and this she presented to her father, as "a pretty stone."

Remarkable as this discovery was, it did not at first attract very much attention, and the Mormons in particular, were quite anxious to keep the facts from the knowledge of the public. The motives of the Mormons, in seeking as they did at this time and afterwards, to conceal the existence of gold in territories where they might be, are only to be conjectured. As their people had been subjected to intense hostility at Nauvoo, Illinois, the Mormons in California may have been looking for the site of a colony of "Latter Day Saints"; their leaders in their emigration that year to the Great Salt Lake Desert, clearly foresaw the evil to be apprehended from an invasion by a lawless horde of gold seekers, and imposed silence upon their followers regarding the sources of gold then and there discovered. As far as the personal interests of Suter, and those immediately interested with the proprietor, were concerned, the history of the events which succeeded show it

might have been well for them, if, for a time at least, they had been as uncommunicative, concerning the gold as the most secretive Mormon could have desired.

"The American Journal of Science" dated March, 1848, contained a letter from the Rev. C. S. Lyman, which stated that: "Gold has been found recently on the Sacramento near Sutter's Fort. It occurs in small masses in the sands of a new mill race, and is said to promise well." The news thus communicated to the reading public spread rapidly, but it was several months before any great number of active diggers had reached the new gold field. By December, 1848, however, washing for gold was successfully carried on all along the foot hills of the Sierra, from the banks of the Tuolumne river, latitude 37 degrees 40 minutes North, to the valley of the Feather river, near latitude 40 degrees North, a distance of more than 150 miles. The first of the gold-seekers from abroad came from Mexico, from the South American Pacific coast, and from the Sandwich islands, from the eastern United States, and even from Europe and China.

As the results of the primitive operations of the pioneers became known, an intense excitement was created which swiftly extended across the mountains to the states upon the Atlantic coast, and so over the entire continent, and presently throughout the civilized world.

The position of Governor of California from May 31, 1847, to April 13, 1849, was held by Col. Richard B. Mason. Governor Mason reported to the authorities of the United States, that at the close of the year 1848, there were 4,000 men employed in working gold, with a daily product to the value of from \$30,000 to \$50,000. The value of the gold secured during 1848, was estimated at \$10,000,000. During the spring 1849, an unparalleled rush of emigration to California began, the emigrants making their way across the plains of the Great American Desert, by way of the isthmus of Panama, and around Cape Horn; indeed, from each quarter of the globe and by all lines of travel. It was estimated that during the

year 1849, over 100,000 men reached California, and that among them were included representatives of every one of the United States. The yield of gold in California for 1849, was valued at \$40,000,000. The great tide of emigration thus commenced, continued in great force for about five years.

In spite of the efforts of the defenders of American slavery, California was admitted as a free state of the United States of America, on September 9th, 1850. At the close of the year, there were supposed to be 50,000 men in California digging for gold. The yield of California gold for 1850, was valued at \$50,000,000. The pick, shovel, and pan, were the only tools of the pioneers in California gold mining. The first diggings were generally in the deposits made upon upturned argillaceous slates. The gold was found in dust, grains, and nuggets, throughout the body of the sand and gravel forming the deposits, and in greater quantities entangled between the edges of the underlying slates. So abundant was the gold, that a large part of the product was picked out of the "pockets," "crevices" and cavities of the bed-rock by hand, in the form of coarse grains and nuggets, some of the last being quite large. The early workings for gold in California, were mostly along the rivers, particular attention being paid to the beds of the streams. The process presently adopted for working a river bed, was to erect a dam and divert the water of the natural channel into wooden "flumes" extending along the bank to a point of discharge some distance down the stream. The bed of the river being thus left bare for a considerable area, the sand and gravel which had accumulated there was washed in the usual manner, with the pan, or by the help of "cradles," "rockers," "long-toms," "sluices," and various inventions and contrivances, such as might have been expected, considering the business, the locality, and the intelligent energy directed to the search for gold.

The gulches and ravines down the sides of the canons, were all worked over, whether containing streams or lying dry. They were the earliest and richest of all the placers, the gold

in them being, however, most uncequally distributed. The original operators upon the bars of the American, Yuba, Feather and Stanislaus rivers, and the rest of the minor streams in the center of the California gold field, sometimes procured gold to the value of from one to five thousand dollars a day for each man. These fertile spots were, however, of small extent, and when one was exhausted, another might not be found for days, weeks, or, perhaps, months of time. The gold veins of California were too obviously rich to remain unnoticed. Regular quartz mining was begun during 1851, at Spring Hill, in Amador county. During this year, the gulches, ravines, and river bars, having been in part exhausted, or being occupied, where still worth working; unemployed or dissatisfied miners extended their "prospecting" to higher grounds, and soon discovered that the "high gravels," as they called the detrital tertiary deposits of the uplands, contained gold, but not in an amount to pay for working by any process then anywhere in use. Such was the condition of affairs in California at the close of the year 1851. The gold produced in the state that year, is estimated to have been worth \$55,000,000.

The year 1852, is remarkable in the annals of gold mining, throughout the world, for during the same, the "high gravels" and hills of California were attacked by the hydraulic process, a system which puts into the hands of the miner an agent by which the most incredible results have been accomplished. The hydraulic process was invented in 1852, by E. E. Matteson, a native of the state of Connecticut, but at the time a resident of Placer county, California. The original apparatus of Matteson's hydraulic process, consisted of a barrel which received water at an elevation of 40 feet above the gravel of the deposit to be worked. From this barrel the water was drawn through a hose of common cowhide having a diameter of six inches, ending in a tin tube four feet long, the nozzle of which had a bore of one inch. From this orifice the water was discharged with a good deal of force, and being directed

against a bank of loose gravel, would disintegrate the strata with some facility, and in the course of a day remove and wash quite a respectable amount of material, always provided a constant supply of water could be procured for the refilling of the barrel. The material was carried away by the water through a "sluice" over "riffles" and across transverse grooves filled with mercury, and farther along over horizontal plates of amalgamated copper. The management of the large amount of gravel in the sluice required especial care; the gold being brought in contact with the mercury, became amalgamated therewith, and the mass being removed as occasion required, was "cleaned up," the gold secured, and a part of the mercury recovered. The hydraulic process was soon adopted for universal use where such a method alone was practical.

Great improvements were rapidly made, not in 1852 alone, but during all the succeeding years, to the present date; the hydraulic system has been brought to its full development and efficiency, quartz mining immensely extended, and the methods for the extraction of gold from rocky ores are multiplied, and finally, the process of chlorination introduced and improved.

In view of the interesting and important evolution in these respects, and of the necessity of a connected statement of the same herewith, a pause is here made in relating the remarkable history of California, at the period of the discovery of its gold deposits and mines, and the next few pages devoted to a popular, succinct, and yet it is to be hoped sufficiently comprehensive account of the various methods and apparatus adopted, invented, and employed for the reduction of the ores of gold, and the securing of the precious metals in that state, and more or less throughout the world at large, during the last third of a century.

The wooden flumes, canals and iron pipes brought into use as aqueducts, in many places measure hundreds of miles in length in one work. Water was often brought many miles from the high streams of the Sierras in iron pipes from 22 to 30 inches in diameter, which discharge their contents under a pressure of

100 to 300 or even 500 feet of "head" or height of column, through a six-inch nozzle. With a head of 275 feet, such a nozzle delivers 1,579 cubic feet of water every minute, more than 1,600 pounds a second, with a velocity of 140 feet a second. The nozzles are regulated and controlled by powerful and ingenious special mechanism. The water, as it passes from the nozzle, seems to the touch as rigid as a bar of polished steel. The discharge pipe is generally placed some 200 feet from the bank or hill to be operated upon, and yet the stream of water strikes the base of the bank in the same solid form, and bores its way into the mass with prodigious speed.

The hydraulic work goes on day and night without rest. Ordinary gravels and earths are thus displaced as if by magic, and the superincumbent masses come down in crashing landslides. Boulders hundred of pounds in weight are tossed to the right and left like so many pebbles, small stones fly like bullets, the fallen material, under the unintermitting force of the mighty jet, breaks up, is swiftly disintegrated, and the clays, earths, and gravels, in great volume, are borne on the receding torrent into the sluiceways, and from these into the tunnel or channel made to convey the waste out of the basin of the deposit and away from the workings. Nothing but obdurate "concrements" and solid rock can resist the force of the hydraulic jet, and when these are found unmanageable, resort is had to blasting on a grand scale. To prepare the hard ground for the action of the water, blasts of from 5 to 50 tons of powder, or their equivalent in other explosives, are used. In these upheavals of the strata, from one hundred to six hundred kegs of powder are often fired at once, and in one instance an artificial earthquake was produced by the simultaneous explosion of the powder filling two thousand kegs.

The sluiceways used with the hydraulic process are, as to the principal of construction, similar in most respects to those in smaller operations, but of course far more extensive, forming a complete system extended for miles. Each mile of sluice, is charged with from five to six hundred weight of mercury,

to which about one hundred pounds of that metal, must be added daily, in at least two charges, to make good the constant waste. In this way, a single working, may consume from 15,000 to 20,000 pounds of mercury in a single year. From the upper part of the sluices, the mercury and gold in amalgamation are removed once in seven days; farther down, the amalgam is removed every fourteen days; and far away, near where the waste water enters the discharge tunnel, the mercury lies unremoved, and gathers the constantly-escaping particles of gold for six months. The mercury is recovered from the gold by distillation, a process attended with some loss of the quicksilver, however. Of the entire amount of gold contained in the deposit, well-conducted hydraulic washings, under favorable conditions, secure some 80 to 85 parts in the hundred. Thus, for every 80 or 85 ounces of gold, so produced, some 15 or 20 ounces are lost. Considering that in hydraulic washings the whole mass of the deposit must be removed, the result is very favorable. Taking the wages of the miner to be \$4,00 each day, the cost of handling a cubic yard of gravel may be estimated on an average, as follows: By the pan, \$20,00; by the rocker, \$5,00; by the long-tom, \$1,00; with the hydraulic process—five cents.

The capital required in extensive hydraulic washings is very great. The bed-rock tunnels for carrying away the waste and water, are sometimes thousands of feet long, and a number of feet in diameter, the work of several years. The North Bloomfield Company, in Nevada county, California, expended a few years ago in ditches, reservoirs, and various water-works, over a hundred miles in total length, the sum of \$1,250,000. Their water supply was abundant, and delivered through eight-inch nozzles, under the pressure of a head of 500 feet. The waste-water tunnel through the rim-rock enclosing the deposit, was 8,000 feet long, and part of the distance, 8 feet square. There was supposed to be enough material in possession of this Company, to employ their facilities for many years. The hydraulic process has renewed the value of many California placers,

which before its application were regarded as worthless or exhausted, and the same may be said of similar deposits which have been treated by the same method in different parts of the world. So tremendous have been the effects of this system of working upon the uplands of certain districts of California, that much litigation has been caused, the farmers, millers, and others, occupying for many miles the banks of the rivers, in the valleys, complaining of ruinous damages from the gravel washed down, without intermission, from the hills.

In 1873-4, there were 775 mining ditches in California, with an aggregate length of 4,863 miles, which carried a burthen of 300,000,000 cubic feet of water each day. Some of this water is used for mills, or irrigation, but the greater part is employed for the hydraulic mining. These operations have called into use the highest engineering skill. Miles of tunnels have been created, under hills and mountains, to obtain the requisite fall to a point where the debris could be left. As the water-works are immensely expensive, the erection and maintenance of the aqueducts has in many cases been assumed by independent corporations, by which the miners are supplied with water upon terms regulated by the "inch," that is to say, so much for the amount taken through an opening a certain number of inches in diameter under a given pressure or "head."

In hydraulic mining, three things are essential: auriferous deposits of great extent; abundance of water, at high pressure; and great space of lower ground, on which to leave the waste material. Where these conditions can be secured, a few cents' worth of gold from each ton of earth, can be made to afford a handsome profit. The yield of the material worked by the hydraulic process, varies in different places, and the cost of the operation depends much upon the nature of the deposit. The La Grange Hydraulic Mining Company, washed 683,244 cubic yards of earth, at a cost of \$0.038 each, with an average yield of \$0.066 for each yard. In Placer county, 43,000,000 cubic yards of earth were profitably washed, with an average yield of less than five cents to the yard. In Yuba,

county, 25,000,000 cubic yards of earth were washed, with an average yield of \$0.26 the yard. In Nevada county, 16,000,000 cubic yards of earth were washed, with an average yield of \$0.30 the yard.

Hydraulic mining in California, was supposed to have approximated its maximum during the year 1878. Evidence given before the courts at Marysville, Sacramento county, during July and August of that year, in the suits brought for damages from the wash and debris of certain mines, made it safe to assume that the hydraulic, drift, placer, and river mining operations in California, yielded an amount of gold worth \$12,000,000 or more. It was estimated that this yield would slowly increase, until about 1883, when it was expected to reach the value of \$15,000,000 each year. The gravel channels were well known, and mostly owned and held by corporations having large capital. Nearly or quite all the available water supply for working these gravels, was owned by these same corporations, as were also the points from which tunnels could have been made by which to reach the bottom gravels, and through which to get rid of waste water and dirt.

One of these Hydraulic Companies had been engaged for more than ten years from the time of its organization, buying mining claims and constructing their works. Another Company of the same kind, had been engaged for seven years in like preparations. Each of these Corporations constructed immense reservoirs, which were finished in October, 1878; one of them had a dam 100 feet high and held 1,000,000,000 cubic feet of water; the other was formed by a dam 145 feet high, but was of less area, having a capacity of but 800,000,000 cubic feet. These Companies constructed altogether 120 miles of canals, over the very rough country on the western slope of the Sierra Nevada Mountains, from these reservoirs to their mines. The canals cost from \$8,500 to \$10,000 each mile, more than \$1,000,000 in all. These systems of water-works were expected to supply an average of 90,000,000 gallons of water a day through all seasons. The same Compa-

nies constructed four deep tunnels, varying from 3,000 to 8,000 feet in length, at a cost of from \$40 to \$60 per foot.

Commencing in 1866, the preparatory work of these Corporations was carried steadily forward until the autumn of 1878, when the whole was completed, the cost of all having been about \$4,000,000 in gold coin exclusive of interest. From the mines to be developed by them, an income of \$1,000,000 a year was expected, for from fifty to seventy-five years. The California deposits to be worked by "hydraulic" are very extensive, still there is a limit to the gravels found in favorable situations. The gravel channel of "The Big Blue Lead" has been traced for sixty miles, the depth of the bed being some three hundred feet. The most practical operators conclude that the product of all the gravel gold mines of California will never exceed \$15,000,000 a year, but that they can be depended upon for such results for a hundred years or more.

The territory of Montana also contains hundreds of square miles of deep gold-bearing drift sands, some of which are now being washed with good results. The hydraulic process has been used in Australia for a number of years, and of late introduced into Russia. The lofty Sierras of California, with their numerous swift torrents, present great advantages for hydraulic workings. The highest underground mines and hydraulic works in the world, are in Rio Grande county, Colorado, where the Little Annie and Summit diggings, are worked at an elevation of eleven thousand feet, and twelve thousand feet, respectively, above the sea. What effect the present method of working "deep diggings" by hydraulic appliances, may have upon the future supply of gold throughout the world, cannot be estimated. It is certain that gold in quantities beyond all calculation, may be found in endless masses of unworked drift, and that the "tailings" and refuse of countless old roughly-wrought placers, may be made to yield a profit once more. Considering the vast capital already invested, the skill and energy exhibited, and the average profit

obtained, he would be rash indeed, who assumed to even approximately forecast the grand inevitable result.

Nearly all of the seven or eight billions of dollars' worth of gold, supposed to have been taken from the earth by man, though originally developed from fissures and veins, was, down to the development of quartz mining in California, taken from drift, and the deposits of river bottoms. In primitive times, only the simplest machinery was used for washing the clays and sands; the hard lumps were broken with stones or clubs, and the dirt, when dry, was winnowed, the residuum being washed in bowls or pans. From the presence of large stone troughs and vessels among the ruins of ancient mines, it is inferred that the men of early ages, who had a knowledge of mercury, used the process of amalgamation. In the time of Pliny, A. D. 50, there was evidently more or less working of veins of gold; the *arrastre*, still used in some Spanish-American operations, a revolving stone dragged by animals around a hard-rock basin, or driven like the wheel in a brick-yard, was then in use. After the discovery of Brazil in 1500, and the finding of the gold in 1577, washings were carried on for a hundred years; in 1680, the amount of gold thus far obtained, was but \$1,000,000. The rocks of Brazil were first practically worked for gold about 1725, on the property now owned by the St. John del Rey Company, but the results of repeated undertakings were ruinous, until 1830, when rude stamping machines made of wood were erected, and a profit was secured.

During the year 1823, and afterwards, earnest efforts at mining the solid rocks, were made in Russia; more than sixty different mines of that kind were opened, but after a time work was stopped on all of them, principally for want of any proper means of reduction for such obdurate ores.

The vein formations of California, traverse strata of the jurassic and triassic ages, the quartz lodes or ledges being found among crystalline slates, interbedded with porphyritic and serpentine rocks in sections, the whole being imposed

upon, or resting against the center of granitic and gneissic rocks of the mountains, and presenting upon the surface a series of ridges arranged on a line parallel with the main course of the Sierra Nevadas. There are various theories regarding the origin of veins, fissures, and lodes of gold, among which those of Le Conte, Dana, Davies, and Sir R. Murchison are most notable.

Le Conte considers the evidence conclusive, that the auriferous quartz veins of California, have been deposited from hot alkaline solutions, and that the metallic sulphides in connection, had the same origin, the solvent of the gold having been the sulphate of iron. Where gold is found in pure quartz, without the sulphide, it is supposed it may have been in alkaline solution as silicate of gold. The theory of Dana corresponds somewhat with that already presented. This distinguished geologist considers the origin of gold veins as little understood. The veins occur in the hydromica, chloritic, and argillaceous slates, of imperfect crystallization, and not in the fully crystallized mica, schist, and gneiss. The quartz veins occur among the fissures of the selmi crystallized slates, having been formed during the metamorphic changes of a moderately-heated earthquake era.

The mineral ingredients of the rocks, dissolved by intensely-heated ascending subterranean vapors, or by the heated waters resting upon them, formed alkaline or silicious solutions, which dissolving the gold with which it came in contact, carried the same laterally or downward and deposited the metal in the fissures it infiltrated, in the form of strings, crystals and grains. The gold-bearing pyrite of the vein, is crystallized under the same circumstances. The formation of veins of gold, in the manner supposed by Le Conte and Dana, would have been the work of an indefinite time, and how the fissures of the rocks were kept open during that age of changes, is not explained.

The theory of Davies is, that the quartz beds and veins of gold, are formed by the segregation of the finely-disseminated

gold sparsely found in the schists or slates of a steatitic, talcose, and chloritic nature, and the granite and green-stone rocks of the geologic horizon of the Lingula flags, and the beds below, the most productive rocks being found at what in North Wales is the junction of the lower and upper cambrian strata, the whole of the gold-bearing rocks lying below the carboniferous group, and being of the same age and like condition the world over.

Sir R. Murchison propounds the Silurian Theory, in which he declares the structure of the different countries notable on account of their product of gold, is similar, and that the Silurian age of geologic formation, is the true era for the development of those "constants in nature" which ever since mark the condition, relation and presentation of gold.

This theory has been contradicted, or perhaps made more comprehensive, by subsequently-discovered facts, and reasoning upon the same; but every theory has its opponents; we are only certain that there are gold veins, that they may be discovered and estimated by scientific observation of geologic indications, and that when properly worked, by approved methods, a business profit can generally be realized.

As a common rule, the most productive veins are those containing gold-bearing sulphides. The veins occurring in hard white quartz free from sulphides, present the gold for the most part in flakes, or small grains, visible to the naked eye. The gold is sometimes found in such veins, in considerable masses of high purity, but the average yield of the rock seldom pays for working.

As has been stated already, the regular working of quartz veins in California, began at Spring Hill, Amador county, during 1851; since then, the growth of that business has been very great; several thousand lodes have been worked to a profit in the United States, and one hundred thousand veins are said to have been described upon the records of Colorado.

In Australia, more than two thousand five hundred and fifty one auriferous reefs, or veins, have been worked, extend-

ing over an area of eight hundred and eighty square miles, part of a vast gold belt one thousand miles long. The Ural regions of Russia offer an area for similar operations, extending for about two millions of square miles.

The Appalachian gold field, on the North American coast of the Atlantic, covers an area of one thousand square miles, and the gold-bearing territory of California is as large as the entire state of New York.

Most of the auriferous veins of California, are principally composed of white or bluish quartz, containing some two per cent. of sulphurets, chiefly ordinary iron pyrites, and occasionally a small amount of galena and blende. There are about 1,000,000 tons of quartz rock worked annually in California, yielding from six to fifteen, to twenty, twenty-five, or more dollars per ton, with an average of about twenty dollars worth of gold in each ton, though taking account of losses in working, it is doubtful whether more than fifteen dollars worth of gold are secured on the average from each ton of rock. The cost of working these rocks includes: Mining, per ton, \$5,75; Milling, \$2,00. Total, \$7,75 per ton. In narrow veins with great masses of waste rock, this expense would be increased. The proportion of gold saved to the amount actually in the rock, is a point under discussion. Some estimates allow a waste of twenty-five, some thirty, and some thirty-five per cent., and Paul, in Raymond's Report of 1872, declares the mills of California were not working to save gold and silver, but to crush rock, not more than forty per cent. of the gold contained being secured. The greatest waste is known to pass in finely-comminuted particles of gold, so infinitesimal as not to precipitate in standing distilled water in less than five or ten minutes.

The gold-bearing quartz veins of California are of all widths, up to thirty feet, and have been explored to a depth of over two thousand feet, and extend below indefinitely. The Mother Lode, the great vein of California, has an estimated length of from eighty to one hundred miles. The au-

iferous quartz of the California veins is treated by pulverization in the stamp mill; by concentration of the product thus obtained; by oxidation, and extraction.

The first stamping mill was imported into California from England, during the year 1849 or 1850. The machine was mostly of wood, a number of upright beams shod with iron, arranged to be alternately elevated and let fall with force into pot-shaped mortars. This apparatus has since been so much modified, and so entirely improved, that the five thousand and upwards of stamps in use in California in 1870, representing a capital of \$4,800,000 invested in the machinery of mines, might have been considered California inventions. It may be stated that at the same time California contained four hundred and twenty *arrastres* the cost of which increased the amount invested for appliances in this connection to \$5,500,000. The entire structure of the latest improved stamp mill, is of iron or steel resting upon a foundation which may be of timber. The side pieces and stays may also be of wood. The stamps are heavy upright plungers of iron, upon which adjustable tappits are keyed fast, to be operated by cams arranged upon a horizontal shaft. The lower end of the upright plungers bear solid stamp heads with removable shoes. The plunger and its several attachments, weighs from three hundred to a thousand pounds, usually from six hundred to six hundred and fifty pounds.

The horizontal shaft when set in motion revolves with the cams, and these working under the tappits, lift the plungers one after another to a distance of nine inches or less; from this elevation the plunger, armed with the stamp head, descends by its own weight, and may be driven to deliver a hundred blows per minute. Five of these stamps are arranged together and form a "battery," the whole working in a deep enclosed iron trough or mortar, upon five iron dies arranged upon the thick bottom of the same. The trough has an opening at the back, through which it is "fed," and an orifice or gateway in front, from which its contents are discharged. The opening

through which the discharge takes place is covered with a piece of perforated iron, or with an iron wire screen.

The ore or rock having been broken into moderately small pieces, by the hammer, or a crushing machine, is shoveled into the trough and duly charged with water and with mercury. Being brought upon the surface of the dies, the mass of material is subjected to the operation of the stamps which fall upon the rock with great violence until it is broken, crushed, and finely pulverized. The pounding and grinding goes on, until the contents of the trough are thoroughly reduced to a kind of pulp, more or less of the gold contained in the rock in grains or in dissemination is liberated, and being brought in contact with the mercury, a more or less perfect amalgamation follows. Amalgamated plates of copper are arranged in the battery at the discharge place, and sometimes at the back under the feed gate. These plates, and the key-holes of the stamp heads, collect a large part of the amalgam.

As the pulp is discharged from the trough, it is made to fall upon other amalgamated copper plates set at a gentle incline. As the watery mercurial mass moves slowly over these surfaces, it imparts a share of amalgam to them. From these copper plates, the flow is conducted to the point of final discharge, or if worthy of further treatment, is carried through a second pulverization and amalgamation, or subjected to the action of a variety of devices to effect what is termed concentration.

The method of concentration first used, was by passing the flow over hides, the hair, or the wool side up. The hides or skins were superseded by a blanket made especially for the purpose, and the blanket still remains one of the principal devices for retaining and saving the heaviest of the particles of amalgam and gold, which escaping from the trough would otherwise be lost among the "tailings" of the mill, as the debris created by its operation is called. Numerous and ingenious devices have been created to receive the flow from the stamp mill and collect the fine gold dust, amalgam, and the free spherules of

mercury, which would otherwise be borne away and carried down the stream.

The losses incurred in treating gold-bearing rock in the stamp mill, and farther, otherwise, as described already, are due to the state of atomic subdivision in which the gold exists, or to which it is reduced, and to the presence of sulphides in the ores. The action of the sulphides "sickens or fouls" the mercury, and perhaps coats the particles of gold with a kind of oxide, anyway, the process of amalgamation or blending of the mercury and gold is prevented, more or less; the gold floats away with the sulphides, and the mercury losing its affinity for the precious metal, becomes incoherent, forms in part into independent globules covered with a repellent film of mercurial sulphide, and, rolling with the current, gets away down stream also.

The methods of concentration where water is used, are inventions created in Europe for treating poor ores, especially those of Germany and Prussia, and have about exhausted human ingenuity; still, new arrangements have been made in America, involving similar principles of action, while others have been developed upon an entirely different system, with dry air as a medium of operation.

The presence of more than three per cent. of sulphides in an ore of gold, becomes a demonstrable cause of trouble and loss, which increases with the proportion of sulphurization found in the material upon which amalgamation is attempted. The ores of California are comparatively free from sulphides, but in Colorado great difficulty and damage has been caused by them. To obviate these, American ingenuity has been fertile in devices, the object of all being the desulphurization of the ores, a dead-roast, with the intent of a complete oxidation of all base metals, the metallicization of whatever silver may be found, or its reduction to a chloride by the use of salt, leaving the gold in a state of nature as a metallic crystalline dust. The reverberatory furnace was first employed for this purpose, and, with modern improvements, is still preferred for

special work; it is expensive, however, and costly regarding fuel and labor. The various furnaces having revolving cylinders, working the ores automatically, next came into use. The Stetefeldt furnace for chloridizing silver ores, consisted of a heated shaft, down which the pulverized ores, mixed with salt, were sifted. Each contrivance seems to have some special merit, and all are subject to similar general defects. The great want is some cheap effectual method of getting rid of refuse, otherwise, of concentrating the value of the ore, before the most practical treatment.

Supposing the sulphides changed to oxides, by some one of the many patented or other devices offered for use, the ores are next finely ground, and formerly, were then considered fit for amalgamation for the extraction of the gold. Owing to imperfect oxidation, or an incomplete desulphurization of the ore, the process of amalgamation of the roast thus prepared has not in general been entirely successful. The failures in the process so far as already described, created the necessity of extraction by smelting. There are numerous smelting furnaces now in operation among the western gold mines, and on the Pacific coast, the ores containing copper, silver and gold are treated by themselves, while argentiferous galena and gold are smelted in a different furnace. The cost of the apparatus for smelting is great, and the expenses in working are heavy. The various smelting Companies charge the miner from about thirty dollars a ton, to one hundred dollars a ton, according to locality and the value of the product secured from the concentrates operated upon. Before smelting, the ores are culled or selected by hand, or otherwise separated, and then in general concentrated after the methods already stated. This involves much labor, and still the final result is very unsatisfactory to the intelligent practical miner and a matter of reproach to the science of the expert.

The first waste of metal involved in the process by the stamp mill, is by "float gold" washed away in free but invisible particles; the loss by this cause is estimated as high as

twenty per cent. of the amount saved by amalgamation. The second waste arises from the passing away of particles of gold in imperfectly pulverized rock. Where the greatest possible care has been taken, a loss of ten per cent. of the gold contained in the rock is estimated. In Australia, on ores producing but \$6,52 worth of gold per ton, an average loss of \$1,56 per ton was attributable to this cause. The third and greatest waste, results from the presence of the sulphides in the ore. Presuming the value of the best ores, as worked at the most carefully-conducted mines of California, to be \$29,00 per ton, and the average yield \$14,00 to \$15,00 per ton, the loss by sulphides is estimated at an average of \$6,00 for each ton of ore milled in the state. In Colorado, where the assayed value of the ore has been stated at from \$32,97 to \$37,97 a ton, the possible loss by mill treatment has been estimated as high as \$22,00 on each ton.

The demonstration of such results, or even the reasonable suspicion of their possibility, was sufficient to stimulate investigation to the utmost, and make ultimate improvement by new inventions almost certain. It has long been generally known, that, as described on page 258 of this essay, gold could be detected and captured by chemical analysis and assay, when, as in the experiments of Soustadt upon sea water, the amount of the precious metal present was but about a grain in a ton. The want of the miner, is a process, which, while saving approximately, the amount of gold shown by analysis to exist in the ore, shall yet be so cheap, as to cost but a very moderate per centage of the gross income derived from the mine.

Upon the preceding page 261, in reference to the solvents of gold, it is stated that the metal "is not acted upon by the alkalis, nor by any simple acid, except selenic acid, neither is it affected by the oxygen of the air, though long exposed to the same when in a state of fusion. It is not affected by sulphur, but is dissolved by bromine and chlorine, or by any combination of acids or different substances wherein free chlorine may

be found. Chlorine, as generated in chemical compounds, is a powerful solvent of gold."

A practical knowledge of these elementary facts in the chemistry of gold, was first applied to the treatment of ores by "chlorination" by Professor Plattner, at the mines at Reichenstein, Silesia, in 1851. The material operated upon, then and there, was arsenide waste, containing a small amount of gold. The success of Plattner's original operations, called attention to his method, and led to experiments and modifications of his system, but none of the primary radical innovations came into general use.

About 1868, when extraction by smelting was first applied to the ores of Colorado, Professor Deetken of San Francisco, California, began the demonstration of a method of securing gold by chlorination of the pulverized ores of that state. This he presently made practical in Grass valley, California, since which, chlorination works have been erected in many places, the process being until recently, with few modifications, that first applied by the original inventor, Professor Plattner, to the auriferous arsenical wastes at Reichenstein. Under proper management, this process, with most auriferous sulphides, gives good uniform results, and when worked for gold alone, is cheaper than smelting. Practical reasons have limited the application of the original method of chlorination to "concentrates," or prepared selected separated portions of the ore, from which the bulk of the waste rock has been discharged. Chlorination works are now established at separate mines, or in localities where the concentrates can be obtained conveniently from several mills. Large works of this kind under the original system, have not been attempted, their success being considered doubtful.

The original Plattner Process of Chlorination may be considered as the type of the chlorine process, the apparatus and mode of operation being somewhat as follows: There is provided a tank, vat or cistern, of proper size, having a perforated false bottom, and a close removable cover. Upon the

false bottom of the tank, in some one of a number of ways used, a filter is made, and upon this, the prepared concentrates, having been cooled and moistened with water, are lightly sifted, until the tank is full. The apparatus includes a chamber or generator made of lead, in which chlorine gas is produced from the decomposition of salt (chloride of sodium), and the peroxide of manganese, by sulphuric acid, or from the peroxide and hydro-chloric acid. The chlorine gas being passed through water, to purify it from hydro-chloric acid, enters, leaden pipes, which conduct it to the space between the true and false bottoms of the tank, and under the mass of concentrates. The gas ascends through the perforations of the false bottom, and through the filter, and in from fifteen to forty hours permeates the mass above. Whenever the mass has become saturated with the gas, the odor of chlorine will be perceived at the top of the tank; the cover of the same is then secured in place, and closely luted or sealed, and pure water is introduced, until the mass of concentrates is flooded.

The action of the chlorine gas having changed the fine particles of gold in the concentrates, to a soluble terechloride of gold, the water dissolves the same, and the aqueous solution is presently drawn off into vats; fresh water is then added to the mass of concentrates in the tank, and the leaching continued until the water drawn off yields no trace of gold to chemical tests. To the dilute aqueous solution of terechloride of gold thus obtained, a precipitant is carefully added; for this purpose a variety of reagents or substances are used, among which are the prepared solution of sulphate of iron, or common copperas; the sub. chloride of arsenic; sulphurous acid; sulphuretted hydrogen; phosphorous; iron; copper; zinc; mercury; charcoal; sawdust; leather, etc. Extended and exhaustive experiments by expert metallurgists, have shown that the successful extraction of gold from concentrates of its ores by chlorination, is dependent upon the nature of the ore, a thorough and proper preparation of the concentrates, and skillful manipulation in the various steps of the process. The

sulphur and arsenic of the sulphides and arsenides which may be found in the ores and their concentrates, must be completely driven off by heat; the roast being continued until the metals are perfectly transformed into oxides, the chemical combination of the mass broken up, and the gold left in its native condition as a free metal.

If sulphides and soluble sulphates of the metals are allowed to remain in the materials operated upon by chlorine gas, they are transformed into chlorides, and the chlorine gas being absorbed, is wasted. The chlorides may also evolve sulphuretted hydrogen gas, which would cast down the dissolved gold so as to cause a loss of the same in the mass. The sulphides produce chloride of sulphur, hydro-chloric and sulphuric acids are then produced by reactions, the acids attack the oxides, and the metallic salts created descend with the dissolved gold as cast down by the sulphates, the whole forming an impure precipitate. The chlorine gas must be freed from hydro-chloric acid, or the metallic oxides are taken into solution; sulphuretted hydrogen would be evolved from undecomposed sulphides, if present, and the dissolved gold descend and be lost in the mass.

The restrictive objections to the use of this otherwise unequalled process have been, the care and expense of such a preparation of the ores and roast of the concentrates, as is absolutely requisite; the time needed to effect the chlorination of even a moderate mass; the amount of pure water which must be used; the great number and size of the tanks and vats to be erected for any considerable working, and the great space occupied by a most cumbersome establishment.

For many years, the cost of the necessary acids prevented the economical separation of gold in Australia, until the difficulty was overcome by the introduction and adoption of a chlorine process, invented by Mr. F. Bowyer Miller, formerly one of the assayers of the Sydney branch of the Royal Mint, and in 1880, superintendent of the bullion office at Melbourne. By Miller's process, the gold is rendered tough and the silver

is separated and becomes a valuable source of revenue. The process has the additional advantage of rapid operation; under the other known methods of refining, much time was lost, but a few hours now suffices for the treatment of the largest parcels. Eighteen thousand ounces of gold, have been refined and delivered for work in one working day. The plant required for this operation is of the simplest kind, and the chemical agents used are of the most inexpensive character. Information in regard to this process, was communicated to the Secretary of the Treasury of the United States, by O. M. Spencer, Consul-General at Melbourne.

In regard to this Australian process, Mr. Wm. E. Du Bois, Assayer of the United States Mint at Philadelphia, informs the writer that: "The chlorine-parting process was abundantly tested at the U. S. Mint in Philadelphia, some years ago, by the inventor, and elicited warm approbation from the operative officers there.

"It was evident, however, that it was not well adapted to the most of the gold ores of the United States, on account of their being argentiferous, in a considerable degree; while for the gold mines of Australia, where the gold is of a high grade, containing but little silver, it was just the thing they wanted. For auriferous silver, such as Nevada produces mainly, it is not suited at all. The nitric process, and especially the sulphuric, continue therefore to be used at the U. S. mints, and private refineries generally. It seems not necessary to give here the chemical reasons for the difference."

With a view to remedying the defects of the Plattner process of chlorination, or at least of adapting the same to a wider range of operation, Dr. J. Howell Mears of Philadelphia, made a series of experiments which resulted in what is claimed to be an original discovery, and device of surpassing importance. The new method of working developed by Dr. Mears, is styled the Mears-Plattner Process. For this process, The Mears Chlorination Company of Philadelphia, claim "the locking-up of hitherto uncontrolled power, subjecting it to order, method,

and measure, the harnessing of it to disciplined effort for perfecting in one hour a duty which, at will, required from twenty to forty hours." They farther state: "The merit of the discovery rests in this condensed and increased force of disciplined work, vastly accelerating perfect results. The scope of labor thus opened embraces the large portion of the auriferous ores, which may now be handled cheaply and conveniently without waste in the residues." "Briefly stated, the Mears improvement derives form and force from compressed chlorine confined in a revolving cylinder containing the auriferous roast mass. The advantages consist in an expedited action, an important contracting of the operating area and appliances, therefore great economy in material, in handling, and in outlay for plant; to which is added a close, if not closer extraction of metal than by the old free range process according to Plattner."

Chlorine gas for operations by the Mears-Plattner Process is generated in the usual manner. From the generator, the gas is passed into a metallic gasometer lined with lead, and thence is forced by a pump into a strong reservoir. In place of the tank formerly used, there is a chlorinator, formed of "a cylinder of iron lined with lead, the cylinder revolving on trunions centered on the heads and resting on boxes firmly seated on the iron frame support, one trunion being hollow, to which the connecting pipe is adjusted. Central on the periphery of the cylinder a man hole is fitted with an adjustable cover. All assailable parts are protected with sheet-lead, and the parts firmly bolted together and capable to resist a pressure much greater than the working maximum, and indicated by an attached pressure gauge."

The ores, or concentrates, to be operated upon by the apparatus just described, are submitted to the same thorough preparation required for the original Plattner process; being "dead-sweet roasted," they are placed in the cylinder just described, to the amount of two thousand pounds weight; to this charge, one hundred and twenty-five gallons of pure water are added,

and the cylinder revolved until a thorough mixture has been effected. The air is then exhausted from the cylinder, to prevent adulteration of the chlorine, and the chlorine gas is admitted from the reservoir until the gauge indicates the requisite pressure; the gas is then shut off, and the cylinder kept revolving from thirty minutes to an hour. By this time, the gold contained is thoroughly dissolved, the gas remaining is discharged, either back into the gasometer, by force of the pump for reuse, or forward, escaping into another and newly-charged cylinder, where being reinforced from the gasometer, it helps to chloridize another ton of material.

The man-hole is then opened and the contents of the cylinder are dumped through the hole into cars with bottoms arranged as a filter; pure water is added, and the leaching carried on and the solution conducted to a precipitating vat, until the wash shows no trace of gold to chemical test. The precipitation may be effected by sulphate of iron, or charcoal. If the sulphate is used, it is added to the contents of the vat until the solution shows no change of color when a few drops of the sulphate in preparation are added to a sample quantity from the vat. If charcoal is used, the solution must be carefully filtrated through several successive barrels, properly filled with the coal in a pulverized state until all the gold is saved. If a precipitate be made with sulphate of iron, the substance cast down must be washed and purified by dilute sulphuric acid, and when mixed with borax, or other suitable flux, smelted and run into ingots of gold. When the precipitate is made in charcoal, a rich carbon concentrate is obtained, which must be dried and carefully burned to ashes; these are then to be washed, and the gold which remains, smelted into an ingot as in the other process.

Chlorination by use of the revolving cylinder, is also effected in a second method: The charge of dead-roast is placed in the cylinder, with a definite amount of chloride of lime, and the proper proportion of sulphuric acid. The man-hole is then secured, and the cylinder made to revolve, when the evo-

lution of chlorine gas is at once made evident by the pressure indicated upon the dial of the gauge; the maximum pressure is at once attained, but decreases gradually to the completion of the process. The subsequent treatment of the mass is the same as in the former instance. By evolving the chlorine gas in the cylinder, it is made to operate in the nascent state, under pressure, with mechanical agitation; this modification of the method of Dr. Mears, was first used for tests in the laboratory; then for working trials, and finally in a large way, working tons of ore daily in an entirely satisfactory manner.

The Mears Plattner Process is in use at the Yadkin Gold Mine and Reduction Works, North Carolina, and from those concerned, the report is made, that: "these simple progressive, and systematic operations serve to extract and put in the form of bullion, the entire auric contents of the dead-roast, seldom leaving beyond a trace—not over fifty cents per ton—if the operation has been conducted with the care that the systematic conduct of the process demands and makes easy. In an establishment working several tons of dead-roast continuously, thus exhausting the powers of the chlorine needed for keeping up the pressure, only, or mainly that absorbed by the water is wasted. The cost of a quantity absolutely required for dissolving the gold, bears about the relation of twenty five cents to \$240 in gold bullion.

The Mears Chlorination Company, as at present advised, recommend no special means for claiming the irregular quantity of silver and copper chloridized in their process when employed for the gold. Special information upon this subject is promised, but thus far those using the chlorine process for gold, are left to their choice of the already-known methods for the chlorides of silver and copper produced. It is claimed that in North Carolina, where labor is cheap, chlorination, with the reuse of gas, can be made for one dollar per one ton of ore; the cost of mining and milling may be from \$3.00 to \$5.00, making a total expense for operation, of from four to six dollars per ton, under favorable circumstances.

The Company estimated that by an increased outlay of \$2,75 per ton, substituting their method of chlorination, for the mill process, a present annual industrial loss of bullion worth \$4,500,000, might be saved in the state of California, and the profits of the mine owners and operators increased by \$5,75 on each ton of ore, a net gain to them of \$2,375,000 each year.

According to a further calculation, by the same Company, if the average cost of milling and smelting the ores of Colorado, were increased in the same way, by from seventy-five cents to a dollar a ton, there would result an industrial saving of \$15,00 a ton, or \$2,250,000 worth of bullion annually in the state, and an increased profit to the mine owners and operators of more than \$14,00 per ton, or in all over \$2,100,000 each year. These figures indicate an estimated possible increase in the yield of bullion in these two states, of some \$6,750,000 value each year, and an enlargement of profits by the sum of about \$4,475,000 each year.

Even an approximation to such results, would doubtless make chlorination by such a method, the working process of the world for the future, in ores adapted to the same, and result in an almost incalculable increase of the general yield of bullion.

To resume in chronological order the record of events which from 1848 to 1852, and thereafter until now, have marked the development of California as the great gold field of the world, it may here incidentally be stated, that the social and political phenomena observable in that territory during the first few years of the time noted, were quite as extraordinary and marvellous as the altogether unprecedented product of gold, mercury, and other metallic wealth.

The acquisition of California by the United States, is the subject of one of the most remarkable pages of American history, the details of the matter, however, have never been made public. It seems to have been assumed among that class of politicians who considered it the "manifest destiny" of the United States to overrun the continent, that such a territory

as California was found to be, ought to be absorbed. Whether the acquisition of California was in consequence of the war with Mexico, or the war with Mexico precipitated to facilitate the acquisition of California, might be made a topic for discussion. There seems to have been some "sharp practice," as well as a good deal of hard fighting, involved. It was evident Mexico could not maintain her power in California, against the intrigues of France and England, and the Government of the United States was determined to hold sway from ocean to ocean, and never permit the nullification of the "Monroe doctrine" by the establishment of new European colonies on its western frontier.

Emigration, revolution, conquest, peaceable possession, development—such was the programme, and rapidly and effectually the whole order was carried to complete success.

In 1846, Colonel John C. Fremont was conveniently on the Pacific coast, conducting a scientific exploration; verbal instructions were sent to him from Washington, in consequence of which he and his followers, as already stated on a former page, declared the independence of California. Some fighting and much disorder in California, followed, but the territory was ceded to the United States in 1848, the people adopted a Constitution October 13, 1849, and California became one of the United States September 9th, 1850. The events of these years as connected with the mining of gold, and other incidental affairs, have been related in this writing. To the political and social developments of the time, among an excitable, motley, heterogeneous, polyglot population, a few paragraphs should now be given.

In 1852, California contained a population of about 250,000 persons, by far the larger portion of whom were males. More than 100,000 of these were miners, men in the prime of life, deprived of the direct influence of women, children, home and regular society, in a country with but inadequate provision for the enforcement of the common law. All of these men were energetic, daring, reckless, earning an average of more

than \$8,00 a day, and mad with a thirst for more gold; beside which it is to be remembered that many of them were desperadoes capable of any crime. Gambling and other forms of robbery, were quickly developed, and social vices of every kind multiplied and flourished. Theft and murder were common occurrences in the streets of San Francisco, in which city whole squares of buildings, of one kind and another, were devoted to the use of gamblers and their confederates in swindling and debauchery. Rogues and ruffians were sheltered instead of being punished by the courts.

In spite of the most earnest and even death-dealing opposition of some of the better citizens, the highest offices of the state were seized by the worst of men through open and unblushing frauds, and the whole machinery of government prostituted to the rapacity and arrogance of an organized banditti.

In May, 1855, the Vigilance Committee (instituted in 1851), was revived, and for eight months held sway in San Francisco; they arrested, they tried, they banished, they hung obnoxious characters with an illegal and yet discriminating procedure. Absolute and extraordinary as their doings were, the one prominent mistake charged against the Vigilance Committee, in the dispassionate chronicles of the era is, that they liberated one of the Justices of the Supreme Court of the State whom they brought before them for trial—his subsequent course having proved his ill-desert of the mercy shown him. The people of California, residents of the state before the discovery of gold there, were of necessity unsettled, or as might be said, overturned and carried away, by the rush of strange men and incredible events during 1848 and the succeeding years, and the dislocation was not always to their advantage. The case of Colonel or General John Augustus Suter, of Sutter's Fort, a sketch of whose career may be found on page 385 is an instance in proof. From his vast landed estate, received by grant from the Mexican government, Suter, as Governor of that part of the territories of Mexico, became, by lumber-

ing, trading, and cattle raising, a man of great wealth. When the authority of the United States became established in California, the former Mexican Governor was made an *alcaldé*, or justice of the peace, and an Indian agent.

"General Sutter" could then, according to law, dispense justice to others, but the event proved he was powerless to obtain the same for himself. He was the agent of a great government in its dealings with the Indians, but presently unable to find even an Indian, willing to act as an agent of his. Strangely enough, the discovery which showed that the many broad acres of "New Helvetia" were not only fertile soil, but part of the richest gold field in the world, proved the signal of ruin to their owner!

The garrison of Sutter's Fort deserted; the laborers in the fields, among the herds, and at the mill, abandoned their employment; Sutter's land was overrun by gold-digging multitudes, who heedless of grants, deeds, or any proof of proprietary rights whatever, "squatted upon the ground" and paid neither rent nor royalty; crops disappeared, cattle and sheep went the way of all beef and mutton, in the presence of an army of hungry men, uncounted, unweighed, and unpaid for; horses were stolen, all kinds of property appropriated, a great establishment was broken up, its proprietor maltreated and despoiled. The most persistent subsequent effort failed to obtain a reinstatement for General Sutter or anything from the state of California, beyond a repayment of the taxes paid by him for the benefit of the state, upon the lands of which he was dispossessed. In 1865, or thereabouts, Gen. Sutter left California, and finally settled at Litiz, Lancaster county, Pa. He died at Washington, D. C., Friday, June 18th, 1880. His faithful wife, eighty years of age, followed him to the life beyond, seven months after his decease.

However, none of these things are to be recorded to the unqualified disparagement of the persons immediately concerned, or of the condemnation of the entire state, where the descendants of many of them now live most prosperous and honora-

ble lives. "Mexican grants" in the days of revolution and conquest in California, were considered an uncertain and dubious tenure of land, the circumstances were unprecedented, events uncontrollable, the excitement fearful. It was a time and place where men might almost be allowed to plead insanity, at the bar of public opinion, in excuse for their collective misdemeanors. The people of California had in 1857, a public debt of \$12,163,090 for the state and the counties. The entire revenue raised by taxation to meet the entire debt, was \$1,152,234, four-fifths from property and one-fifth personal. The prompt payment of the debt was demanded; when, the question of repudiation being raised, the popular vote was—for payment, 57,661—for repudiation, 16,970—and the credit and honor of the state were preserved. This was not a dishonest people.

That the Legislature of California should have found grace, even for the seemingly scanty measure of justice done General Sutter, may seem more to their credit, when the defects of such bodies the world over are taken into consideration, and note is made of the positive statement made by his surviving friends, that the venerable claimant persistently and stubbornly refused the expenditure of a single dollar for purposes of bribery and corruption.

The vicissitudes of life in California, have largely depended upon the temper of the people, but are nearly all traceable to the various findings of gold. Nothing was ever quite good enough for the original California miners. They had an idea that somewhere, among the almost inaccessible mountains, or across vast barren plains, there would be found the home of the gold; a center or focus of the precious metal, vastly richer than any deposit ever found, or any vein ever opened. It was the old Spaniards dream of El Dorado over again in the nineteenth century!

The miners lived in a fever of excitement; sometimes a special frenzy would break out upon the report of some lucky strike here or there, and leaving good work and prospects,

away they would rush, pell-mell, by thousands, for some distant newly-reported locality, perhaps merely mentioned in the newspapers. Many would perish from hardship on the way, and often the new field would prove barren, and the adventurers repent their enterprising journey, in poverty and rags, until perhaps, the "strapped" gold digger somewhere met "pay-dirt" once more. Such was the Kern-river fever of 1855, and the "Frazer-river rush" of 1858; this last involving an emigration of some 20,000 men, of whom few were even moderately successful, while all suffered beyond description, nearly all were made totally destitute, and many died.

Such unexampled and sudden shiftings of masses of population, even when the object of such a journey was attained, was necessarily fatal to stable local enterprise and common industries, the excitement as to new gold fields, in more than one instance quite depopulating one district, and as suddenly creating settlements and trade in another. The partial exhaustion of the placers, and the more or less complete exploration of the country, have put an end to the ways and methods of "the pioneers of forty-nine."

Gold mining, with great capital, and by scientific methods, is now one, and but one, of the great regular and prosperous industries of fertile, salubrious, California, and yet, though united with the east by railroads, and with Europe and Asia by lines of steamers, the growth of the state in proportion has been comparatively slow for the last twenty years, amounting in 1880, to no more than 864,686 persons, an increase of 304,439 since 1870, or 54.3 per cent. in ten years. In 1872, the gold produced in California, was estimated at a value of \$20,000,000; which was reduced by 1879, according to official estimate, to but \$17,600,000; the greater part of this, being from permanent sources of supply, something like the same amount may probably be relied upon for many years.

To the north of California, from 42 degrees to 46 degrees 18 minutes, North latitude, and from longitude 116 degrees 33 minutes to 124 degrees 25 minutes, West from Greenwich,

lies the state of Oregon. This region, having an area of 95,274 square miles, is divided by the Cascade and Blue Mountains, into Western, Middle, and Eastern sections. The Cascade Mountains, are a continuation of the Sierra Nevada range, and are situated about 110 miles from the Pacific; they have an average elevation of from 6,000 to 7,000 feet, above which rise the peaks of Mount Hood, from 11,025 to 11,225 feet; Mt. McLaughlin, or Pitt, 11,000 feet; Mount Jefferson, 10,200 feet; the Three Sisters, 9,420 feet; Diamond Peak, nearly the same elevation, and Mt. Thielsen, 8,500 feet above the level of the sea. The rivers are large, rapid, and numerous, but mostly unnavigable, the Columbia, already described on pages 363 and 364, being the most important.

Oregon was discovered by De Fuca, a Greek pilot, in 1592, and, as far as maritime discovery gave a title, originally belonged to Spain. Other powers subsequently laid claim to portions of the territory, and different parties made small attempts at settlements. Emigrants from the United States, began to arrive in 1832; a missionary colony was established in 1834, of which Dr. Marcus Whitman, and the Rev. Mr. Spalding were in charge. The wives of these two leaders; were the first white women to cross "the plains" from the United States, and their children the first born to citizens of the United States in Oregon.

Oregon was formally made part of the United States, by treaty with Great Britain in 1846; a territorial government, was organized by Act of August 14, 1848, and established in 1849; the territory became one of the United States in 1859. The progress of Oregon has been slow, although accelerated by very favorable land laws, since 1850, but it yet remains one of the least, if not the very least, populated of the United States.

A large part of the eastern section of Oregon, has been subjected to recent volcanic action, of immense violence. This part of the country is seamed by canons or "canyons," often 1,500 or more feet in depth, the sides of which are wonderful

exhibitions of the strata, and demonstrations in the science of geology hardly to be found elsewhere. Here, as in California, ancient Cretaceous beds are found, with abundant marine fossil shells in keeping, the marine fossils of Oregon being generally perfect in form, and yet filled with concretions, chalcedony or calcareous spar mostly. Above the Cretaceous strata, are found, the Lower Tertiary rocks, filled with fossil leaves, from plants of both the tropical and temperate zone; palms, yews, giant ferns, oak leaves and acorns. In these rocks, are also many fossil bones, including two species of rhinoceros, four species of a kind of camel-tapir called *Oredon*, tapirs, peccaries, and the remains of a horse-like animal, the *Orohippus*. Upon the Lower Oregonian Tertiary, rest the products of volcanic discharge, an overflow of lava, deposits of mud, and beds of ashes, all of great extent.

In Eastern Oregon, earthquakes have upheaved isolated cones, and created dike-formed ridges of secondary rock, the chasms being filled with lava, or with tertiary sediments. In the same section, are mountains of amygdaloid, hills of igneous conglomerate, and, along the rivers, remarkable columnar basaltic cliffs.

The northern part of the central section of Oregon, is occupied by the valleys of the John Day's and Des Chutes rivers, and thereabouts the Cretaceous formation predominates. On the hill sides at the Dalles, of the Columbia river, near the mouth of the Des Chutes, boulders of gray and red granite are found. A considerable part of the southern portion of this central section, east of the Cascade Mountains, and south of the 44th parallel, is covered by the tertiary strata.

The Blue Mountains, and the Coast range, are alike of Ezoic formation. The Cascade Mountains, which rise between these ranges, are volcanic, with traces of recent action; which is also traditional among the Indians. Along the Pacific coast, there is a narrow tertiary region. The valley of the Willamette river, and the head-waters of the Umpqua, occupy from north to south, the central part of the section between

the Cascade and Coast ranges. To the north, this interval is in part basaltic, showing upright walls. Midway of the Willamette valley, is a district of igneous debris, where black-trap is common; and south of this, are thin layers of limestone, with fossil two-valved shells, then granite in place, and southward still, a development of basalt. The prevailing rock, however, is trap. The head of the valley of the Willamette river, shows a light clayey sandstone. The Umpqua river, in the south-western part of Oregon, rises in a tertiary district west of the Cascade Mountains, and flowing in its lower course, in part through carboniferous formations, enters the Pacific ocean.

The state of Oregon is rich in metals and minerals, but its resources are very imperfectly developed; the mines are of gold, silver, copper, iron, coal, and lead, the ores of most of these metals being not only abundant but rich. Copper is found in ores and in solid ledges; iron ores are of superior quality, and exist in almost every part of the state; the coal is lignitic, and may be taken in large quantities, in many places, from beds of great thickness. A large amount of coal is already exported from mines on the shores of Coos Bay. Limestone, granite, marble, sandstone, slate, syenite and other stones fit for building, may be obtained generally, though most abundant in the west. Steattite or soap-stone, is found in the region of the Klamath Lakes; clays for brickmaking or pottery are plenty; the inexhaustible sands of the sea coast make excellent glass, and there are a number of springs in Western Oregon yielding large amounts of good salt.

Gold exists in the sands of the Pacific shore of Northern California and south-western Oregon, and is taken thence by washing. The deposits have been brought down the rivers, or derived from auriferous bluffs undermined by the waves of the sea. The shore sands of Coos Bay are washed for gold, but neither there nor along the shore of the open sea are the operations permanent at any definite point, the precious metal being washed hither and thither along the coast, according to

currents, winds and weather, as affecting the waves which strike upon the land. Gold-placer deposits were discovered in Jackson and Josephine counties of Oregon in 1851, and have been worked ever since, and are estimated to have yielded some \$23,000,000 or more worth of gold. Gold mining is carried on in Douglas county; but the most important gold field of Oregon, is to the east of the Cascade Mountains, on the upper branches of John Day's river, and in the valleys of the Burnt and Powder rivers. These last deposits were discovered in 1861. Since 1862, extensive placers and quartz lodes, have been worked in Grant and Baker counties, the production of which, until recent dates, was estimated at \$1,500,000 worth of gold each year. Some of the silver ores of Oregon, yield from \$150 to \$300 worth of silver for every ton; silver is found in all the quartz ledges, but the silver mines are in general undeveloped. The annual product of gold in Oregon, was at one time estimated to be worth \$2,000,000 a year, but the reports of 1880, credit the territory with a deposit of gold valued at but \$533,365.34. It is probable the increase of population, and the more thorough exploration of the territory, with the introduction of the improved and extensive methods of operation, will increase the present product and maintain the same for an indefinite period.

Washington Territory, which lies to the north of Oregon, has a somewhat similar geologic formation, and extends to the boundary of British Columbia, latitude 49 degrees North. Gold was discovered in this territory, east of the Cascade Mountains, in 1858. The Columbia river flows southward across the eastern section of Washington Territory, and its bars and the shoals of the streams which flow into it, have been profitably worked for gold, the greatest yield being obtained from placers in the north-east, above Priest rapids, and in the neighborhood of Fort Colville. It has been estimated that down to 1863, gold to the value of \$10,000,000 had been taken in the territory, but this is considered an over-statement by some authorities. Since 1863,

the yield has steadily decreased, the average product of gold for a number of years, being no more than \$300,000 worth each year. In 1875, the product of gold was valued at \$82,000, and in 1880, but \$34,529.24 was deposited. This indicates the exhaustion of the placers, but what a more thorough exploration of the country, or the regular working of the strata by modern scientific methods may produce, remains to be discovered.

The general geologic indications, already noted, as observed in California and Oregon, characterize the adjoining states and territories, marking them as one vast gold field and silver-mining territory, all the domain of the United States around the Rocky Mountains, being more or less productive of the precious metals.

The territory of Arizona, between the Rocky Mountains and the Sierra Nevadas, from latitude 31 degrees 37 minutes to 37 degrees North, and between longitude 109 degrees to 114 degrees 25 minutes West from Greenwich, comprising 113,916 square miles, or 72,906,240 acres, an area nearly as large as the states of New York, New Jersey, Pennsylvania, Delaware and Maryland combined, is, throughout its whole extent, one of the richest mineral regions of the world.

The surface of Arizona is mountainous, and the territory is crossed by the Rio Colorado, which as already described on page 364, flows through an almost impassable region. The remains of primitive tools and traces of aboriginal workings found in the mines of Arizona, lead to the supposition that the Aztecs of Mexico, there secured the gold of which they were robbed by Cortes and his followers, and that in Arizona was located the country of gold to which the Indians of America were in the habit of referring the invading Europeans. The mineral wealth of Arizona was known to the old Spaniards, and very profitable gold and silver mines, some of which are still worked, were opened there over 200 years ago. The mountains of Central and Southern Arizona, nearly all contain lodes of gold, as well as an abundance of silver and

other metals. The auriferous ores of Central Arizona have yielded a value of from \$25 to \$100 worth of gold to the ton. Placer deposits of gold have been discovered in every part of Arizona, but no one of them has been sufficiently extensive to become famous under the circumstances.

Notwithstanding the richness of the mines of Arizona, the yield of the precious metals from them has been small; the roughness of much of the country, the want of means of transportation, the lack of fuel, the scarcity of water, in places, the terrible heat of some parts, the unreliability of labor, and more than all, the deadly hostility of the native Indians, and the lawlessness of renegade Mexicans and other desperadoes, have formed an array of difficulties and dangers which have almost prohibited industrial enterprise. On account of the conditions described, many of the old mines, though still unexhausted, have been abandoned, and the working of those since discovered excessively hindered.

The total amount of bullion produced in Arizona in 1863, is estimated at a value of \$250,000; in 1869, \$1,000,000; in 1870, \$800,000. In 1880, Arizona had deposited \$2,256,742 worth of gold, and silver to the value of \$4,373,459. The future of Arizonian mining is most promising; some other fields have become exhausted, or are fully occupied, the territory has become better known, the Indians are less formidable, the laws of the United States prevail, canals are being made for water, railroads constructed, and the development of the natural resources of Arizona seems certain.

To the north of Arizona, lies the territory of Utah, extending to latitude 42 degrees North. The chief geologic strata of Utah, are the cretaceous, triassic, jurassic, tertiary, eozoic, alluvial, cambrian, and silurian. The Rio Colorado and its tributaries drain the eastern part of the territory. In the south-west, Sevier Lake receives several rivers, but has no outlet; the Great Salt Lake in the north-west, contains 22 per centum of salt, a brine wherein no fish can live. The Wahsatch Mountains of Utah, attain at a number of points, an ele-

vation of from ten to thirteen thousand feet above the sea, rising from a plain some four to six thousand feet above the ocean level. The topographic features of Utah, are remarkable; the rivers run through canons from 2,000 to 5,000 feet deep, and the surface of the country is largely occupied by arid barren alkaline deserts.

Utah was settled by the Mormons, whose pioneers, under Brigham Young, reached the region of Salt Lake July 24, 1847, the main body of emigrants arriving in the fall of 1848, but a few weeks before the discovery of gold at Sutter's Fort in California. The Mormon leaders discouraged mining, and stimulated agriculture, which, through irrigation and great industry, was made very productive. In consequence, no known discoveries of the mineral wealth of Utah took place, until 1858, when argentiferous galena was discovered in Beaver county. From the Beaver county ores, the Mormons extracted a large amount of mixed metal, which they regarded and used as lead, being ignorant of the presence of the silver. Silver lead ores were discovered in Bingham canon, in the Oquirrh range of mountains of Utah, in 1863, by a party of Californians. For want of proper treatment of the ores, and the lack of available transportation, the attempts made to work these deposits were unprofitable.

Gulch mining for gold, began in Bingham canon in 1863, and was continued, over a limited area, for several years. In 1868-9, the gold taken in Utah, was valued at \$600,000; in 1870, at \$300,000; in 1871, at \$221,000; in 1872, at \$100,000; in 1873, at \$52,426; in 1874, at \$92,093; in 1875, at \$181,765. Meantime, silver had been mined to the value of \$15,925,485. During 1879, Utah produced gold to the value of \$575,000, and silver worth \$6,250,000. Judging from statistics, and the known conditions of the territory, it may be assumed, that the mineralogical record of Utah, may yet become as remarkable as its social and political history.

Westward of Utah, and of Northern Arizona, between these territories and California, is the state of Nevada, covering an

area of 104,125 square miles. The greater part of this state, is included in the Great American Basin, a vast depression or valley, lying between the Sierra Nevadas on the west, the Wahsatch Mountains on the east, and cross ranges to the north and south. The average elevation of the basin is some 4,000 feet above the sea, but it contains mountains which rise from 1,000 to 8,000 feet above the general level, and thus present peaks from 5,000 to 12,000 feet above the sea. The Great American Basin, contains an area of about 92,125 square miles, and yet has no outlet for its drainage. The numerous and considerable rivers, which flow from the mountains in this section of Nevada, discharge their waters into lakes, or in many cases disappear in "sinks" into the earth. Some of the rivers enter the earth, and after a subterranean course for some distance, reappear in pools, and may then again become visible streams, flow into some lake, or disperse their waters and finally be lost. The rapid evaporation of the dry season in Nevada, exhausts many of the shallow lakes, the beds of some of them becoming arid alkaline plains for the time; but a return of the rains, and the melting of the snows, fills the streams with torrents, and expands the pools and lakes, into floods and inundations.

The numerous mountains of Nevada, are of volcanic origin, and present abundant traces of intense and recent action; however, no eruption is known to have taken place during the last hundred years. The surface of the valleys and plains, is mainly composed of the results of prolonged erosion from the mountains, and presents tertiary, quarternary, and alluvial deposits, often of great depth.

The gold of Nevada, is generally found in combination with silver. In the western part of the state, in the region of the Humboldt river, and Walker Lake, true gold quartz veins have been discovered, and are expected to yield well. In the Antelope district, Churchill county; in the Tuscarora district, whence rises the Owyhee river; in the Gold Mountain district, Esmeralda county; in Sacramento district; in the

Sierra, as well as in Humboldt county, and at some mines elsewhere, the gold is the most important metal.

The percentage of gold in various argentiferous ores of Nevada, has been found to vary from one-fifth to more than one-half of the entire amount of metal contained. In the famous Comstock lode, on the eastern slope of Mt. Davidson, in Storey county, in part under the towns of Virginia City and Gold Hill, the richest vein of silver in Nevada, or perhaps in the world, the gold forms about one-third of the value taken from the ore, the silver making the other two-thirds. The proportion of gold found, increases as the silver mines are worked downwards, much free gold being found in the ore veins of the deepest mines. The recently-finished Sutro tunnel, drains the Comstock lode to a depth of 3,000 feet. The amount of gold taken in Nevada, was first noted in 1861, at a value of \$600,000; in 1862, the amount was \$2,500,000; in 1863, \$4,000,000; in 1864, \$5,000,000; the aggregate of the next five years was \$21,250,000; in 1872, \$6,000,000; in 1873, \$10,000,000; in 1875, \$10,000,000. In 1879, the gold produced in Nevada, was estimated at \$9,000,000, and the silver at \$12,560,000.

Down to 1875, the Comstock mines had produced an amount of bullion valued at \$169,000,000, of which about \$56,333,333 may be supposed to have been gold. Since 1871, the bullion product of Nevada, has exceeded that of California, but as the principal value is silver, further notice is postponed to a page devoted to that metal.

The territory of Idaho, situated between 42 degrees and 49 degrees North, and longitude 111 degrees and 117 degrees 10 minutes West from Greenwich, has for its north-eastern boundary the line of the *Couer d Alene*, or Bitter Root Mountains, by which its area is narrowed in the north, to a width of no more than forty-eight miles, the southern boundary line extending from east to west a distance of 308 miles. The area of this irregular tract, is 86,294 square miles, or 55,223,160 square acres. Nearly all of Idaho lies in the basin of the

Upper Columbia River, being generally mountainous, and containing an abundance of minerals and metals. Gold and silver-bearing rocks are found in many localities, and gold-dust deposits are numerous.

The first discovery of gold in this territory, was made in 1852, on the Pend d Oreille, or "Pond Orvilles," a river of Kootenai county, in the extreme north of the territory, near the lake bearing the same name as the stream. There was but a small yield of gold from the Pend d Oreille region, and no profitable mining of gold in the territory until 1860, when it was discovered in placer deposits on Oro Fino creek, a stream flowing into the Clearwater river.

Gold mines were found in the Boisé basin, Boisé county, near the center of the territory, in 1862. The Owyhee mines, in the south-western part of the territory, south of Smoke river, in Owyhee county, and mostly on Jordan creek, were discovered in 1863. Since, gold and silver mines have been opened in every county of Idaho, the precious metals being everywhere found on the upper waters of the rivers.

The most important quartz mines, are in the central and south-western part of the territory. The richest of these are the Owyhee veins, in which silver is the predominating metal. The most productive of the other quartz mines, are those of Boisé basin, an elliptical depressed area 25 miles long, from north to south, and 18 miles wide from east to west. The quartz veins of Kootenai county are extensive, and many quartz mills are in operation in that district. The most important placers, are those of Boisé basin, and those lying along the upper streams of the Salmon and Clearwater rivers and their confluents, in Shoshone, Nez Perces, Idaho and Lemhi counties.

The bullion taken in Idaho, up to 1863, was valued at \$45,000,000; by June 30, 1876, this amount is estimated to have been increased to more than \$77,000,000, but the statistical data upon which these conclusions are based, are confessedly imperfect. For the year ended June 30, 1880, the Director of

the Mint reports a deposit of gold from Idaho to the value of \$510,546.73. Hydraulic mining having been introduced there for a number of years, the exhaustion of the principal placers of gold already begun must proceed rapidly, but the increase in the number of quartz gold mines, and the extension operations upon the auriferous rocks, will, it is supposed, be sufficient to keep up the supply of gold, while the yield of silver, to be noted hereafter, may increase.

Eastward of Idaho, to longitude 104 degrees West from Greenwich, and, except a small area in the south-west, above the 45th parallel of latitude North, is the territory of Montana, the *Toy-a-be Shock up*, or "Land of the Mountains" of the Snake Indians. This territory was made up of a large section set off from Idaho during May, 1864, and a tract of about 2,000 square miles in the south-west, taken in 1873 from Dakota.

The *Couer d Alene*, or Bitter Root Mountains, are partly in Idaho, and partly in Montana; the Rocky Mountains cross the western part of the last nearly from north to south, and the eastern part of the territory is occupied by several ranges of less extent and elevation. The mountains of this region are not as rugged as those farther south, and yet they contain many peaks of great magnitude, and present some of the most sublime and beautiful scenery known in the world. The territory is very well supplied with rivers, and has an immense amount of available water power, though irrigation is necessary to agriculture in some places.

The geologic formation of Montana is complex and irregular; the region of the Rocky Mountains presents igneous rocks of basalt, granite, and different metamorphic formations. The central part of the territory shows the effect of earthquakes, in the disturbed and contorted forms of various silurian, triassic, and jurassic strata. The eastern part of the country, is silurian, cretaceous, and tertiary. About the head-waters of the Missouri and Yellowstone rivers, are numerous geysers and hot springs, indicative of igneous action still going on in the fiery caverns beneath the surface.

The metamorphic rocks of Montana, contain large amounts of gold, and the precious metals, combined, or practically separate, are found in every part of the territory. Gold was first discovered there in placer deposits during the year 1852, at latitude 47 degrees North, between longitude 113 and 114 degrees West from Greenwich, on a branch of Hell Gate river, now called Gold creek, but no mining was done until late in 1861. Further discoveries of gold placers were made from 50 to 80 miles south-east of Gold creek, on the upper streams of Hell Gate river, in Deer Lodge valley. One of the earliest diggings was in Alder Gulch, the site of the Capital, Virginia City, Madison county. The gold field around Bannock City, Beaver Head county, in the south-west of the territory, was discovered in 1861. Not long after gold was discovered on the present site of the town of Helena, in Lewis and Clark county, the placer becoming known as Last Chance Gulch. Other discoveries of gold deposits followed in many places; gold was found in a number of quartz veins, and silver mines were opened. So numerous were discoveries of this kind about that time, that the miners in an actual embarrassment of riches, often left one well-paying placer and migrated to another supposed to be richer.

The same scenes and experiences already described as having been observable in California, were repeated in Montana.

The discovery of gold induced a great emigration; the only available means of transportation were steamboats voyaging an immense distance up the Missouri river to Fort Benton, or otherwise, by wagon trains or pack mules, over a vast country almost absolutely without the vestige of a road. There was little or no agriculture in the territory, and following the sudden increase of population, a want of provisions was soon felt. There was fortunately an ample supply of good beef, and upon this alone the miners subsisted during the first winter; flour for bread, which was all reserved for the women and children, was sold at this time at the rate of one hundred dollars in gold for a sack holding one hundred pounds. Of course, these ex-

treme hardships and famine prices measurably disappeared with the subsequent seasons, yet the opening of the Montana gold field was for sometime a work which, for natural and unavoidable reasons, was attended with incredible suffering.

Up to the date of the discovery of gold therein, Montana had been known chiefly as a place of resort for hunters and trappers; the opening of the mines hastened the partial colonization of the territory. Considerable settlements were soon made in Deer Lodge valley; at Confederate Gulch the town of Diamond City sprang up. When the diggings were opened at Alder Gulch, upon the site of the present town of Virginia City, the prospect of gold in unlimited amounts was reasonably entertained.

By 1877, gold to the value of over \$25,000,000 had been taken from Akler Gulch, and although much exhausted by constant working, part of the deposit was still operated upon to a fair profit. The diggings in Last Chance Gulch, at Helena, were still richer.

The first quartz mill in Montana, was put up early in the year 1863. As the actual resources of the territory came to be understood, the extreme excitement first created became modified, the business of mining was extended to silver, iron, and coal, the great industry of the territory was carried on with energy and success, but more quietly and skillfully, and without the extravagant expectations of profit so often realized in the beginning.

The bullion produced in Montana in 1862, has been estimated at a value of \$500,000; by 1866, the yield of the same had reached its maximum, and was worth for that year \$16,500,000; it fell off rapidly after 1868, being worth but \$4,000,000 in 1874. Up to 1875, the total yield of bullion from Montana, was valued at \$120,901,386. Of this amount, much the larger part was gold. The silver produced in Montana in 1872, was valued at only \$351,944, and in 1873, at \$176,500. The census of 1870, credited Montana with 683 gold mines, which may be multiplied almost indefinitely. The inaccessi-

bility of this remote region, is the great reason an even larger development has not been reached. The Northern Pacific Railroad, delayed but not abandoned, will in a few years cross Montana, and then, with more reliable communications, an importation of machinery, a settlement of the country, and an extension of mining enterprises may be considered certain.

The territory of Dakota lies between latitude 41 degrees 40 minutes and 49 degrees North latitude, and longitude 96 degrees 25 minutes and 104 degrees West from Greenwich. This district is 414 miles long, by 360 miles wide, and contains an area of 148,932 square miles, or 95,315,840 acres. The Missouri river crosses Dakota from southeast to northwest; a number of other important rivers flow to the Missouri; there are many small streams and numerous lakes, the country being in general well watered. The great surface features of Dakota, are large elevated plains, from which arise abrupt elevations of 500 to 1,500 feet above the local level. Most of the surface rocks are of the cretaceous or still more recent formations. The notable exceptions are in the valley of the Red river, along the north-western boundary of the territory, where the Silurian strata are indicated by salt springs; and in the Black Hills, on the western boundary, under the 44th parallel of latitude North, where are found the developments of earlier geologic systems.

The survey of Dakota has not been completed, nor its mineralogical resources even approximately reported. Gold has been discovered and worked for with success in the Black Hills, and it is expected that Dakota will in time become a very productive general mining district.

The state of Nebraska, lying south of Dakota as far as the 40th parallel of latitude North, presents the general aspect of a vast plain sloping eastward to the Missouri valley. The geologic strata are the upper carboniferous, the permian, and cretaceous, according to locality, the state containing very little gold or silver, a small amount of good coal, and but little other mineral wealth, except salt, which as obtained from the

salt springs of Lancaster county by solar evaporation, yields to chemical analysis 98.3-10 per centum of pure chloride of sodium, the purest common salt in the world.

The territory of Wyoming, lying between latitude 41 degrees and 45 degrees North, and longitude 104 degrees and 111 degrees West from Greenwich, is a part of the Rocky Mountain region, being crossed by the Medicine Bow, Green River, and Wind River ranges, and containing in the north the Big Horn Mountains, and on the north-eastern border part of the Black Hills. Fremont's Peak, near the center of the territory, is 13,570 feet above the level of the sea. The famous reservation of the Yellow Stone National Park, one of the most remarkable geologic districts in the world, is mostly included in the north-west corner of Wyoming.

The production of gold in Wyoming has been limited to a comparatively small result. The Great South Pass, over the Wind River Mountains, about latitude 42 degrees 15 minutes North, and longitude 109 degrees 20 minutes West from Greenwich, lying 7489 feet above the level of the sea, was used by the Pony Express Companies, as part of the route to California, before the construction of the Pacific railroads. About twelve miles north of this pass, in Sweetwater county, gold was discovered, and in this Sweetwater district, gulch diggings of small extent, have been developed. In the same neighborhood, a considerable number of gold-bearing quartz veins were also found, and a few of them have been worked with good results, for a short time each.

Laramie Peak, in Albany county, about latitude 42 degrees 15 minutes North, and longitude 105 degrees and 30 minutes West from Greenwich, a mountain 10,000 feet above the level of the sea, is the center of a range of mountains containing gold. The slopes of the Medicine Bow Mountains, in Albany and Carbon counties, have been successfully prospected and worked for the precious metals. The mountains west of Laramie City yield gold, and mines of the same have been opened near the town itself. There had been received from Wyo-

ming, at the various mints and assay offices of the United States Government, down to June 30, 1875, an amount of gold valued at \$174,146.69. There was received from the same territory, at the same places of deposit, during the fiscal year 1876, gold to the value of \$18,419.66; during 1878, \$52,921.02; during 1879, \$27,255.85; during 1880, \$17,320.70. The total amount of gold received as above stated, down to June 30, 1880, was valued at \$728,760.33; the total amount of silver received to the same date having been valued at \$11,793.86. What amount of the precious metals taken from Wyoming, passed down to this time, through the hands of private assayers and refiners into use in the arts and manufactures, or was exported, would, as in the case of other territories or states, be difficult to determine.

The state of Colorado, comprising the most elevated portion of the Rocky Mountain region, is situated between latitude 37 degrees and 41 degrees North, and longitude 102 degrees and 109 degrees West from Greenwich, covering an area of 104,500 square miles, or 66,880,000 acres. The center of Colorado is the watershed of the continent, the Rocky Mountains in that section presenting an average elevation of some 10,000 feet above the sea, with numerous peaks which rise three thousand, four thousand, or five thousand feet above this altitude. From Mount Lincoln, in the north-west of the central region of Colorado, having a total elevation of 14,000 feet, there are visible 200 mountain tops, some 13,000 feet above the sea, and 25 more quite as high as that from which the observation is taken. The Rocky Mountains cross Colorado nearly north and south west of the center of the state, in three almost parallel ranges. The eastern line of mountains is called the Front or Colorado range, west of this is the Park range, west of the Park range, and south of Mount Lincoln, is the line of the Sierra Madre, and between the two, below Dake county, the Sah watch Mountains. The Sierra de la Platte range runs westward from the Sierra Madre, just above the 38th parallel of latitude North.

The rivers of Colorado are large and numerous, flowing beyond its borders to the north, south, east, and west. Several of the rivers of greatest importance rise in remarkable great valleys, or basins, called parks, between the mountains, all supposed to have been the bottoms of lakes previous to an ancient era of volcanic action, the traces of which are most noticeable in the elevated country to the west.

The main range of mountains is composed of gneissic, granitic and similar rocks, and these also form the main body of the mountains to the east. The short intersecting ranges which bound the parks on the north and south, abound in boulder drift; the parks themselves have a sub-stratum of sedimentary rocks, with beds of gypsum in places, and a number of salt springs. The eastern portion of Colorado is in general an elevated rolling prairie, rising from east to west. In the east are cretaceous rocks with alluvial deposits, while under the surface of the section, and along the foot hills west of the plains, are very wide carboniferous beds, often thirty feet deep, containing an unlimited supply of good coal of various kinds, often lying in immediate proximity to an abundance of magnetic and hematite iron ores.

The first organized attempt at an exploration of Colorado, was made by a band of civilized Cherokee Indians in 1857, but they were met and driven back by the nomadic wild tribes of the country. In 1858, explorations of the region formerly known as "The Great American Desert," were made by two parties, one from Georgia and one from Lawrence, in Kansas. Both of these companies claimed to have discovered gold in deposits which paid for working, in several valleys near Pike's Peak, a mountain 14,000 feet above the sea, discovered by Gen. Zebulon M. Pike during the year 1806, in latitude 38 degrees and 50 minutes North, and longitude 105 degrees West from Greenwich, and now included in the western part of El Paso county, Colorado. However, the first really remunerative workings for gold in the Pike's Peak district, were in rich deposits discovered in May, 1859, fifty miles north-west of the

Peak, at the base of the Colorado Mountains, near the source of Clear Creek. There gold was rapidly secured in great quantities, and a great excitement and rush of emigration followed. The name of Pike's Peak was made to cover all central Colorado for a time, and to reach the district incredible hardships were endured by many. The emigrants being unprovided with provisions or other requisites for the dangerous and prolonged journey they undertook, often died a miserable death by the way, or arrived at the end of their long and tedious pilgrimage on the verge of starvation. But the gold was there, for those who reached the placers and could find strength to work, and so the peril and disaster were forgotten, and new adventurers constantly pushed on to share the good luck of the fortunate among those who had preceded them.

In 1860, Colorado, though without any organic local government, had a population of 35,000 persons, of whom by far the greater portion were males; its territorial organization was effected by Act of Congress in February, 1831. The Colorado gold placers first found, were rapidly exhausted. but it was meantime discovered that gold also existed most abundantly in lodes or fissure veins, running in general from south-west to north-east, but forming groups a mile or two wide, and two or more miles long each, made up at the surface, of numerous complicated veins involved in an intricate network. These lodes and the placers were ascertained to be more or less frequent and extensive throughout a belt some 50 miles wide, lying across the center of the territory from north to south.

At the same time silver was discovered, with the gold, or in rich deposits of surface or galena ores, at many places, in different parts of the central zone described. The bright prospects first entertained by the gold miners of Colorado, were not immediately realized. There was gold in plenty, the ores assaying in bulk from thirty to forty dollars the ton, but the precious metal was held in a form not familiar to those who handled the ores, being generally combined with copper and sulphur, or with iron in the condition of pyrites. The cop-

per and iron sulphurets were mostly found together, the iron generally most abundant, but the copper under such circumstances always carrying most gold. The successful practical treatment of such ores was a perplexing problem, and so remains, though of late better understood. At first, the difficulty of extracting the gold from Colorado ores was so great as to lead to an utter abandonment of many veins, and general discouragement among operators. The growth of the territory was in consequence very slow for several years.

Regardless, however, of its mineral wealth, and the troublesome ores of gold, Colorado was found well worthy the consideration of the emigrant, stock raiser, or farmer, and a considerable number of such persons, with their attendant mechanics and traders, gradually found their way into the state and quietly settled there. During this time, the fame of the gold of Pike's Peak and the surrounding country, had become general, and a great amount of enterprise, money, invention, skill, and tireless industry, were brought to bear upon the vexatious problem of how to profitably secure the same. The results of these efforts were generally discouraging, often ruinous to those who undertook them, but it was not in the nature of the people of the United States, to allow themselves to be baffled by any obstacle less than an impossibility. The failure of the many, was the education of the few, and less care was taken to count the life, money, and energy wasted in sometimes unscientific experiments, than to speculate upon the riches awaiting those who, by a cheap and rapid process, should separate from the ores, even approximately, the amount of gold they were, by careful and very costly chemical analysis, demonstrated to contain.

According to Le Conte: "Gold originally existed in quartz veins usually associated with metallic sulphides, particularly the *sulphide of iron* (pyrites). If the pyrites be dissolved in nitric acid, the gold is left as minute threads and crystals scattered through the pyrites. Now, when such a vein is exposed to meteoric (*meteorological*). Pertaining to the atmosphere

and its phenomena'—EDITOR), agencies, the pyrites are oxidized, partly as soluble sulphate and carried away, and partly as insoluble reddish peroxide of iron, which remains. The quartz-vein stone is, therefore, left in a honey-comb condition by the removal of the pyrites, and more commonly stained of a rusty color by the peroxide. Among the cells of this rusty cellular quartz, the gold is found in minute sharp grains, evidently left by the removal of the pyrites. Hence, in an auriferous quartz vein, along the outcrop to a depth of thirty to sixty feet, gold is found *free* in small grains among the cellular quartz, but below the reach of these agencies it is enclosed in the undecomposed pyrites."

This statement seems to have been demonstrated in the quartz veins of Colorado; there the free gold was found near the surface, and as in the ores of Nevada, described on page 429; the proportion of gold found, increased as the mines were worked downwards. But in Colorado, the greater amount of gold found by chemical analysis to exist in the deepest portions of the veins, was too intimately combined with the sulphides and locked in the rock to be secured by ordinary processes, and the percentage of loss in working, from the causes already detailed on pages 405 and 415, increased with the depth of the mine. Thus a Colorado gold-bearing quartz-vein ore, when taken from the surface, might yield to chemical analysis, some thirty dollars worth of gold per ton; the same vein at six hundred feet below the surface, would yield a very much greater amount of gold to the same analysis. The surface ore would return, to practical methods, that is to say, to processes adapted to general use, some twenty or more dollars worth of gold to each ton of ore operated upon. Supposing the cost of the process to have been eight or even ten dollars per ton, it would seem evident that all was needed, was enough of such ore to keep the stamps in operation, to insure the boundless wealth of those who wrought them. How much more brilliant was the prospect, when it came to be considered, that the quartz veins extended to a great depth, and might be

relied upon to double, or even more increase the amount of gold per ton contained in them, as they grew deeper? But what was the disappointment, when it was found in many such cases, that the greatest practical result was obtained only from ores which had for ages been subject to the action of the weather and atmosphere, and that the ores from below, though chemically considered, growing richer and richer as they were taken from greater depths, grew more and more obdurate and unmanageable, until they no more returned the cost of the process employed upon them.

To produce in a day by art, results like those brought about by exposure to natural agencies for age after age, to break down, comminute, desulphurize, and separate such ores, has been the object of numerous inventions and costly devices; improvements have been made, some of which have already been noted in this writing as used elsewhere, experiments are still carried on, and apparatuses yet incomplete, will, as is assumed by their makers, give much more favorable results than any yet attained. The gold produced in Colorado during the year 1880, exceeded, according to the Circular of Wells, Fargo & Company, that produced in 1879, by no less than the value of \$6,871,474, and this chiefly from the Leadville district. The base bullion shipped from Leadville, during January, 1881, was estimated at 2,625 tons, worth \$817,000, beside refined bullion to the value of \$65,000, an aggregate of \$882,000 for the month. The population of Colorado, given as 35,000 persons in 1860, had increased to but 39,864 in 1870; by 1880, this had enlarged to 174,649 persons, a growth during the last ten years of 154,785, or at the rate of 388.9 per centum, showing a much more rapid proportionate development, than any other state or territory of the United States for the same time. Doubtless, in this case, the progress of the past decade, may be accepted as a reasonable forecast of the future, and Colorado be considered for years to come, the reliable source of an increasing yield of gold, and hereafter, one of the great agricultural and manufacturing states of the productive west.

A part of the lands acquired by the United States by conquest and by purchase from Mexico, was the tract included between 31 degrees 20 minutes and 37 minutes latitude North, and 103 degrees 2 minutes and 109 degrees 2 minutes longitude West from Greenwich, an area of 121,201 square miles, or 77,563,640 acres, comprised in the territory still known as New Mexico. The boundaries of this territory of the United States originally included the whole of Arizona and parts each of Colorado and Nevada. The general surface of New Mexico forms part of the vast elevated plain upon which rise the ranges of the Rocky Mountain system which includes the Sierra Madre. This table land slopes toward the south, the average elevation decreasing across the territory in the course of 390 to 400 miles from 6,000 or 8,000 to 3,000 or 3,500 feet above the sea. Scattered upon the surface are numerous high or moderately elevated mountain ranges and hundreds of summits connected or detached. Of these, the highest known are Mount Taylor of the Zuni range district, in latitude 35 degrees North, and longitude 103 degrees West from Greenwich, and Topped Peak, in the Zuni range at the north-western part of the territory, each of these mountains rising to an altitude of about 10,000 feet above the general level of the adjacent plateaus, and in all some 15,000 or 16,000 feet above the sea. These, and other peaks less elevated, are covered with perpetual snow.

The mountain ranges of New Mexico, all being parts of the Rocky Mountains, tend in general from north to south, but diverge to east or west in certain sections. These ranges are called variously the Gaudalupe, the Sacramento, the Organ Mountains, the White, or Sierra a Blanco, the Hueca, the Capitana, the Sierra San Mateo, the Zuni, the Sierra del Datil, the Sierra Mimbres, the San Juan, the Mogollon, the Pinaleno, the Peloncito, the Chiricahua, the Sierra de Chusea, and other local names. The general name of Sierra Madre is applied to several ranges in the west, while the central chain is known in common as the Rocky Mountains. The south-west of New Mexico is occupied by a desert called El Llano Esta-

ado, or the Staked Plains. The great river called the Rio Grande del Norte, which rises in San Luis Park, Colorado, above the 38th parallel of latitude North, flows southwardly through the central section of New Mexico and entirely across the territory; this, and its tributary the Pecos, rising a little north-west of the intersection of the 36th parallel of latitude North, and the 105th meridian of longitude West from Greenwich, and also flowing southward beyond the boundary, are the principal rivers of New Mexico. Neither of these rivers are navigable within this territory.

The eastern and central parts of New Mexico have not as yet been perfectly explored, and the western region beyond the Sierra Madre, contains considerable districts which are practically an unknown country. To the east of the 105th meridian west from Greenwich and of the Pecos river, the surface of the territory descends gradually eastward, toward the Mississippi valley and slopes to the south in the direction of the gulf of Mexico.

The surface rocks of the great table land of this territory are mostly of the tertiary and lower Cretaceous formations. The mountains between the Rio Grande and Pecos rivers, are principally of syenitic rocks which have been thrust upwards through palæozoic sandstones and carboniferous limestones. The sandstones and limestones are intersected by dikes of porphyry and traversed by mineral lodes. The plateau of the Sierra Madre in the west and south-west of the territory, rests upon Ezoic rocks, and these make up the basic body of the Sierra Madre and Rocky Mountain ranges. The summits of the mountains are, however, as has been noted, metamorphic formations, mostly porphyry, trap and basalt. On the northern boundary of New Mexico, west of the Rio Grande, and some 75 miles wide toward the south, is a volcanic region. Mount Taylor, already described, is the center of a volcanic area, and the *Mal Pais* (Bad Country), east of the Rio Grande, above and below latitude 33 degrees North, is covered with lava, volcanic sand, and salt marshes. Extensive horizontal beds

of lava, spread over sandstone strata, are remarkable features of the geology of New Mexico. The lava and igneous rocks of the volcanic districts just described, indicate an era of volcanic action which ended but a few hundred years ago. Many of the rivers of New Mexico have formed canons, in the depths of which they still continue to flow. The sides of these canons sometimes show beds of coal in positions to admit of mining. The sandstones of the central *mesas*, or table mountains, contain beds of lignite and of bituminous coal several feet thick, between layers of shales, fire-clay, and ores of iron. Such beds exist in many localities, but in volcanic areas, as in the Placiere Mountains, where porphyry has been formed and igneous action brought to bear upon the coal bearing strata, the carboniferous beds have been completely changed into an excellent quality of anthracite. The central plateau and the country west of the Rio Grande, contain variegated marls and beds of gypsum, salt and iron are abundant, copper ores are plentiful and very rich, and New Mexico, for nearly two and a half centuries, has been known to Europeans as a country prolific of silver and gold.

The discovery of gold in New Mexico, as in Arizona, was prehistoric. When in 1492, Columbus reached the West Indian islands, New Mexico contained a large semi-civilized population, who cultivated the soil, manufactured cotton and woolen goods, worked the metals and builded houses of great size and several stories high, with walls of stone, of which the ruins still remain, with other traces of their occupaney and improvement of the country. The remnants of the once great Indian population of the territory, are found in the citizens of nineteen Pueblos, or Indian villages, who now number some 7,000 persons, and own a half million or more dollars worth of property. These Pueblo Indians, though hindered from voting, are really citizens of the United States and Christians, in a manner, and yet follow the same methods of life described as peculiar to them and their country for the past three centuries.

New Mexico is from 1,000 to 1,500 miles from the landing places of the Spaniards who invaded Mexico, and hundreds of miles from any possible approach by shipping, even via the gulf of California, and yet the fellow-countrymen of Grijalva and Cortes had forced their way into the heart of the territory, almost a hundred years before the English settled in New England. The men who survived the disastrous expedition to Florida under Panfilo de Narvaez, in 1528, were led into New Mexico by Alvar Nunez, in 1537 or earlier; the result of their observations there was made known to the viceroy of Mexico. An expedition to New Mexico under Marco de Niza, was made in 1539, which was followed by another under Coronado in 1540; this last crossed the entire territory, as is proved by the description given of the same by Castaneda, the historian who accompanied the party of exploration.

The name of New Mexico was given to the newly-discovered country, in or about 1581, when an expedition led thither by Capt. Francisco de Bonillo, first made known its great mineral and metallic riches. About this time, a Franciscan missionary, by the name of Augustin Ruiz, undertook to convert the Indians of New Mexico, but lost his life at their hands. In 1592, two partially successful efforts were made to plant colonies of Spaniards in New Mexico, and Don Antonio Espejo having been made Commandante, entered the province with a body of armed men. No great measure of success followed, and in 1595, or 1599, the viceroy of Mexico sent Juan de Onate to take possession of New Mexico in the name of Spain, and found colonies, establish missions, and maintain forts in the new province.

The administration of Onate was considered most successful; the missions were established, the forts were built, the colonies grew apace; by dint of powder and persuasion, the Indians were conquered and converted, or in the case of the wild tribes, driven into the deserts; placers of gold dust and veins of silver were discovered; mines were opened; diggings developed; the Christianized Indians were enslaved, and un-

der cruel taskmasters perished in great numbers, through hardships and overwork, in securing the precious metals for those who, full of professions of the religion of Jesus, manifested an avarice would have shamed any Pagan, and a cruelty might have been the inspiration of a fiend.

The Pueblo Indians were very patient, but their sufferings became too much for human endurance, and they made repeated attempts at revolt. At length, in 1680, they regained their freedom, and drove the Spaniards from most of their country. All the northern part of New Mexico was held by the Indians until 1698, when the Spaniards, having already been several times defeated, reconquered the entire region; obtaining, however, but a portion of their former power over the natives, and this was exercised with greater moderation and humanity. In 1822, Mexico, and New Mexico, declared their independence of Spain, when New Mexico became a Mexican state. As such, it was invaded by United States troops in 1846, and in 1848 ceded to the United States by the treaty of Gaudalupe Hidalgo. New Mexico was organized as a territory of the United States Sept. 9, 1850. Slavery was recognized by the territorial legislature in 1859, but abolished at the suggestion of Gen. E. R. S. Canby, of the United States army, in 1861, which Act emancipated the Indian *peons*, putting an end to a local system of serfdom which had existed for two hundred and fifty years.

During the year 1862, New Mexico was the scene of some severe fighting between Confederate troops under Gen. H. F. Sibley, and the forces of the United States Government under Gen. E. R. S. Canby. Finally, the plots of those recreant officers, who sought to deliver the territory to the Confederacy, were circumvented, and Gen. Sibley withdrew, having lost half his command in killed, wounded and prisoners; he declaring the territory not worth one fourth of the cost.

The subsequent growth of New Mexico was slow, and though several times before Congress for admission to the Union, it has failed to become a state. The population of

this territory in 1850, numbered 61,547; in 1860, it was reported as 93,516; and in 1870, at 91,874, of whom nine-tenths were supposed to be Mexicans. The Census of 1880, gives New Mexico a population of 118,430, and, as a considerable emigration thither has taken place, the proportion of residents other than Mexicans has increased. In addition to the various returns just noted, the territory has contained some 20,000 Indians, outside of the several tribes.

The Indians of New Mexico are at once of the most peaceable, and of the most murderous description. The Pueblos, who live in great communistic edifices, are inoffensive and industrious, while the Comanches and Apaches are notorious for their ferocity. The raids and plundering expeditions of the last two tribes, the difficulty in securing clear titles to land, and the scarcity of water in some sections, have operated together to hinder the development of mines and check every other form of industry. As these obstacles are gradually overcome, a great impetus is given to progress, new mines are opened in every direction, settlements multiply, or increase, and furnish a market for the produce of adjoining states. The most important sources of gold in New Mexico, are the Moreno district in the north part of the territory, on the eastern slope of the Rocky Mountains, in Colfax county; that of Pinos Altos, in Grant county, south of the Zuni Mountains; and the Old and New Placeres Mountains, along the course of the Rio del Norte, in Santa Fe and Bernalillo counties. The Sierra Blanco, Jicarilla, Carrizo, and Patos Mountains of Lincoln county, and the Magdalena Mountains of Socorro county, also contain productive gold mines. There are beside, diggings in Taos county, and in Rio Arriba county, in the region of Santa Fe. In fact, there are placers, such as most of those already named, more or less rich, known in various parts of the territory, too numerous for record here, and new discoveries add largely to the number.

Five years ago, the quartz gold-bearing veins of New Mexico were worked at some few points, but to a limited extent.

The ores then worked were such as yield from 50 to 75, or sometimes \$100 per ton; they were less obdurate and refractory than those of Colorado, already described, yielding easily and readily to proper treatment, and returning a large percentage of their contents of precious metal as a result of the process. In 1870, New Mexico was reported to be producing gold to the value of \$343,250 each year. In 1874, the yearly product of gold in the territory, was officially estimated to have been worth \$500,000 each year for several years. Meantime, the production of silver, copper, lead and coal became more and more important.

Since the opening of the Atchison, Topeka and Santa Fe Railroad across the interior of New Mexico, the development of the territory has been remarkably stimulated. The existence of immense deposits of mineral, rich in the precious metals, has, according to current report, already been abundantly proved by the recent researches of mineralogists whose reputations in principal mining districts of the west, has been such that their statements can be considered authentic. The interchange of mining property from the original "locaters" to eastern capitalists and various corporations for large sums of money, even before any considerable work had been done, is held by local writers of the territory to prove that the value of the mines has not been overestimated.

The Pinos Altos mining district of Grant county, is described as the only part of New Mexico where gulch mining has been carried on to any great extent. The four principal ravines where work has been done, are Bear creek, Whisky creek, San Domingo creek and Atlantic creek, beside which are hundreds of side ravines emptying into them. These ravines can be worked the year round with rockers, by which the miners can always make wages, and in the rainy season extensive and profitable operations can be carried on. The veins of a characteristic locality of this district, are represented as being all true fissure, never "pinching out"; at the depth of from 50 to 100 feet the ore changes from a free oxide to

pyrites, under which, as is supposed, pyritous sulphides are to be found. The deepest work yet done in these veins, is less than 150 feet below the surface, where the pyrites are found, and as these cannot be reduced with an arrastra, the apparatus still in use, the diggings are for the time carried no farther downward. The general leads carry silver, though only gold has been taken out, large amounts of silver having been washed away into the Gila river, as no attempt has ever been made to save it. One of the recently-opened gold mines of New Mexico, is described as follows in the last issue (February 26, 1881), of a trusted periodical devoted to mines and mining: "A tunnel was run into the claim, in the direction that it was expected the lead took. But after getting in fifty or sixty feet, it was found that the dip was altogether different, and the tunnel was run at right angles to the direction first taken. A cross-cut was made twelve feet in one direction and fifteen in another. In this chamber there is gold to the right of you, gold over head, and gold under foot. You cannot put up your hand anywhere without covering the measure. Holding up a light, the walls fairly glisten with gold. A shaft has been sunk, and fifteen feet above the chamber is the same rich ore, as gleams and glistens on the roof of the chamber. It is no wonder that the owners, —, hold the price at \$750,000. In fact, it is estimated there is more than that amount in sight, as the lowest-grade ore will run as high as \$500 to the ton." A specimen of this ore, said to have been chipped off, 44 feet down the shaft just described, is almost a nugget of gold.

There was deposited in the United States Mints and Assay Offices, during the fiscal year 1881, gold from New Mexico to the value of \$91,037.28. Making all necessary allowance, for the bias toward exaggeration, self-interest, local pride, or sanguine enthusiasm may cause in the reports of the mines of New Mexico, it is evident that the territory, one of the districts first occupied by white men in the interior of the American continent, and where some of the oldest mines of the West-

ern Hemisphere are still productive, is, with the adjoining territory of Arizona, to become anew the scene of adventure, speculation and enterprise in pursuit of the precious and other metals.

Doubtless, mistakes will be made by the reckless, and losses incurred by the unwary, but it is considered certain that under the stable control of the United States, with an infusion of a varied emigration, the advent of railroads, and the application of new methods and perfected machinery to old, and new, reliable sources of mineral wealth, the settlement and progress of the whole section will be rapid, judicious investments there be made profitable, local industry rewarded, and the world's supply of gold and silver largely augmented thereby year after year for a long time to come.

Besides its mines, New Mexico, though generally counted a total desert, by those who derive their misinformation from certain text books of a generation ago, has a capacity for stock raising, farming and fruit culture not at all to be despised. Thousands of acres of tillable land need no irrigation; there are already choice vineyards, the grapes from which make splendid wines. As in California, a great amount of land can be made fruitful by an available supply of water; moreover, the climate is generally very healthful. Since the introduction of railroads into New Mexico, stock raising there has increased very rapidly, yet few "Americans" have penetrated the agricultural districts of the territory; when they have done so, and made application of their capital, their improved machinery, skill, and energy to the arable soil, they will find a ready and well-paying local market for their produce, and create in many parts of that section of country, cattle ranges, plantations, and farms, as valuable as any lands elsewhere used for a similar purpose.

The state of Kansas, named after an Indian tribe of the Dakota family, occupies the territory between 37 degrees and 40 degrees latitude North, and longitude 94 degrees 40 minutes and 102 degrees West from Greenwich. On the east of this

tract, the strata are of the carboniferous system; the most of the surface of this section is occupied by upper carboniferous formations, and includes all the abundant coal measures of the state; the lower carboniferous strata, are presented at the surface, only in the south-east corner of Kansas. Further west, the permian, the triassic, and the cretaceous formations succeed each other, the last extending west into Colorado, and to the foot-hills of the Rocky Mountains. The mines of Kansas are rich in coal, with which they supply several adjacent states and territories; there are large quantities of very pure salt in crystalized beds and springs; otherwise, the minerals of the district are, as far as known, unimportant; the precious metals have not been found in the state, and the geology of Kansas, though rich in fossils and underlying a fertile soil, gives no promise of future discoveries there of gold and silver.

The Indian Territory, lying south of Kansas to latitude 33 degrees 35 minutes North, presents a geological development which somewhat resembles that of Kansas; the Indians located there on reservations, as wards of the United States, farm some of the land. No mines have been opened, and the precious metals are probably absent.

The great state of Texas, lying south of the Indian territory, and south and east from New Mexico, north of the Rio Grande del Norte, to the gulf of Mexico, presents every kind of soil and variety of surface. The whole country slopes gradually upward from the great gulf, on the south-east, to the Llano Estacado or Staked Plain, which occupies the large part of the west and north-west of the state. The gulf coast is alluvial, the region back from the shore tertiary, and the higher western lands cretaceous in formation. There are also minor districts of paleozoic, carboniferous, silurian, jurassic, triassic, and ezoic rocks. The mineralogy of Texas is but little known. Gold has not been mined in the state, in any notable quantity; the workable placers and veins, if in existence, remain to be discovered. The north-west of the state,

contains large quantities of argentiferous galena, yielding a large percentage of silver. Copper abounds in exceedingly rich veins and peculiar lodes, iron ores exist in large amounts, of good quality, convenient to vast beds of coal of various kinds. There are other minerals of commercial value and extensive tracts of timber in the state, which already crossed by railroads, is evidently destined to eventually become the home of a vast and prosperous population.

Of the states forming the western bank of the Mississippi river, Minnesota alone is known to contain gold in quantities likely to pay for the working of diggings or mines. Gold has been discovered in White county, Arkansas, but not in such quantities and conditions as to pay for the labor required to obtain it. Missouri contains gold only in the drift sands of its rivers; the placers, as far as known, are not rich enough to repay the trouble of washing. In the state of Minnesota, gold and silver are found in but moderately profitable workings, on the shores of Vermillion lake; the country around, however, is reported to be so wild, that these deposits are not worked. The geology of the state of Minnesota, as far as explored, indicates the possibility of other and perhaps richer sources of the precious metals yet to be found therein. The state of Wisconsin, on the east of the Mississippi river, and between lakes Superior and Michigan, contains but very small quantities of gold and silver, these being found in a metallic condition.

With these notes upon the sources of gold around the headwaters of the Mississippi river, and the country west of the great lakes, ends the general survey of the Rocky Mountain gold field, as far as it is included in the United States. An account of the gold-bearing districts of the British portion of North America, is reserved for a future page. The vast section of the mineral lands of the United States already described herein, mostly presents its mines of the precious metals in a manner indicative of their origin in, and connection with, the same vast mountain system. The most noteworthy apparent

exception to this general rule, is found in the mines of the Black Hills, in Dakota, to which reference has been made on page 434 of this volume.

The Black Hills country, lying in the south-west portion of the territory of Dakota, upon the head-waters of the Cheyenne river, between the north and south forks of the same, is a recently-discovered source of gold, which on account of its exceptional peculiarities, and very considerable fruitfulness, must be somewhat especially described, before the consideration of the resources of the great west is concluded. These "Hills" are really mountains of moderate elevation, yet not a part of the great mineral ranges upon which the mines of Idaho, Montana, Nevada, California and the West are principally located. They are instead, an isolated group of highlands, standing in a region almost a plain. Among these eminences, gold has been found throughout a district of some sixty miles or more in length from north to south, and some fifteen or twenty miles in width. There are two kinds of ore bodies in this field, the first, cement deposits, like placer mines, lying horizontal, in conformity, or nearly so, with the surface, and found all over the country.

These deposits are sometimes found in large masses, often thirty, forty, or fifty feet thick, sometimes containing gold to the value of three or four dollars per ton, and sometimes yielding fifty dollars from the same amount of ore. Some of the cement deposits are quite extensive and of great value. The worth of any known deposit can be closely estimated, and many of them are large enough to each employ a forty-stamp mill for a score of years. The deposits lie upon a bed of slate, and are frequently covered by a cap of porphyritic rocks. The materials of the deposits are quartz gravel, and a kind of cement, conglomerated and fused together; this matrix is generally easily pulverized, but occasionally is hard as granite. The ores are quite free and easily milled, and the gold which is found therein in coarser and heavier particles and grains than in the fissure veins, is easily saved.

The quartz gold-bearing lodes of the Black Hills, are regarded by Professor Jenny as "fissure veins following the stratification of the slates, with a strike of North 30 degrees West, and a dip of 51 degrees north-east. The walls are usually chlorite slate or a hard green chloritic quartzite, which by oxidation and surface decomposition, forms the hard brown 'iron rock' of the mines. The wall rock is very solid and compact." The ore of some of the veins is described as a mixture of ferruginous quartz with decomposed chloritic slate, which mills freely and allows the gold to be easily saved. The ores of the Black Hills' veins are, with but few exceptions, of a low grade, yielding from eight to twenty-two dollars the ton. The fissure veins of the whole belt are, as a general thing, very wide and uniform. One cut of the vein of the Deadwood mine, is 100 feet across, and similar lodes elsewhere show a width of 160 feet. The ore pays for milling all the way from the surface down, the whole of the ore and crevice material returning a profit. The ore being perfectly free, according to report, from base metals, the cost of reducing the products of the mill to bullion is comparatively small. The cost of mining and milling the average Black Hills' ore, is estimated by a resident observer, at three dollars a ton.

An 80 stamp mill, crushing ores yielding five dollars a ton, is said to be able to make a profit of \$300 each working day, upon ores yielding \$9, \$12, \$16, and even \$22 the ton; the cost of milling does not increase in proportion, and the profits are assumed to be very great. The water supply of the Black Hills' gold field, is copious, constant and reliable; in fact, some of the stamps are very economically run by water power. The first quartz mill erected in the Black Hills' gold belt, commenced work upon the ore, January 1st, 1876. In 1879, there were over 5,000 quartz-mining locations recorded in the different districts, with 52 stamp mills of from 5 to 120 stamps each, with an aggregate of 1,120 stamps in successful operation. There were more than twenty prominently-developed mines in the Hills at the date specified, many of which were

yielding handsomely; producing, according to an estimate made in the district, an amount of gold each month, worth about \$600,000.

Various sums, such as \$20,000, \$50,000, \$70,000, \$80,000, \$100,000, \$120,000, and in one case, \$400,000, have been paid by capitalists of New York and San Francisco for a gold mine in the Black Hills' belt, and the profits, even upon such large investments, have in many cases been very satisfactory. It has been stated that there was not for three years a single mining failure in the Black Hills, where honest and careful management was devoted to the enterprise. The owners of mills in this district, though using no elaborate machinery, claim to save by ordinary process, seventy-five per cent. of the gold existing in the ores submitted to their working. All circumstances considered, the holders of Black Hills' property, the era of wild speculation having passed, feel justified in anticipating a high and long-continued prosperity for their gold-producing region of country, and invite capital and emigration accordingly.

The yield of the Rocky Mountain gold field, the net product of the states and territories west of the Missouri river, according to the statement of Wells, Fargo & Company, has been as follows:

1870	-	-	-	-	-	\$ 33,750,000
1871	-	-	-	-	-	34,398,000
1872	-	-	-	-	-	38,177,395
1873	-	-	-	-	-	39,206,558
1874	-	-	-	-	-	38,466,488
1875	-	-	-	-	-	39,968,194
1876	-	-	-	-	-	42,886,935
1877	-	-	-	-	-	44,880,223
1878	-	-	-	-	-	37,576,030
1879	-	-	-	-	-	31,470,262
1680	-	-	-	-	-	32,559,067

Total, for eleven years,						\$ 413,239,152
--------------------------	--	--	--	--	--	----------------

During the year 1880, the product of California showed an increase of \$579,579 in gold, and a decrease in silver of \$360,573. Nevada showed a total falling off in gold and silver of \$6,966,093; the yield from the Comstock being only \$5,312,592, as against \$8,830,562, in 1879—a decrease of \$3,517,970. The product of Eureka District was \$4,639,025, as against \$5,859,261 in 1879—a decrease of \$1,220,236. Utah showed an increase of \$932,074. Colorado shows an increase of \$6,871,474 over the product of 1879, chiefly from Leadville District. Dakota shows an increase of \$914,094. Arizona showed a notable increase of her gold product during the year. According to the Report of Hon. Horatio C. Burchard, Director of the United States Mint for 1880, the diminished production of gold and silver on the Pacific coast, has sensibly affected both the amount of deposits and coinage of the San Francisco Mint, the amount struck at that establishment having been \$13,000,000 less of gold, and \$6,000,000 less of silver, during the fiscal year 1880, than for the same period two years before. The time for enormous returns from newly-discovered placers, or from the rapid collection of nuggets from any source, in the Rocky Mountain region, seems to have passed; it remains to be seen whether regular hydraulic mining applied to the high gravels of that part of the continent, and the extended working of the various apparently inexhaustible veins of gold-bearing rock west of the Mississippi, by improved methods, will not maintain the present yield of gold and silver there, or perhaps increase the same, making the return of the precious metals thence, as regular, reliable, and permanent, as it has been remarkably abundant and vastly valuable.

The second great gold field of North America, is centered in the Appalachian Mountains along the Atlantic coast, and may be regarded as containing all the sources of gold known upon the northern part of the American continent east of the 90th meridian of longitude West from Greenwich, the line of the Mississippi river and the great lakes, and south of the river St. Lawrence. For a general account of the Appala-

chian Mountains, and of the geology of the principal gold-bearing districts within, or contiguous, to their several ranges, reference may be made to pages 356 and 357 of this volume. Traces of ancient gold mines have been discovered in the southern part of the Atlantic coast gold field, and from relics and other indications, it has been assumed these old workings were opened by some of the Spaniards who entered Florida under Hernando De Soto in 1539, and subsequently sought for the precious metals in various directions. The earliest recorded discovery of gold in the Appalachian region, was made in a district now known as Cabarrus county, in the state of North Carolina. The gold was first found there in the form of a nugget, weighing 28 pounds, and said to have been of the shape and size of an ordinary domestic smoothing iron. After the finding of this nugget, there was more or less prospecting for gold in the district from which it had been taken, and a number of placers, and possibly a few veins, were worked irregularly, in a primitive manner, for a number of years. The gold secured by these primitive operations having been sold in a number of places, for various purposes, no record of the product was kept, and the amount of the same is therefore unknown. Gold has been obtained at various places all along the Appalachian ranges, and westward in Tennessee, yet although known for a hundred and eighty years, and more, and lying in an accessible country, with an enterprising and numerous population, and worked persistently, the Atlantic coast gold field, has not been found, either in the magnitude of its deposits, or the amount of gold produced, comparable with the rich auriferous developments west of the Mississippi valley.

The principal portion of the Appalachian gold field, is included in Georgia, Alabama, South Carolina, North Carolina, Tennessee, and Virginia; there is no continuous belt of gold-producing placers or lodes in the section named, but there are numerous auriferous tracts at intervals, and these, though often many miles apart, are generally situated parallel to each

other. The veins of the southern portion of the Appalachian gold field, are mostly placed in rocks of a granitic nature, and in diorite, a kind of hornblend; all of the rocks containing gold-bearing veins in this section, being often discovered in a state of decomposition, to the depth of some two hundred feet. The gold veins of this district are also found in the various slates, notably those of a talcose, micaceous, chloritic, and hornblendic character. In the state of North Carolina, a belt of crystalline slates like those named, may be traced through several counties; to the east of this, is a belt of hornblendic rock, and to the west is another belt, of granite. The relations of the gold of South Carolina, are similar to those already noted here. Steatitic strata are frequently found near the gold mines of this last state, the veins of gold-bearing ore being often cut and thrown into irregularity, by dikes of intruding rocks of varied natures. The general-bearing of the common lodes is north-east and south-west, with a dip toward the north-west, yet their course is not at all uniform, being directed to various points, and the veins often tortuous and much displaced by faults.

The veins having a highly crystalline quartz gangue, generally abound in iron pyrites; in these, pyritous copper is generally found at some distance from the surface. In nearly all such cases, the amount of gold to be found in the lode, decreases as the quantity of copper contained increases; the copper to be had, however, is not sufficient to pay for mining and separation, and the gold having, perhaps, almost disappeared, the workings are, of necessity, abandoned. The most of the gold secured from deposits and lodes on the Atlantic seaboard, or within a distance of about three hundred miles from the eastern coast of North America, has been obtained from a tract lying in the states named in the preceding paragraph, and of very irregular width, but in some places more than seventy-five miles across.

The greatest amount of gold produced in any eastern state of the United States, has been taken from North Carolina,

where two principal auriferous belts are to be observed, crossing the state in a south-west and north-east course. One of these belts passes through Mecklenburg, Cabarrus, Rowan, Davidson, Guilford and Caswell counties. The second belt is further to the west, lying from ten to twenty miles from the base of the Blue Ridge range of mountains, and at a greater general elevation than the first or eastern belt; the placer deposits of the western belt, are richest, and most extensive, continuing through Rutherford, McDowell and Burke counties.

The state of Georgia, also presents two auriferous belts, the ranges of gold deposits, being separated by a district of rocks entirely free from gold. The quartz veins of the region described, resemble those of California, the gold being found in them in free coarse grains, or finely disseminated through masses of sulphuret of iron or of copper. Most of the gold taken from the region of the Appalachian Mountains, has been found in placer deposits, the value and practicability of the veins and lodes in the rocks, when under ordinary process, seeming to increase according to their position within certain limits toward the north.

In Virginia, gold veins are found extending through Fauquier, Culpepper, Louisa, Fluvanna, Buckingham, and a number of adjacent counties. In the ore from Virginian veins, the gold has been found in a more visible form than in the average of those mined further south, and more readily separable; the richness of the ores has been quite variable and uncertain, yet the production of gold from the same, has at times been very large; the average statement of the metal taken, and of time and money expended, is nevertheless unfavorable; however, some of these mines still continue to be operated to a greater or less extent.

As might be inferred from the geognostical developments and relations of the country, gold has been discovered in the state of Maryland; also in Pennsylvania, and in the states of Vermont, New Hampshire, and Maine; but except certain

operations in Vermont, carried on over a small district, during the year 1859, no part of these states has been found to contain such an exhibit of gold, as would warrant the trouble and expense of proper mining explorations for the discovery of the precious metals.

Having given the preceding general statement regarding the principal features of the Appalachian gold field, it is requisite, before noting the auriferous characteristics of some districts of the provinces of the Dominion of Canada, and parts of the British Possessions in North America, to review, briefly, the eastern part of the United States, and give, state by state, in geographical order, somewhat more in detail as concerns each locality, an account of each, in relation to the subject of gold and its production. So old, well known and populous are these states, that the matter of their location, outline, area and history, may be supposed well enough known by those of even average education; their geological structure has been sufficiently noted in general remarks already given herein, or having been explored and recorded, may be found in the common text books and treatises. It is then to the gold, and the strata containing the same in the states of the region named, that the next succeeding paragraphs are to be more especially devoted.

The state of Florida, lying between the Atlantic ocean and the gulf of Mexico, and south of latitude 31 degrees North, is made up entirely of alluvial and diluvial formations; few valuable minerals are found; the rocks are shell conglomerates of marine origin, the soil often very fertile, but as might be expected, no gold has been found in Florida.

The state of Mississippi, east of the river of the same name, to longitude 88 degrees 7 minutes and 91 seconds West from Greenwich, and south of the 35th meridian of latitude North, to the gulf of Mexico, is occupied by carboniferous, cretaceous, tertiary, and post-tertiary strata; the mineral resources of the district are inconsiderable, and there are no deposits of the precious metals known in the state.

The state of Alabama, includes the territory lying east of

Mississippi, to longitude 85 degrees and 10 minutes West from Greenwich. This state has a coast on the gulf of Mexico, at the south-west corner of its territories, of some sixty miles or more, indented, however, by Mobile Bay. The rest of the state is bounded on the south by Florida. The southern portion of Alabama, is occupied by alluvial, diluvial, and tertiary formations; the "Cotton-Belt" region, 162 miles wide on the west and 60 on the east, in the central section, is underlaid with jurassic limestone, and contains some chalk; the eastern and north-eastern district is occupied by the eozoic rocks of the Appalachian mountain system. These primitive rocks are found in parts of Lee, Chambers, Tallapoosa, and Randolph counties; to the west, and north north-west of these, are carboniferous beds, and westward still again, a belt of palæozoic rock. The extreme northern part of Alabama, is a limestone region, and part of the valley of the river Tennessee.

Alabama, is one of the richest mining and mineral regions of the world; its metallic wealth consists of gold, silver, copper, iron and lead; beside which are valuable mineral beds, containing coal of various kinds and good quality, syenite, soapstone, arsenical ores, vivianite, carite, calcite, dolomite and crystalline quartz. There are also clays fit for pottery, chinaware, fire-brick, or crucibles; good limestone of different kinds, manganese, valuable sulphates, and building stone; including granite, slate, white marble, and variegated marble; also, lithographic stone, and red ochre. The marbles of Alabama, equal any in America. The most important mines of the state, are those producing iron; the most valuable mineral product is coal. The coal and iron of Alabama, are inexhaustible, and of surpassing excellence; as they are found in close proximity, and near the lines of railroads, the state presents every condition for manufacturing the best of iron in the greatest quantities, at the lowest possible price.

The gold of Alabama, was first found in Randolph county during 1836, and other discoveries followed, the auriferous mines made known and worked, often containing a small per-

centage of silver. The greatest yield from these mines, was from 1836 to 1859, during which period the gold produced was valued at about \$200,000. Up to June 30, 1872, there had been deposited at the United States Mints and Assay Offices, gold from Alabama, to the value of \$213,750.66. The amount of gold thus deposited, from the same state, during the fiscal year ending June 30, 1880, was valued at \$752.79, and the total amount of gold so received, from the same, to that date, at \$219,872.95. The gold mines of Alabama, are of small importance, when compared with the sources of wealth contained in the coal measures and iron mines of the state; they are, however, of interest in the present writing, as the south-western extremity of the very extensive Appalachian gold field to be described.

Eastward of Alabama, and north of Florida, lies the state of Georgia, which being bounded on the north-east by South Carolina, extends on the south-east to the Atlantic ocean. The territory of the state presents three distinct belts of different elevation, and dissimilar climate. Geologically described, the coast region is a district of sand, often but a few feet above the sea, imposed upon the rocks of the lowest tertiary, cocene, or modern tertiary rocks, with clays and calcareous beds, over metamorphic slates and gneiss, with occasional outcroppings of the eretaceous strata. This belt extends inland, with a gradual ascent, to about the center of the state; where, on a line nearly parallel with the sea coast, the primary formations are developed in hills of granitic and palæozoic rock. From this line of hills, a metamorphic and silurian belt extends northward for about 150 miles, rising to a still more elevated plateau of cozoic formation, some sixty, seventy or more miles wide, which reaches to the northern boundary of the state among the southern spurs of the Appalachian ranges of mountains.

Gold was discovered in the northern geologic district of Georgia, in Habersham county, in 1829, or 1831, and has since been taken from veins and alluvial deposits found in

almost every county north of the center of the state, and lying east of the western base of the mountains which extend into the same from the north. Georgia, has been regarded as the El Dorado sought by the Spaniards who invaded Florida before 1540. In Nacoochee valley of this state, the remains of an Indian gold-mining village, of very early times, consisting of thirty-eight low-timber houses, were found buried nine feet below the surface of the ground. What time passed after the Indians left these mines, before the precious metal was re-discovered in the same region, by the white settlers, as already stated, is quite unknown.

Before gold was found in California in 1848, the placers in the northern counties of Georgia, had been profitably worked for many years. The branch of the United States Mint established at Dahlonega, Lumpkin county, Georgia, in 1837, coined during the year 1853, an amount of gold, mostly produced in Georgia, to the value of nearly \$500,000. This mint was kept in operation for 24 years, or until 1861, and during that period coined gold to the value of \$6,121,919, the most of the bullion thus used having been produced in the state in which the mint was located. The production of gold in Georgia, down to 1838, was estimated to have been 800,000 ounces, worth about \$14,500,000. From 1838 to 1849, the gold produced in the same state was estimated at 200,000 ounces, worth about \$3,726,000.

From the year 1852, the production of gold in Georgia, rapidly decreased, until in 1870 but five mines were worked in the state, the annual yield from them all being valued at but \$29,780. The principal gold-producing area of Georgia, is comprised in Lumpkin, Habersham, Forsyth and Hall counties, the metal being taken from the alluvium of the streams, and the quartz rocks of the hills. The gold received from Georgia, at the United States Mints and Assay Offices, during the fiscal year ending June 30, 1880, was valued at \$89,831.08, and the aggregate value of the gold thus deposited from the opening of the mines of the state, to the date last mentioned,

was valued at \$7,698,082.03, with a remarkably small amount of silver, to the value of only \$458,20, the product, as thus stated, indicating the nature of the sources from which the gold has been taken.

Eastward from Georgia to the Atlantic ocean, lies the state of South Carolina. The coast region of this state for about thirty miles inland from the sea, is an alluvial or quarternary formation; to the west of the coast region, is a tertiary belt some sixty or eighty miles wide; beyond this, to the west, is a district of mixed silurian and eozoic rocks, while on the extreme western border of the state, the primitive eozoic appears in rugged mountainous grandeur. The state of South Carolina, contains many rich but mostly undeveloped mineral and metallie deposits and veins. The gold-bearing rocks extend through the north-west corner of the state, the metal being found in Abbeville, Edgefield, Lancaster, Pickens, Spartanburg, Union and York counties. There are mines in Abbeville, Edgefield and Union counties, which have produced large amounts of gold. The Dorn mines in the years before the war, sometimes yielded gold to the value of \$200,000 each year.

The first deposit of gold received at the United States Mint, from South Carolina, was made in 1827, and was valued at \$3,500. The aggregate of such deposits from the same state, from the opening of its mines, down to the close of the fiscal year ending June 30, 1876, was valued at \$1,381,518.13. The gold from South Carolina deposited in the United States Mints and Assay Offices, during the fiscal year ending June 30, 1880, was valued at \$11,861.70, and the aggregate of all such deposits from the same state, to the date last mentioned, was valued at \$1,401,845.30. The value of the silver so received, during the period named, was reported at: but \$30.44.

The territories of the state of North Carolina, are included between latitude 33 degrees 49 minutes 45 seconds and 36 degrees 33 minutes North, and between longitude 75 degrees 25 minutes and 84 degrees 30 minutes West from Greenwich. The boundaries of the state are irregular in form, the eastern

district fronting on the Atlantic ocean, and including various sounds. The region of the coast in this state, is marked by a heavy deposit of sand spread over tertiary, cretaceous eocene and miocene formations of rock. One-half the surface of the state is comprised in the quarternary formations, which cover a belt from 100 to 125 miles wide, parallel with the coast. The midland region of the state, for some 125 miles in width, is metamorphic and granitic; the common rock of this belt is a kind of gray granite, destitute of gold. There have been discoveries of gold in Franklin county, of this section, however. On the extreme western border of North Carolina, there is another granite belt some 10 to 14 miles wide, containing numerous trap dikes, deposits of minerals and veins of gold.

The general mineral resources of North Carolina, are enormously great, consisting mainly of beds of coal, very pure ores of iron and mines of the precious metals. The development of the gold fields of North Carolina, may be considered prehistoric, or at least as having been an occurrence of which no authentic record has been preserved. A few years ago, a series of heavy freshets overflowed the valleys of the Catawba, Yadkin, and Dan rivers in this state, and in washing away the soil of the bottom lands, laid bare a large number of curious and most interesting relics; among these, were human skeletons, burial urns, different implements and vessels of stone, articles of pottery ware and wrought copper, weapons and ornaments for the person. In the mountain regions of North Carolina, in various places are ancient mines of an unknown age and doubtful origin. The most important of the ancient mines is in Cherokee county, in the extreme south-western corner of the state; this mine consists of a perpendicular shaft one hundred feet deep, lined throughout with timber, the work upon the same having been done in a skillful manner, beside which, there is a horizontal tunnel driven from the base of the hill to meet the bottom of the shaft. These various works are supposed to have been of Spanish origin, and may have been in existence for three hundred and forty years.

The gold deposits and auriferous veins of the southernmost region of the Appalachian Mountain system, having, as is supposed, been known to the Indians, and worked by them and the early Spanish adventurers, were rediscovered before the opening of the present century, in Cabarrus county, North Carolina. Somewhere about a century ago, according to tradition, the nugget weighing 28 pounds, described on page 457 of this volume, was found in the county last named. The value and nature of this specimen, is said to have been unknown to the finder, who, after keeping it for some years, sold it for a few cents "to one wise enough to remain reticent upon the subject." A second nugget was discovered in the same county during the year 1799, by a person named Reed, near what was afterwards known as the Reed mine; this Reed nugget weighed thirty-seven pounds, Troy, and with its discovery began the active search for the precious metal in the vicinity. In 1829, a nugget weighing ten pounds was found in this district, and before 1830, one hundred pounds or more of gold was secured in the form of nuggets, each more than a pound in weight.

Gold placers and deposits were opened over a large district of North Carolina lying on both sides of the Blue Ridge range of mountains, where they were successfully worked from an early date; these mining operations were quite extensive, but the exact product of the same cannot now be determined. Gold is very extensively distributed through the whole mountain region of this state, being found; first, in loose quartz gravel or grits, immediately below the surface; second, in stratified layers of the same age as the rock which bears them; third, as crevice gold, among the joints, seams and crevices of the rocks; fourth, in irregular veins with quartz and the sulphurets of iron or of copper. The gold veins of North Carolina were discovered by a man named Barringer, in Montgomery county, during the year 1825. The richest gold mine in the United States, before 1848, when the precious metal was discovered in California, was in Rowan county, North Caro-

lina, some of the earth taken from the deposit yielding gold to the value of \$500 from each bushel. This mine was worked from 1840 or 1842, for a considerable time, when it became flooded, having produced in all, gold to the value of some \$3,000,000. Beside the celebrated mine here described, regular gold-bearing veins have been worked in North Carolina, located in Davidson, Cabarrus, Stanley, Montgomery, and Mecklenburg counties, where irregular gold-bearing veins also exist, and where surface deposits of free gold have been found; the same may be said, but in less degree, of Catawba, Randolph, Union and Franklin counties.

In the vicinity of the Reed mine, in Cabarrus county, as already related, many fine nuggets and specimens were collected from the surface, or from shallow diggings, a long time before operations were begun upon the mine. In addition to the gold-producing localities already named in North Carolina, the same metal has been discovered in Anson, Burke, Clay, Cleveland, Gaston, Guilford, Jackson, Lincoln, McDowell, Moore, Nash, Polk, and Yancey counties. There was formerly a branch of the United States Mint at Charlotte, Mecklenburg county, North Carolina, but it is now merely an assay office. The gold deposited in the United Mints and Assay Offices, to the close of the fiscal year ending June 30, 1874, was valued at \$10,090,656. The gold so deposited, from the same source, during the fiscal year ending June 30, 1870, was valued at \$85,659.57, and the aggregate of all such deposits to that date, at \$10,613,351.10. Quite recently, the Mears Plattner Process of Chlorination, has been practiced at the Yadkin Gold Mine and Reduction Works in North Carolina, and favorable reports of the results are published. Considering the non-argentiferous nature of the ores found in the state, the use of some such process may be the means of an increase in the production of gold, not only in North Carolina, but possibly all along the Atlantic slope, wherever the precious metal has been obtained.

West of North Carolina, to the bank of the Mississippi

river, extends the state of Tennessee, a region of varied geologic formation, rich in coal, iron, marble, and numerous other metals and minerals of a valuable nature, the certain sources of great wealth to the future population of this as yet undeveloped state. Gold has been found in Tennessee, in quartz veins in the enormous development of the Lower Silurian strata proper, which marks the region of the Unaka Mountains in the eastern part of the state, but the amount of the precious metal to be secured, has not been sufficient to make these mines a source of profit.

North of Tennessee, to the Ohio river, lies the state of Kentucky; the geology of this state is made up of the various formations developed elsewhere in the valley of the Mississippi; the caves and fossils of the sub-carboniferous district of the state, are very remarkable, the coal mines of the state rank in quantity and quality next to those of Pennsylvania, and the amount of iron ore to be had, of good quality, is not exceeded by the deposits of any state. Gold is not reported among the metals found in Kentucky.

The state of Illinois, is bounded on the south, and the south-east by the Ohio river, and west by the Mississippi river; it extends north to latitude 42 degrees and 30 minutes, and eastward to the line of Indiana, in longitude 87 degrees and 35 minutes. Illinois, has been described in general as one great coal field; the larger part of the surface is included in the carboniferous formation, but there are districts presenting other strata. The coal measures of this state are not all fit for practical mining, but there are immense deposits of good coal convenient for working and transportation. The coal measures contain iron ores in places, but these are principally valuable for admixture with other ores mined outside of the state.

There is a small lead-bearing district in Jo Daviess county, in the north-west corner of Illinois. The galena is argentiferous, and is an important product. Gold is not usually reckoned among the metals of Illinois, yet it has been found in

small quantities among the gravels of the river bottoms there.

The state of Indiana, lying east of Illinois to longitude 84 degrees 49 minutes West from Greenwich, is part of the same great coal-bearing region including the last-named state and Kentucky. The "block-coal" of Indiana, which exists in great abundance and is easily mined, is almost entirely free from sulphur and phosphorus, and hence a superior fuel for manufacturing iron, excelling even charcoal in this respect. As in Illinois, the river gravels of Indiana, contain some gold in places, but the scanty supply of gold dust and grains of these states, lies unearned for in the unprofitable gravels, among the numerous sure sources of wealth found in the vast coal measures, in various other mines, and in the generally exceedingly fertile soil.

The state of Ohio extends eastward from Indiana to longitude 80 degrees and 34 minutes West from Greenwich, and is bounded on the north by the Great Lakes, and on the south by the Ohio river. The geology of Ohio includes the lower and upper silurian, the devonian and carboniferous strata, with developments of the quarternary formation in deposits of drift of various kinds. The most important of the many mineral resources of this state is coal, which resembling in some fields the coal of Indiana, is used in connection with the abundant ferruginous ores of Ohio, in different manufactures of iron. The several kinds of rocks in the state, supply an abundance of valuable stones for building, and many other economic purposes. The primitive or eozoic rocks are beneath the surface in Ohio, and neither veins or deposits of gold have been discovered in the state.

The state of West Virginia, was set off from Virginia, in 1863. The territory of this new state is very irregular in form; it is bounded on the north-west by Ohio, and on the north-north-east and east-north-east by Pennsylvania and Maryland, on the east-south-east and south by Virginia, and on the south-west by Virginia and Kentucky. Including part

of the Appalachian valley, an extensive section of the western slope of the Alleghany range of mountains, and a portion of the upper regions of the Ohio valley, the state of West Virginia, has a varied geological structure in general conformity with the already-described formation peculiar to the several natural districts named to which its territories belong. Most of the surface of West Virginia, is mountainous and hilly, but the eozoic rocks appear only in the eastern boundary of Jefferson county, in the extreme eastern point of the state. The Alleghany coal field covers the principal part of the territories of West Virginia; the area of the coal lands in the state, is some 15,000 square miles, and some of the mines are unsurpassed. Salt, iron, stone, marble, and a variety of valuable minerals are found in the same region, but so far as its deposits, veins and mines have been surveyed, the existence of gold is not noted.

Virginia, one of the original thirteen states of the United States, is bounded on the west and north-west by Kentucky and West Virginia, on the north and north-east by Maryland, on the east by the Chesapeake bay and the Atlantic ocean, and on the south by North Carolina and Tennessee. Virginia, though parted from a portion of its former territories, is still a large state, containing in all an area of some 45,000 square miles—27,201,000 acres. The tide-water section of Virginia, like the same portion of the states south of it, is of the quarternary and alluvial formation; the low plains of the peninsulas are of the pliocene or upper tertiary order; the next higher lands, well up toward the head of the various bays, is miocene or middle tertiary, with beds of sand, gravel, marl and pebbles; inland from this terrace, for fifteen or twenty miles, the surface presents indications of the eocene or lower tertiary strata in various colored marls, different kinds of clays and numerous fossils. The central region of Virginia, is principally of eozoic structure, the rocks mostly crystalline, and in places containing gold-bearing veins of quartz. The western part of Virginia, lies among the Ap-

palachian mountain ranges, and presents a varied geologic view, including limestones, and lower silurian, upper silurian, devonian, sub-carboniferous, and carboniferous rocks and deposits.

The gold of Virginia, has been found in a central belt some twenty miles wide, extending from the region of the District of Columbia, to the south-west, on a general line with the ranges of mountains for about two hundred miles, to Halifax Court House, and nearly across the state. A great number of mines have been opened in this district, principally in Fauquier, Culpepper, Spottsylvania, Orange, Fluvanna, Buckingham, and some adjacent counties. The gold-bearing rocks of Virginia, are argentiferous, the percentage of silver being greatest in the veins located in the chloritic slates. The gold product of Virginia, has at times been quite large, but during other periods, on account of the unevenness and comparative poverty of the ore taken from the veins, much less, the whole working making an uncertain, fluctuating, and, on the average, unprofitable business. Some of the gold mines in Virginia, are still worked with moderate success, the yield of gold from the state, showing an increase of about ten per cent. of the total product each year for several years past. What the future profits of the same may become, through more extensive operations by probably improved processes, remains to be determined hereafter by actual experiment and practical demonstration.

The first deposit of gold from Virginia, received at the United States Mint, was made in 1829, and valued at \$2,500. The total amount of gold from the same state, deposited at the United States Mints and Assay Offices, to the close of the fiscal year ending June 30, 1876, was valued at \$1,638,593.13, the amount of gold so deposited for that particular Centennial year, having been valued at \$3,323.49. During the year 1880, the amount of gold from Virginia, deposited at the United States Mints and Assay Offices, was valued at \$9,322.07, and the total amount so deposited to the close of the fiscal year ending June 30, 1880, was valued at \$1,672,667.70.

To the north and north-east of Virginia, between 37 degrees 53 minutes and 39 degrees 44 minutes latitude North, and 75 degrees 2 minutes and 79 degrees 30 minutes longitude West from Greenwich, lies the state of Maryland, including a territory which, in the variety of its geological formations and mineral products, is one of the most remarkable districts of the United States. It is sufficient here to remark, that the strata and deposits of Maryland, are in general extensions of those found in the adjoining states, modified by the irregularities of the coast line, as formed by the indentations of the bays and arms of the sea. Traces of gold have been found at various points, in that part of Maryland adjoining the central belt of Virginia, and the precious metal has been secured in the state to a small amount. The gold from Maryland, deposited at the United States Mints and Assay Offices, to the close of the fiscal year ending June 30, 1876, was valued at \$402,12, being the total gold product of the state to the present time.

The business of prospecting and mining for gold in North Carolina, became notable as early as the year 1804. The first deposits of gold of domestic production, received at the United States Mint, was made during the year 1824. Up to the year 1827, North Carolina, was the only considerable source of gold known to exist in the United States. The aggregate value of the gold produced in that state, to the date named, was estimated at \$110,000. In 1829, South Carolina, deposited gold to the value of \$3,500, and Virginia, did the same to the value of \$2,500. In 1830, Georgia, deposited gold to the value of \$212,000, and the gold produced in the United States, became for a time sufficient to meet the national demand for coinage. The total amount of gold produced in the states, already described as part of the gold field of the Atlantic slope of the United States, to the close of the fiscal year ending June 30, 1876, was valued at \$20,769,997.60. Down to the close of the fiscal year 1880, the product of the same section had increased to a value of \$21,470,614.50, a considerable sum, when considered by itself, but a trifle, in comparison with the vast outfit

of the Rocky Mountain mines, and but little more than half the annual gold product of the United States for the past few years.

The northern portion of the Appalachian mountain system, covers all that part of the United States eastward of the main stream of the Ohio river, and northward from the latitude of the city of Washington, and beyond extends into the Dominion of Canada. This region includes the states of Maryland, Delaware, Pennsylvania, New York, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire and Maine, with the Eastern and Maritime provinces of Canada. The whole of this section of the continent is one vast gold field, the precious metal being very generally distributed throughout its territories, in deposits and veins in numerous localities. The gold-bearing gravels, clays, and ore veins, or lodes of free gold, found in this the north-eastern Atlantic coast gold field, are widely separated one from another, and vary greatly in their richness, from beds and rocks which show mere traces of gold, discoverable only by chemical analysis, to mines and washings which yield a sufficient return of the metal for the labor expended upon them, to create a reliable and remunerative business. Some account of the points where gold has been found, and of the localities where the same has been worked for, in the north-eastern part of the United States, will be given in a few of the succeeding paragraphs.

The very small amount of gold produced in the state of Maryland, has already been noted herein on page 472, the same being included in the general estimate made of the quantity of the metal deposited in the several United States mints and assay offices, from the southern states.

The state of Delaware, lying east of Maryland, and along Delaware bay, from which body of water the state received its name, presents a district of small extent, marked in general by the same geologic features which appear in the shore lands and coast regions to the southward of its boundaries. The only important metallic product of Delaware, is iron, and this is

made in moderate quantities from the bog ores found at various places in the state.

The great state of Pennsylvania, extending from 39 degrees 43 minutes to 42 degrees latitude North, and from 74 degrees 40 minutes to 80 degrees 36 minutes longitude West from Greenwich, is one of the most important mineral regions of the world, and one of the most interesting geologic districts of the American continent. The greatness of the mineral and metallic resources of this state, and the vast development already attained by the numerous industries founded upon them, have made the products of the same of incalculable commercial and economic importance. The most valuable mineral products of Pennsylvania, are the different anthracite and bituminous coals. There are about 25,000,000 tons of excellent anthracite coal mined in the state each year, with a constantly-increasing amount of bituminous coal, amounting at a recent date, to some 6,000,000 tons during a similar period. The state contains no iron in a native condition, but has mines of every variety of iron ore, and it is from these, has been made nearly one-half of all the iron produced in the United States. In addition to the sources of wealth already named, Pennsylvania is the great center of the world's supply of petroleum. This article is measured in barrels of 40 gallons each, and of such, the production for the last few years has been as follows: 1875, 8,787,506; 1876, 9,175,906; 1877, 13,490,171; 1878, 15,165,462; 1879, 19,741,661. The state also contains almost every known mineral, but none of them except those already described, have been found of any considerable economic value.

Gold, silver, copper, tin, and native sulphur, exist in Pennsylvania, in various places and relations, but neither of them have as yet repaid the trouble of working the deposits. According to estimates made by chemical experts, the peculiar clay which at the delta of the Delaware and Schuylkill rivers underlies the surface of the county of Philadelphia, contains gold in dissemination, valued at more than \$1,000,000,000,

beside an enormous amount contained in that portion of this clay already excavated and incorporated into brick, of which most of the vast number of walls and buildings in the city of Philadelphia are made. It is, however, estimated upon the same scientific authority, that the wages of men employed in extracting gold from the auriferous Philadelphia clays, at fifty cents a day, would consume the entire amount of gold which could be obtained by their labor; inasmuch as the total amount of gold contained in the material to be operated upon, is but the value of three cents to the cubic foot. The silver veins of Pennsylvania, would it is assumed, afford a better profit than the gold-bearing clays, at least in some localities, but nowhere could they be so managed, as to make operations upon the argentiferous ores of the state a safe and profitable business.

The state of New Jersey, lies along the Atlantic coast eastward of Delaware bay and river, and south of the boundary line of New York. The southern part of this state, is made up of tertiary deposits and drift, with cretaceous beds and fossils of varied origin; in the middle section of the state, secondary rocks appear, and in the north, are gneissoid and granitic strata, with highlands of moderate elevation. The important mineral products of this district, are iron and zinc ores, gold and silver never having been discovered in workable quantities.

The very irregular tract of country lying between 40 degrees 29 minutes 40 seconds and 45 degrees 0 minutes 42 seconds latitude North, and 71 degrees 51 minutes and 79 degrees 45 minutes 54 seconds longitude West from Greenwich, is included in the state of New York. Across this state, the Appalachian mountain system extends in ranges of different names, presenting modified and varying geologic features. The mountains of New York are not lofty, rising to an elevation of but 1,000 to 1,700 feet above the sea along the banks of the Hudson river, and to 6,000 feet above the sea in the northern central region of the Adirondack range. The High-

lands of the Hudson, are derived from a range of moderate elevations extending northward from the territories of New Jersey; the structure of these Highlands is of gneissoid and granitic rocks, distinct from the metamorphic formations upon either side of them. The Adirondack Mountains are of about the same geologic constitution as the Highlands of the Hudson, while the Shawangunk and Catskill ranges of mountains are geologically the true representatives of the Appalachian strata which are outspread in Pennsylvania, and southward thence. The state of New York, presents peculiar geologic features; in certain districts, nearly every formation is shown, from the most ancient eozoic rocks, to the most modern sediments; yet the entire carboniferous strata, the upper devonian, the permian, and jurassic formations are everywhere wanting. The lower tertiary deposits occur but in very limited areas; there are traces of anthracite coal in layers of a few inches deep, but no true coal measures; the most important mining product of the state is iron; galena, or lead ore, is obtained in St. Lawrence county in large quantities; zinc, copper, arsenic, manganese, barytes, strontian, and alum, are reported among the minerals found in this district, but none of them have been made a source of any notable profit. Vast quantities of salt have been taken from the springs along the line of the Onondaga salt group, mostly in Onondaga county; there is also an abundance of gypsum, water-lime, building-stone, and other economic materials, imbedded in the generally very fertile soil of this state, and from the surface flow numerous valuable mineral springs. With the numerous and fruitful sources of wealth already named, and a most extensive commerce, the citizens of New York make themselves content in prosperity, gold and silver being unknown among the products of the state, though perhaps existing in mere auriferous and argentiferous traces among the rocks.

The New England states of Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine, form a geologic district especially marked by the granitic, gneissoid, met-

amorphie, and crystalline formations; the details of the local features of the strata of this region are not essential in this connection; moreover, the states have long been settled, and their geologic features have, in general, been carefully surveyed and well described, throughout their comparatively limited area.

No considerable amount of gold has been found in Connecticut, but traces of the metal have been reported; a branch of the oldest known copper mine, worked by English hands in the United States, was opened at Granby, in Connecticut, and from this mine copper was obtained for a colonial coinage, issued as early as 1736, as related on pages 172 and 173 of this volume. The iron of Connecticut taken from the Salisbury mine, was used during the American Revolution by the Government of the United States for the manufacture of cannon found to be of very superior strength and endurance; of this iron, the great chain was made which was stretched across the Hudson river at West Point, and the same metal was applied to the general purposes of the army and navy during the entire war. Beside copper and iron, the state of Connecticut contains ores of lead of an argentiferous nature, but the amount of silver which may have been obtained from them is unknown, none appearing to have been deposited at the United States Mints and Assay Offices.

The small state of Rhode Island, contains beds of anthracite coal, of even greater extent than those of Pennsylvania, but the state is not a gold-bearing area. The coal of Rhode Island, is, at the surface, of rather inferior quality, but improves very much as the mine is made deeper; a considerable amount of this coal is raised each year.

Gold was discovered a few years since in Essex county, Massachusetts, and mining was begun in an enterprising manner; the reports of deposits at the United Mints and Assay Offices, make, however, no mention of gold from Massachusetts.

The talcose slates of Vermont, contain numerous deposits of

hematite iron ore, and at Chittenden, productive mines of manganese; at Plymouth, and several other places in the state, gold has been found in the same slate formation. Some gold has been secured from the auriferous veins of Vermont, but the mines have not, as a whole, repaid the labor and expense of working, and are now unproductive. Of gold from the state of Vermont, there was deposited in the United States Mints and Assay Offices, to the close of the fiscal year ending June 30, 1880, the value of \$10,981.27, a small item, when compared with the worth of the marble and slate which, since 1844 and 1845, have been taken from the then-discovered quarries at Rutland and Fairhaven, in the same state.

The almost entirely inland state of New Hampshire, lying to the eastward of Vermont, presents for some twenty to thirty miles inland from its but eighteen miles of sea-coast, a low, level and partly marshy tract, but the remainder of the surface of the state, is broken and mountainous. The ranges and peaks of this district, belong to the Appalachian system; the greater part of the mountains are of cozoic formation, or of archiac rocks; the surface rocks of the whole region, are in general granite, gneiss, mica, quartz, etc., with narrow areas of the lower silurian rocks along the valleys of the Connecticut and Merrimac rivers, and near the sea-coast, intersected by tertiary and quaternary deposits. The area of New Hampshire, is occupied by an Appalachian plateau, from 800 to 1,500 feet above the level of the sea, from which, at irregular intervals, arise numerous more or less isolated summits. The average elevation of the state, is some 1,200 feet above the level of the sea, and the mountains included in its territory, are, with the single exception of the Black Mountains of North Carolina, the highest of the Appalachians, or of any mountains in the United States along the Atlantic coast. The White Mountains of New Hampshire, contain several lofty summits, and numerous peaks, of considerable elevation, are scattered all over the surface of the state. Among these, Mount Washington rises to a height of 6,285.4 feet above the

level of the sea, while, from its summit, may be seen Mount Clay, Mount Adams, Mount Jefferson, and Mount Madison, standing, respectively, at an elevation of 5,553, 5,714, 5,794, and 5,365 feet above the coast line. Other peaks elsewhere, present an almost equal average altitude; a number of these, from their detached position and peculiar form, appearing much higher.

New Hampshire contains veins and beds of the ores of important metals, and of valuable minerals, but the metals produced from them have not been the source of any great wealth. Gold has been mined in the state, by two companies, whose works were still carried on at a recent date. The gold-bearing rocks are of quartz, located in the town of Lisbon. The total yield of gold from the quartz mills at Lisbon, and from the entire state, since they were first put in operation, was estimated in 1875, to have been worth \$30,000, and that amount of the same is said to have been sold to the United States Mint. According, however, to the Official Report of the Director of the Mint, for the fiscal year ending June 30, 1880, the total amount of gold received from New Hampshire, by the United States Mints and Assay Offices, to this last date, was valued at but \$11,020.55. The amount of gold produced in the state each year, for several years past, cannot have been worth more than a few hundred dollars. The iron ores of New Hampshire, are not a source of profit, but its quarries produce an abundance of fine granite, and other valuable minerals are obtained at various points.

The state of Maine, formerly a district of Massachusetts, is the easternmost portion of the United States; the geologic formations of this north-eastern region, are almost exclusively of the cozoic and silurian rocks; the metamorphic strata found in this area, abound in minerals of very interesting, and, in some instances, valuable character. The mountains of Maine are of the Appalachian system; they are not so lofty as the summits noted in New Hampshire, but of considerable elevation, standing in groups, with no appearance of ranges in

regular order. There are traces of gold in Maine, but the precious metals are not mentioned in the reports of the industrial products of the state; the metallic ores of iron, lead, tin, copper, zinc, etc., of that section, receive but slight attention from any one but the geologist; the minerals, among which are marbles, slates, granites, limestones, and materials for the manufacture of copperas and sulphur, are quarried with much success; the granite of Maine is durable, and being found in great and perfect masses, is sometimes moved from the strata in flawless blocks, weighing a hundred or more tons each; there is an abundance of excellent roofing-slate found in the state, and the limestones of Thomaston, supply an enormous amount of the best lime, which is an important article of general export. The town of Paris, in Oxford county, Maine, is celebrated for the beautiful colored tourmalines, a kind of valuable silicious stone obtained there. The mineralogical cabinets of Europe, are adorned with beryls of unequalled size, taken from among those procured in the state of Maine. These stones are regarded as a sub-species of emerald, are of a greenish hue, and often quite handsome. From the north of Maine, the mountain wilderness extends eastward and northward into the Dominion of Canada, and it is with a rapid yet authentic statement of the sources of gold in the vast territories included in the Canadian domain, and the other British provinces in North America, this chapter upon American And Other Gold is to be concluded.

COINS OF FOREIGN COUNTRIES.

ABYSSINIA.

No coins are minted in Abyssinia. Large payments are made in ingots of gold, which are weighed by the "*Wakea*" or Abyssinian ounce, equal to 400 grains Troy. For small payments, salt bars are used; about 80 of which are valued at a *Wakea* of gold. This salt is as white as snow and as hard as a rock. They dig it out of the mountain "*Softa*," and carry it into the Emperor's store-houses, where they shape it into bars, which they call "*Amoule*;" or into half bars, which are denominated as "*Courman*." Each bar is required to be at least half a Pic long (= $13\frac{1}{2}$ inches) and one-ninth of a Pic in breadth and thickness (= 3 inches). Glass beads, also, of all colors, perfect and broken, pass for small change, and are called "*Borjookes*," of which 2,760 are current for one Maria Theresia Thaler of 1780 = to \$1.03 cents, United States value.

The Abyssinians not having a coinage of their own, used up to within the past twenty years the Venetian Zecchini or Sequins as gold currency (= to \$2.30 cents, gold). Austria has coined gold Zecchini (Sequins) in Venice, for the Levant trade especially, up to 1823.

As silver currency, the Imperial Maria Theresia Thalers of 1780 are still in circulation. These are called by the natives "*Patakas* or *Pataks*." Austria, up to this day, has continued to coin these Maria Theresia Thalers with the old stamp and the year number, 1780. Weight: 433.080. Fineness: 833.333. Value: \$1.03.300. During the war with King Theodore of Abyssinia, and England, the English Government was obliged

to have the "Maria Theresia Thaler" coined in Austria, to meet her war expenses in Africa. At Massuah or Massowali, the principal port of Abyssinia, Spanish Dollars are also current.

ARABIA.

In Arabia, at the present time, mostly the Persian, Turkish, East India, and some European coins are current; but their prices constantly fluctuate: they are much higher during the Monsoon than after it, as there is less want of specie when all the foreign ships are gone. The Turkish coins, however, have a fixed value, though the Arabian and foreign merchants, in their dealings with strangers, will generally rate them something above their legal value.

The monies coined now are: 1. *Commassees*, which contain but little silver; they are used in small payments, and generally pass at 60 for a Spanish Dollar; but their value varies often, so that sometimes 80, sometimes no more than 40 of them are given for a dollar. 2. The *Carat*, a small coin, the seventh part of a *Commassee*.

In *Bussorah*, near the Persian Gulf, accounts are kept in *Mamoodis* of 10 *Danims*, or 100 *Flouches*. 100 *Mamoodis* make 1 *Toman* of Persia = \$5.85 cents, United States gold. It must be borne in mind, however, that there are the real and the imaginary *Toman* and *Mamoodi*, the latter being only about three-fourths of the value of the former.

In *Mocha* accounts are kept in *Piasters* of 80 *Caveers*. This *Piaster* is also an imaginary coin, but most payments are now made in Spanish Dollars, 100 of which pass for 121½ Arabian *Piastres*, which gives the value of the imaginary *Piaster* equal to 92 cents, United States gold.

Large payments are often made in gold and silver ingots, and are weighed by the *Cheki* of 100 *Miscals*, or 150 drams; a *Miscal* weighs 72 grains Troy. A *Miscal* of the finest gold is worth about 22½ *Mamoodis*; gold less fine, in proportion. A *Cheki*

of 100 Miscals, or 150 drams of fine silver, is worth 180 Mamoodis; hence, the Mamoodi = $3\frac{1}{2}$ grains of fine gold, or 40 grains of fine silver, or about 10 cents, United States value.

In Mocha they often use the old standard for weighing the gold and silver ingots, namely, by the Vakia weight of 10 Coffalas, or 160 Carats; 24 Carats make a Miscal, and $1\frac{1}{2}$ Vakia, a Beak. 100 Spanish Dollars weigh 87 Vakias; thus the Vakia weighs 1 ounce Troy weight nearly.

In former years the "Larin" was used as currency: this was a silver wire, about an inch in length, doubled up and flattened on the inner side to receive the impression of some Arabic characters; it has of late become very scarce as circulating medium, but is still used as money of account.



RIJKSDAALER OF THE NETHERLANDS, 1813.

The Dutch Rijksdaaler of 1813 is called by the Arabs "Abukesb," and is much current among them; the impression of the lion being so very bad, that they take it for a dog, and so call it Abukesb, being dog in their language.

Payments in wheat and barley is considered current, and eagerly accepted; but if in Tambak, an inferior sort of tobacco, much dissatisfaction is expressed. In the interior the trade is carried on chiefly in barter, and at the seaports and the principal cities, by cash payments. Credit is obtained with difficulty; hence, no Arabian merchant can contract debts which he is unable to pay, and consequently there are no mercantile failures

in speculations such as daily occur among other nations. The old Arabian coins are devoid of effigies, and bear only inscriptions in Taleek.

ARGENTINE REPUBLIC.

The Argentine Republic, a confederation of several South American States, has produced, since 1545, the time of its discovery, over two thousand million dollars worth of silver bullion.

Formerly the province of Potosi was included within its limits, and it was from this silver-producing district that it first acquired the appellation of "La Plata," and afterward that of the "Argentine Republic." August 11th, 1825, ; separation of several States, under the leadership of General Simon Bolivar, took place; and with it went the province and the famous Mint of Potosi.

The principal Mint of the Republic is now located at Rioja, capital of the State of Rioja. The Mint mark is, therefore, now "R. A.," and sometimes only the initial "R." Some of the coins prior to 1825 bear the Mint mark of Potosi; namely: "P.," "P. S.," and often a monogram of "P. T. S.," artistically entwined.

GOLD COINS OF THE ARGENTINE REPUBLIC.

1. Doubloon, of 1828. Obverse: a Sun, the Argentine mountain of Potosi. Legend: "PROVINCIAS DE RIO DE LA PLATA" (*Provinces of the river Plata*). Exergue: "1828." Reverse: The arms of the Confederacy, with martial emblems. Weight: 418 grains. Fineness: 815. Value: \$15.51.

2. Doubloon, of 1830; also called Onza de Oro (one ounce of gold), of 8 Escudos or 26 Piasters. Obverse: Sun, full face,

with 32 rays radiating. Legend: "PROVINCIAS DEL RIO DE LA PLATA." Exergue: a star.



DOUBLOON OF 1830.

Reverse: The arms of the Confederacy with martial emblems, saltier wise; beneath, a drum. Legend: "EN UNION Y LIBERTAD, R. A. (the Mint mark of Rioja), P. 8 s." (8 Escudos.) Exergue: "1830." Weight: 418 grains. Fineness: 815. Value: \$15.51.

3. In 1836, General Rosas, Governor of Buenos Ayres, ordered some "Rosas Doubloons" to be struck at the branch Mint of Buenos Ayres. Device similar to the two previous ones, only with the addition of "ROSAS" on the Obverse and "POR LA LIGA LITORAL SERA FELIZ, 1836." (*For this littoral league, meaning Buenos Ayres, be prosperous.*)

4. The Quarter Onza de Oro of 2 Escudos, same device as No. 1 and 2, only reduced in proportion to size. Weight: 104.168 grains. Fineness: 870. Value: \$4.01.

SILVER COINS OF THE ARGENTINE REPUBLIC.

1. Peso, Piaster or Dollar of the Potosi Mint. Obverse: A sun with 32 rays. Legend: "PROVINCIAS DEL RIO DE LA PLATA." Exergue: A star. Reverse: The arms of the Confederation, with martial emblems, saltier wise. Legend: "EN UNION Y LIBERTAD. (*In Union and Liberty.*) P. T. S." in a monogram. (The Mint mark of Potosi.) Exergue: "1813." Weight: 416.009 grains. Fineness: 900. Value: \$1.00.

2. Peso, Piaster or Dollar of the Rioja Mint. Obverse: Same as No. 1.



PESO OR PIASTER.

Reverse: The arms of the Confederation, surrounded by a wreath. Left, "S." Right, "R." Legend: "EN UNION Y LIBERTAD, R. A. P." Exergue: "1852." Weight: 416.009 grains. Fineness: 900. Value: \$1.00.

3. Peso, Piaster or Dollar of the Rioja Mint. Obverse: Same as No. 1 and 2.

Reverse: Same as No. 1, except beneath the martial arms, saltier wise, three cannon balls, instead of the drum, as in the



PESO OR PIASTER.

No. 2 silver coins. Weight: 416.009 grains. Fineness: 900. Value: \$1.00.

4. The Half Dollar of the Potosi and Rioja Mints. Obverse: Same as the Dollar of the Potosi Mint.

Reverse: Same, with the exception of "4" to the left, and



HALF DOLLARS OF THE POTOSI AND RIOJA MINTS.

"R" to the right. Weight: 206.792 grains. Fineness: 900. Value: 47 cents.

5. The Half Dollar of "Rosas" of the Buenos Ayres branch Mint. Obverse: Same as No. 1.

Reverse: The arms of the Confederacy with martial emblems, saltier wise. Legend: "ETERNO LOOR AL RESTAURAD. ROSAS." (*Eternal Glory to the Restorer Rosas.*) Exergue: A star.



HALF DOLLAR OF ROSAS.



TWO REAL PIECES.

6. The Two Real pieces of the Rioja and Buenos Ayres Mints are similar in devices and legends as the Peso.

The Buenos Ayres Mint bears the letter "B" as mark. Weight: 103.396 grains. Fineness: 900. Value: \$0.23.500.

In 1827, the National Bank of Buenos Ayres issued a Ten Decim. silver token. Obverse: A phœnix encircled by a band. Reverse: "10 Decim." inscribed upon a shield, inclosed by a laurel wreath. Legend: "BANCO NACIONAL" . . . "BUENOS AYRES." Exergue: "1827." Value, nominal, 8 cents.

EMPIRE OF AUSTRIA.

When the French Revolution (1789) began to convulse Europe, the reigning monarch, Francis II., who ruled over what



AUSTRIAN MONEY.

is now known as the Empire of Austria, was the titular Emperor of Germany; and his dominion comprised the Archduchy

of Austria and its dependent provinces, the Kingdom of Hungary, the Duchy of Milan or Lombardy, and the Low Countries, now known as Belgium.

Austria receives its title from its position in Europe, namely, "Oester," meaning Eastern, and "Reich," country—the Eastern Country or "Oesterreich."

For each of these four regions there was a distinct coinage. The Austrian was known by its double-headed eagle; the Hungarian by the images of the Virgin and Child; the Lombard-Venice by its shield, quartered with eagles and serpents; and the Belgian by the x shaped St. Andrew's cross, profusely ornamented. In 1789 the Austrians were momentarily expelled from the Low Countries or Belgium; but in 1790 their rule was again restored. November 1st, 1792, the French entered Belgium, and September 30th, 1795, the Low Countries were annexed to France; and the coinage of Belgium under Austrian rule ceased. Near the same time Lombardy also passed into other hands, and a second class of the imperial Austrian coin was for a time suspended.

In 1804 the ancient German Empire was dissolved. Francis II., Emperor of Germany, became Francis I., Emperor of Austria, and the stately Legend of "R. I. S. A." (*Romanorum Imperator, Semper Augustus*, meaning, *Roman Emperor, Ever August*), gave place to "Emperor of Austria."

At the pacification of Europe in 1815, Lombardy, with Venice annexed, reverted to Austria; and soon after a new monetary system was decreed for that country. In 1859, at the peace of Villa-Franca, Austria ceded Lombardy to Sardinia, and in 1866, Venice to France, which in turn incorporated the same with Italy.

The coins of Austria of the present day, therefore, bear only the inscription: "D. G. AUSTRIAE IMPERATOR. HUNGAR. BOHEM. GAL. LOD. ILL. REX." (*Dei Gratia Austriae Imperator, Hungariae, Bohemiae, Galizia, Lodomiria, Illiria Rex*, meaning: *By the grace of God, Emperor of Austria, King of Hungary, Bohemia, Galicia, Lodomiria, and Illyria.*)

GOLD COINS OF AUSTRIA.

1. Quadruple Ducat or Piece of four Ducats. Obverse:



QUADRUPLE DUCAT OF FERDINAND I.

Laureated bust of Ferdinand I. Legend: "FERD. I. D. G. AUSTR. IMP. HUNG. BOH. R. H. N. V." (*Ferdinand I., Dei Gratiae Austriae Imperator Hungariae Bohemiae Rex Hetruriae Napoli Venitiae*, meaning: *Ferdinand I., by the grace of God, Emperor of Austria, King of Hungary and Bohemia, Tuscany, Naples, Venice.*)

Reverse: Imperial double-headed eagle of Austria. Legend: REX. LOMB. ET. VEN. DALM. GAL. LOD. ILL. A. A. 1840. (*Rex Lombardi et Venitiae, Dalmatiae, Galiciae, Ladomirae, Illyriae, Archidux Austriae*; meaning: *King of Lombardy and Venice, Dalmatia, Galicia, Ladomira, Illyria, Archduke of Austria.*) Exergue: "C 4 0;" meaning: 4 Ducats. Weight: 215.450 grains. Fineness: 986.111. Value: \$9.14.5019.

2. Quadruple Ducat of Francis Joseph I. Obverse: Laureated bust of Francis Joseph I., dressed in ermine, and be-decked with four order chains and the golden fleece. Legend: "FRANC. JOS. I. D. G. AVSTRIAE IMPERATOR." (*Francis Joseph I., by the grace of God, Emperor of Austria.*)

Reverse: Double-headed Austrian eagle, crowned with three crowns, in the dexter talon sword and sceptre; and in the sinister talon, imperial globe surmounted by the Coptic cross. Legend: "HUNGAR. BOHEM. GAL. LOD. ILL. REX. A. A. 1871."

(*Hungariae. Bohemiae. Galiciae. Lodomirae. Illyriae. Rex. Archidux. Austriae*; meaning: *King of Hungary, Bohemia, Galicia, Ladomira, Illyria, Archduke of Austria.*) Exergue:



QUADRUPLE DUCAT OF FRANCIS JOSEPH I.

"4," meaning, 4 Ducats. Weight: 215.450 grains. Fineness: 986.111. Value: \$9.14.5019.

3. The old Brabant Sovereign. Obverse: Head of Charles VI. Legend: "CAROLUS VI., D. G. R. IMP. S. A. GE. HIE. HV. BO. REX." (*Carolus VI., Dei Gratiae, Romanus Imperator, Semper Augustus, Germaniae, Hierosolymae, Hungariae, Bohemiae, Rex*; meaning: *Charles VI., by the grace of God, Roman Emperor, ever August, King of Germany, Jerusalem, Hungary and Bohemia.*)

Reverse: The arms of Austria on a St. Andrew's Cross. Legend: "ARCH. AUS. DUX. BURG. BRAB. C. FL." (*Archidux*



BRABANT SOVEREIGN OF 1783.

Austriae, Dux Burgundiae, Brabantiae, Comes Flandriae; meaning: *Archduke of Austria, Duke of Burgundy, Brabant,*

Count of Flanders.) Exergue: Date of the year of issue. Weight: 171.468 grains. Fineness: 916.667. Value: \$6.76.

4. Old Brabant Sovereign of Joseph II. Obverse: Head of Joseph II., with inscription of Obverse of coin No. 3.

Reverse: Same as the previous one, with the exception of the Exergue, "1766." Weight: 171.468 grains. Fineness: 916.667. Value: \$6.76.

5. Sovereign of Ferdinand I. Obverse: Head laureated of Ferdinand I. Legend: "FERD I., D. G. AVSTRIÆ IMP. HUN. BOH. R. H. N. V."



SOVEREIGN OF FERDINAND I.

Reverse: Austrian double eagle. Legend: "REX LOMB. ET VEN. DALM. GAL. LOD. ILL. A. A., 1838." Weight: 171.468 grains. Fineness: 916.667. Value: \$6.76.

6. Double Ducat of Hungary. Obverse: Full length figure of Maria Theresia, crowned. The imperial globe in the left hand; the initial "K" (*Krennütz*) at one side, and "B" (*Bohemia*) at the other. Legend: "M. THER. D. G. R. I. G. H. B. R. A. A. D. B. C. T." (*Maria Theresia, Dei Gratiae, Regina Illyriae, Galiciae, Bohemiae, Ragusa, Archiducissa Austriae, Ducissa*



DOUBLE DUCAT OF HUNGARY.

Burgundiae, Comes Tyrolae; meaning: *Maria Theresia by the grace of God, Queen of Illyria, Galicia, Hungary, Bohemia,*

Ragusa, Archduchess of Austria, Duchess of Burgundy, Countess of Tyrol.) Exergue: "2" (meaning: 2 Ducats.)

Reverse: Virgin and Child in the centre of rays; beneath a small shield crowned. Legend: "HUNGARIAE, 1765. PATRONA REGNI." (*Reigning Patron of Hungary.*) Weight: 107.716 grains. Fineness; 989.583. Value: \$4.59.2758.

7. Half Sovereigns. Obverse: Same as the Sovereigns.

Reverse: Same as the Sovereigns, with the exception of the Exergues, with their respective dates of issue. Weight: 87.439 grains each. Fineness: 900. Value: \$3.38.6172.

8. Ducat of Joseph II. Obverse: Same as coin No. 4, with inscription of Obverse coin No. 3; proportionate to size.

Reverse: Double-headed eagle. Legend: "AR. AU. DUX. BU. M. P. TRAN. CO. TYR., 1776." (*Archidux Austriae, Dux Burgundiae, Moraviae, Poloniae, Transylvaniae, Comes Tyrol;* meaning: *Archduke of Austria, Duke of Burgundy, Moravia, Po-*



DUCAT OF JOSEPH II.

land, Transylvania, Count of Tyrol.) Weight: 53.858 grains. Fineness: 986.111. Value: \$2.29.1310.

9. Hungarian Ducat, or Ducat of Kremnitz. Obverse: Laureated head of Francis I. Legend: "FRANCISCUS I., D. G.



DUCAT OF KREMNITZ.

AVSTRIAE IMPERATOR." (*Francis I., by the grace of God, Emperor of Austria.*)

Reverse: Virgin and Child in the centre of rays. Legend:

"S. MARIA, MATER DEI, PATRONA HVNG, 1835." (*Saint Maria, Mother of God, Patron of Hungaria.*) Weight: 53.858 grains. Fineness: 986.111. Value: \$2.29.1310.

10. Four Florins piece. Obverse: Laureated head of Francis Joseph I. Legend: "FRANCISCUS JOSEPHUS I., D. G. IMPERATOR ET REX." Exergue: A Rosette.



FOUR FLORINS OR TEN FRANCS OF FRANCIS JOSEPH I.

Reverse: Double-headed imperial eagle of Austria, crowned with three crowns. Legend: "IMPERIVM AUSTRIACVM." Left of the double eagle "4 FL." (4 Florins.) Right: "10 FR." (10 Francs.) Date below. Weight: 49.765. Fineness: 900. Value: \$1.93.

11. Crown or "Krone" of Francis Joseph I., of 1859. Obverse: Laureated head of Francis Joseph I. Legend: "FRANZ JOSEPH I., V. G. G. KAISER VON OESTERREICH." (*Franz Joseph I., Von Gottes Gnaden Kaiser Von Oesterreich*; meaning: *Francis Joseph I., by the grace of God, Emperor of Austria.*) Reverse: "1 KRONE, 1859," in three lines; (1 Crown, 1859), surrounded by a wreath of oak leaves. Legend: "VEREINS MUNZE." (*Convention money.*) Exergue: "50 EIN PFUND." (50 to make one pound.) Weight: 171.468 grains. Fineness: 900. Value: \$6.64.5814.

12. Half Crown of Francis Joseph I., 1858. Obverse: Same as No. 11. Reverse: Same as No. 11, with exception of Exergue: "100 EIN PFUND." (*One hundred to make one pound.*) Weight: 85.734 grains. Fineness: 900. Value: \$3.32.2907.

13. Ducat of Francis Joseph I., 1860. Obverse: Laureated head of Francis Joseph I. Legend: "FRANCISCUS JOSEPHUS I., D. G. AUSTRIAE IMPERATOR." (*Francis Joseph I., by the grace of God, Emperor of Austria.*) Reverse: "HUNG. BOH. LOMB. ET. VEN. ILL. GAL. LOD. REX, 1860." (*Hungariae. Bohemiae.*)

Lombardiae. et. Venitiae. Illiriae. Galiciae. Lodomiriae.) Weight: 53.858 grains. Fineness: 986.111. Value: \$2.28.6241.

SILVER COINS OF AUSTRIA.

The Silver Coinage, prior to the "Convention of the German Powers," 1857, embraced six denominations: 1. The Reichsthaler. 2. The Gulden (Florin) or half the Reichsthaler, and consisted of 60 Kreuzers; (meaning, Crosses, from "Kreutz" Cross.) 3. The piece of Twenty Kreuzers, which is one-third of the "Gulden" or Florin; and 4th, 5th and 6th the pieces of Ten, Five and Three Kreuzers. These two first ones were coined according to the standard adopted in 1753, known as the "Convention" rate; namely: 833.333 fine silver; the balance only 583 fine or "Billon."

On the 24th of January, 1857, a Convention was concluded between the principal German States, by which a new coinage was established. It was agreed that the half of one Kilogramme, or 500 Grammes, equal to 7717.5 Troy grains, should serve as the standard Pfund (pound) to be called "Zollpfund" at the Mints of all the States, who were parties to the Convention. Of the current silver coins there were to be five denominations: 1. The pieces of two Gulden or Florins. 2. The Gulden or one Florin piece; both to be 900 fine; the former to be coined at the rate of $20\frac{1}{2}$, and the latter at $40\frac{1}{2}$ pieces to the "Zollpfund" of standard silver. 3. The Quarter Florin, 520 fine, $93\frac{1}{5}$ pieces to the "Zollpfund." 4. The Ten New Kreuzers Piece, 500 fine, 250 pieces to the "Zollpfund." 5. The Five New Kreuzers Piece, 375 fine, and 375 pieces to the "Zollpfund."

1. Maria Theresia Kronen Thaler (*Crown Dollar of Maria Theresia.*) Obverse: Bust of Empress and Queen Maria Theresia. Legend: "MA: THERESIA. D: G: REG: HUN: BO:" (*Maria Theresia, Dei Gratiae, Regina, Hungariae, Bohemiae;* meaning: *Maria Theresia, by the grace of God, Queen of Hungary and Bohemia.*)

Reverse: Full length figure of Virgin and Child, sceptre in

dexter, surrounded by numerous rays. "K" on the left of Virgin (meaning: *Kremnitz for Hungary*), and "B" on the right



MARIA THERESIA CROWN DOLLAR.

(meaning: *Bohemia*.) Legend: "S. MARIA, MATER DEI PATRONA, HUNG., 1742." (*Saint Maria, Mother of God, Patron of Hungary*.) Weight: 454.899 grains. Finess: 868.056. Value: \$1.11.7825.

2. Crown Dollar of Francis I., 1747. Obverse: Bust of Francis I. Legend: "FRANCIS D. GRATIA. ROMAN. IMPERAT. S. A." (*Francis, by the grace of God, Roman Emperor ever August.*)

Reverse: Double-headed imperial Austrian eagle, a shield upon his breast, surmounted by a small crown, a larger one



CROWN DOLLAR OF FRANCIS I.

above the two heads of the eagle; dexter talon, a sword; sinister, a sceptre. Legend: "IN. TE. DOMINE. SP. RA. VI. Pisis

1747." (*In Thee! God, we trust.*) This coin is out of circulation, no exact weight, fineness or value can be given.

3. Convention Thaler of Joseph II. Obverse: A crowned shield, supported by two angels; beneath, a palm and olive branch crossed. Legend: "JOS. II. D. G. R. IMP. S. A. G. H. B. REX. A. A. D. B. & L." (*Josephus II., Dei Gratiae, Romanorum Imperator, semper Augustus Germaniae, Hungariae, Bohemiae, Rex Archidux Austriae, Dux Burgundiae and Lotharingiae*; meaning: *Joseph II., by the Grace of God, Roman Emperor ever August, King of Germany, Hungary, Bohemia, Archduke of Austria, Duke of Burgundy and Lorraine.*)

Reverse: "AD NORMAM CONVENT, 1766." Legend: "ARCHID. AUST. D. BURG. MARGGR. BURGOVIAE." (*Archduke of Austria, Duke of Burgundy, Margrave of Burgovia.*) Around the outer edge of the coin: "VIRTUTE ET EXEMPLO." (*By virtue and example.*) This coin being long ago out of circulation, the



CONVENTION DOLLAR.

weight and fineness cannot be given with exactness. The intrinsic value is estimated at from 97 cents to \$1.00, but it commands a high premium among numismatists.

4. Crown Thaler of Francis I. Obverse: Double-headed eagle of Austria, surrounded by the order chain of the Golden Fleece. Sceptre, in dexter talon, and imperial globe in sinister. Legend: "FRANCIS D. GRATIA. ROMAN. IMPERAT. S. A." (*Francis, by the Grace of God, Roman Emperor ever August.*)

Reverse: St. Andrew's Cross, surmounted by an imperial crown, with crown in each angle, right and left; beneath, the golden fleece. Legend: "GERM. JERO. REX. LOTII. BAR. MAG. HET. DUX. 1756." Out of circulation for over fifty years. Intrinsic value estimated at \$1.02. At a high premium with numismatists.

5. Brabant Crown Thaler of Joseph II. Obverse: Head laureated. Legend: "JOS. II. D. G. R. I. S. A. GE. HU. BO. REX." (*Joseph II., by the Grace of God, Roman Emperor ever August, King of Germany, Hungary, Bohemia.*)

Reverse: Double-headed Austrian eagle, quartered shield upon its breast, surmounted by a large crown. Legend: "ARCH. AUST. DUX. BURG. COM. FLAND. 1768." (*Archduke of Austria, Duke of Burgundy, Count of Flanders.*) Intrinsic value: \$1.02.



BRABANT CROWN DOLLAR OF JOSEPH II.

6. Maria Theresia Thaler, also called the "Levant Thaler or Dollar." This coin, although nearly one hundred years old, is still issued by the Austrian Government, with the date "1780," for the African trade. It is the famous Pataka or Patak of Abyssinia, described on page 481. During the Abyssinian war between England and King Theodor, of Abyssinia, the British Government, unable to pass its gold coins in Africa, where gold is only used as ornament, was obliged to have recourse to the Mints of Austria, for the coinage of the Maria Theresia Thaler.

Obverse: Bust of Maria Theresia, rather full face, and quite in contrast with cut on page 496. A veil is thrown over the



MARIA THERESIA THALER, OR DOLLAR OF 1780 AND SINCE. back part of her hair, which is fastened by a tiara. Legend: "M. THERESIA. D. G. R. IMP. HU. BO. REG." (*Maria Theresia, by the Grace of God, Empress of Austria, Queen of Hungary and Bohemia.*)

Reverse: Double-headed eagle of Austria, with one large crown above. Legend: "ARCHID. AUST. DUX BURGUNDY. CO. TYROL. 1780 × ." (*Archduchess of Austria, Duchess of Burgundy, Countess of Tyrol, 1780 ×.*) Weight: 433.080 grains. Fineness: 833.333. Value: \$1.03.

7. Crown, or Kronen Thaler of Francis II. Obverse:



CROWN THALER OF FRANCIS II.

Head of Francis II. Legend: "FRANC. II. D. G. R. I. S. A. GER. HIE. HVN. BOH. REX."

Reverse: St. Andrew's Cross, with three crowns in the three respective angles. The order of the Golden Fleece suspended from the middle of cross. Legend: "ARCII. AUST. DUX. BVRG. LOTII. BRAB. COM. FLAN. 1795." Weight: 454.899 grains. Fineness: 868.056. Value: \$1.11.7824.

8. Species or Conventions-Thaler of 1839. Obverse: Lau-
 rated head of Ferdinand I. Legend: "FERD. I. D. G. AVST.
 IMP. HVNG. BOH. R. H. N. V."



SPECIES THALER OF FERDINAND I.

Reverse: Double-headed Austrian imperial eagle, with three crowns. A shield upon its breast, the order of the Golden Fleece suspended around it; dexter talon, a sword and sceptre; left talon, the imperial globe, surmounted by the Coptic cross. Legend: "REX. LOMB. ET. VEN. DALM. GAL. IOD. ILL. A. A. 1839." Weight: 433.080 grains. Fineness: 833.333. Value: \$1.02.1453.



CROWN THALER OF LEOPOLD II.

9. Crown, or Kronen Thaler of Leopold II. Obverse:

Laureated head of Leopold II. Legend: "LEOPOLD II. D. G. R. I. S. A. GER. HIE. HVN. BOH. REX."

Reverse: Double-headed Austrian Eagle. Legend: "ARCH. AUST. DUX. BURG. BRAB. COM. FLAND. 1790." Weight: 454.899 grains. Fineness: 868.056. Value: \$1.11.7824.

10. Thaler of Joseph II., 1781. Obverse: Laureated bust of Joseph II. Legend: "JOSEPH II. D. G. R. IMP. S. AUG. G. H. ET. B. REX. A. A."



THALER OF JOSEPH II.

Reverse: Crowned and quartered shield of Lombardy, two eagles and two serpents, one in each corner, surrounded by palm and laurel branches, crossed. Legend: "MEDIOLANI ET MANTUA DUX." (*Duke of Milan and Mantua, 1782.*) Intrinsic value about 89 cents, but being out of circulation, has a greater value with numismatists.

11. Two Gulden or Florins piece of the Archduke Johann, of Austria.

During the troubles of 1848, in Europe, and after the flight of the Emperor of Austria from Vienna, a National Assembly met at Frankfort-on-the-Main, in May, 1848, and determined upon the reorganization of Germany into one integral empire, excluding the German possessions of Austria, and offering the imperial crown to Frederic William IV., the then King of Prussia. This movement was set on foot and headed by the Austrian Archduke, Johann, who was, in consequence, made the Administrator, by the Assembly.

This coin of the Archduke Johann, of Austria, bears the following inscriptions. Obverse: "ERZHERZOG JOHANN VON OESTERREICH," inscribed in four lines. Beneath is a palm and laurel branch, crossed. Legend: "ERWAHLT ZUM REICH-SVERWESER UBER DEUTSCHLAND D. 29 JUNI, 1848." (*Elected as Administrator over Germany the 29th of June, 1848.*)



TWO FLORINS OF ARCHDUKE JOHANN, OF AUSTRIA.

Reverse: Double-headed Austrian eagle. Legend: "CONSTITUIRENDE VERSAMMLUNG I. D. F. STADT FRANKFURT, 18 MAI, 1848." (*Constitutional Assembly in the free city of Frankfurt, the 18th May, 1848.*) Around the edge: "ZWEI GULDEN." (*Two Gulden or Florins.*) Weight: 327.335 grains. Fineness: 900. Value: §0.83.3894.

12. Two Gulden Piece of Francis Joseph I., 1859. Obverse: Laureated head of Francis Joseph I. Legend: "FRANC. JOS. I. D. G. AVSTRIAE IMPERATOR." Reverse: Double-headed Austrian eagle. Legend: "HUNG. BOH. LOMB. ET. VEN. GAL. LOD. ILL. REX. A. A. 1859." Exergue: "2 FL." (*two florins.*) Weight: 381.04 grains. Fineness: 900. Value: §0.91.0766.

13. Vereins-Thaler of 1½ Gulden or Florin of Francis Joseph I., 1858. Obverse: Laureated head of Francis Joseph I. Legend: "FRANZ JOSEPH I. V. G. G. KAISER VON OESTERREICH." Reverse: Double-headed Austrian eagle. Legend: "EIN VEREINS THALER. XXX EIN PFUND FEIN." (*One Convention Thaler or Dollar, thirty to make one pound fine*)

silver.) Exergue: "1858." Weight: 285.776 grains. Fineness: 900. Value: \$0.72.7441.

14. Half Reichs Thaler of Joseph II. Obverse: Laureated head of Joseph II. Legend: "JOS. II. D. G. R. I. S. A. GE. HU. BO. REX." (*Joseph II., by the Grace of God, Roman Emperor ever August, King of Germany, Hungary, Bohemia.*)



HALF REICHS THALER OF JOSEPH II.

Reverse: Double-headed Austrian eagle. Legend: "ARCHID. AUST. DUX. BURG. CO. TYR. 1774." (*Archduke of Austria, Duke of Burgundy, Count of Tyrol.*) Weight: 216.540 grains. Fineness: 833.333. Value: \$0.50.6927.

15. Half Reichs Thaler of Joseph II. Obverse: Laureated head of Joseph II.



HALF REICHS THALER OF JOSEPH II.

Reverse: A crowned shield, two angels supporting the crown; a palm and laurel branch, crossed beneath. Legend: "JOS. II. D. G. R. IMP. S. A. G. H. B. REX. A. A. D. B. & L." (*Joseph II., by the Grace of God, Roman Emperor ever August,*

King of Germany, Hungary and Bohemia, Archduke of Austria, Duke of Burgundy and Lorraine.) Weight: 216.540 grains. Fineness; 833.333. Value: \$0.50.6927.

16. Half Crown of Maria Theresia. Obverse: St. Andrew's Cross, with crown in each of the four angles. Legend: "MAR. THERESIA. D. G. R. IMP. GERM. HUNG. BOH. REG. X." (*Maria Theresia, by the Grace of God, Roman Empress, Queen of Germany, Hungary, Bohemia.*)



HALF CROWN OF MARIA THERESIA.

Reverse: Austrian eagle. Legend: "ARCH. AUST. DUC. BURG. BRAB. COM. FLAND." Weight: 227.449 grains. Fineness: 868.056. Value: \$0.55.7625.

17. Quarter Crown of Leopold II. Obverse: Bust laureated head of Leopold II. Legend: "LEOP. D. G. R. I. S. A. GER. HIE. HUN. BOH. REX."



ARTER CROWN OF LEOPOLD II.

Reverse: St. Andrew's Cross, with the badge of the Golden Fleece suspended from the centre. A large crown above and a smaller one in the left and right angle of the cross. Legend:

"ARCH. AVST. DUX. BVRG. LOTH. BRAB. COM. FLAN. 1790."
Weight: 127 grains. Fineness: 875. Value: \$0.26.750.

18. Gulden, or Florin of Francis Joseph I., 1859. Obverse: Laureated head of Francis Joseph I. Legend: "FRANC. JOS. I. D. G. AVSTRIAE. IMPERATOR." Reverse: Double-headed Austrian eagle. Legend: "HUNG. BOH. LOMB. ET. VEN. GAL. LOD. ILL. REX. A. A. 1859." Exergue: "1 FL." (1 florin.) Weight: 190.52 grains. Fineness: 900. Value: \$0.48.6050.

19. Gulden of Hungary. Obverse: Bust of Joseph II. Legend: "JOS. II. D. G. R. IMP. S. A. G. H. B. REX. A. A."



GULDEN, OR FLORIN OF JOSEPH II.

Reverse: Virgin and Child. Legend: "S. MARIA MATER DEI PATRONA HUNG. 1786 X." Weight: 227.449 grains. Fineness: 868.056. Value: \$0.55.7625.

20. Hungarian Florin, since 1869. Obverse: Laureated



HUNGARIAN FLORIN.

head of Francis Joseph I. Legend: "FERENCZ JOZSEF A. CSASZAR." (*Francis Joseph I., Austrian Emperor.*)

Reverse: Shield of Hungary, two chernbims supporting a

crown; beneath the shield, laurel branches crossed. Legend: "MAGYAR ORSZAO. AP. KIRALYA. 1869." (*Hungarian Chief, crowned King.*) Exergue: "1 FL." (1 *Florin.*) Weight: 190.56. Fineness: 900. Value: \$0.48.60.

21. Lombardo-Venetia Austrian Lira. Obverse: Laureated head of Ferdinand I. Legend: "FERD. I. D. G. AUSTRIAE IMPERATOR."



LOMBARDO-VENETIA AUSTRIAN LIRA.

Reverse: Double-headed Austrian eagle with three crowns, upon his breast the Austrian Lombardo-Venetian shield. Dexter talon: Sword. Sinister talon: Imperial globe. Legend: "LOMB. ET. VEN. REX. A. A." (*King of Lombardy and Venice, Archduke of Austria.* 1839.) Exergue: "LIRA AUSTRIACA." (*Austrian Lira.*) Weight: 66.820 grains. Fineness: 900. Value: \$0.17.2354.

22. Half Austrian Lira of Lombardy and Venice. Obverse: Laureated head of Francis I. Legend: "FRANCISCUS I. D. G. AUSTRIAE IMPERATOR." Reverse: Shield of Austria, Lombardy and Venice surmounted by a large imperial crown. Legend: "LOMB. ET. VEN. REX. A. A. 1824." Exergue: "½ LIRA." Weight: 33.410 grains. Fineness: 900. Value: \$0.08.6177.



QUARTER LIRA OF LOMBARDY.

23. Quarter Lira of Lombardy. Obverse: Bust of Francis I. Legend: "FRANCISCUS I. D. G. AVSTRIAE IMPERATOR."

Reverse: Shield quartered, surmounted by an imperial crown.
 Legend: "LOMB. ET. VEN. REX. A. A. 1822." Weight: 16.705 grains. Fineness: 900. Value: \$0.04.3088.

BILLON MONEY OF AUSTRIA.

1. Zwanziger of Francis I. (20 Kreuzers or $\frac{1}{3}$ Florin.)
 Obverse: Head of Francis I. Legend: "FRANC. I. D. G. R. I. S. A. GERM. HV. BO. REX."



ZWANZIGER OF FRANCIS I.

Reverse: Austrian imperial shield, surmounted by a crown.
 Legend: "ARCH. AUS. DUX. BURG. BRAB. C. F. I." Exergue: "1751." Weight: 103.118 grains. Fineness: 583.333. Value: \$0.17.2354.

2. Zwanziger of Tyrol, 1809. Issued during the struggle of Andreas Hofer, the Tyrolian patriot, against Napoleon I.
 Obverse: Single-headed eagle, facing to the left, a crown upon its head, encircled by a laurel chaplet. Legend: "GEFÜRSTLICHE GRAFSCHAFT TIROL." (*Princely earldom of Tyrol.*)
 Reverse: "20 KREUTZER" inscribed in two lines; underneath a laurel and olive branch. Legend: "NACH DEM. CONVENTIONS FUSS." (*In conformity with the conventional money rate.*)
 Exergue: "1809" between two rosettes. Weight: 103.118 grains. Fineness: 583.333. Value: \$0.17.2354.

3. Zwanziger of Leopold II. Obverse: Double-headed eagle, upon its breast the imperial globe surmounted by a large cross and a crown. Legend: "LEOPOLD D. G. ROM. IMP. SEMP. AUG."

Reverse: Virgin and child. Legend: "S. MARIA. MATER



ZWANZIGER OF LEOPOLD II.

DEI PATRONA HUNGARIE. 1791." Weight: 103.118. Fineness: 583.333. Value: \$0.17.2354.

4. Zwanziger of Francis II. Obverse: Double-headed imperial Austrian eagle. Right talon: Sceptre. Left talon: Sword; underneath "1797." Legend: "FRANCISCUS II. D. G. ROM. IMP. SEMP. AUGUST."



ZWANZIGER OF FRANCIS II.

Reverse: A shield quartered, a shield of smaller size upon it, both crowned. Legend: "ARCH. AUS. DUX. BURG. BRAB. C. F." Weight: 103.118. Fineness: 583.333. Value: \$0.17.2354.

5. Zwanziger of Francis I. Obverse: Laureated head of Francis II., surrounded by branches of laurel leaves, tied with a ribbon in a bow. Legend: "FRANCISCUS I. D. G. AUST. IMPERATOR." Reverse: Austrian double-headed imperial eagle. Dexter talon: Sword and sceptre. Sinister talon: Imperial globe. Legend: "HUN. BOH. LOMB. VEN. GAL. ILL. REX. 1811." Exergue: "20" in a scroll; left an olive branch;

right a palm branch. Weight: 103.118 grains. Fineness: 583.333. Value: \$0.17.2354.

6. Zwanziger of Ferdinand I. 1840. Obverse: Laureated head of Ferdinand I. Legend: "FERD. I. D. G. AVSTR. IMP. HVNG. BOH. REX. H. N. V."



ZWANZIGER OF FERDINAND I.

Reverse: Double-headed eagle, crowned with three crowns. Dexter talon: Sword and sceptre. Sinister: Imperial globe. Legend: "REX. LOMB. ET. VEN. DALM. GAL. LOD. ILL. A. A. 1840." Weight: 103.118 grains. Fineness: 583.333. Value: \$0.17.2354.

7. Zwanziger of Francis I. Obverse: Head of Francis I. Legend: "FRANCISCUS I. D. G. AVSTR. IMPERATOR."



ZWANZIGER OF FRANCIS I.

Reverse: Virgin and child. Legend: "S. MARIA MATER DEI PATRONA HVNG. 1834." Exergue: "20." Weight: 103.118 grains. Fineness: 583.333. Value: \$0.17.2354.

8. Zehner of Maria Theresia. (10 Kreuzer or $\frac{1}{3}$ Florin.) Obverse: Head of Maria Theresia, surrounded by a laurel and palm branch, crossed at the end and tied with a ribbon in a bow. Legend: "M. THERESIA. D. G. R. IMP. GE. HU. BO. REG." Reverse: Virgin and child surrounded by rays of glory; at her

feet an altar, upon it the figure "10;" left a laurel branch, right a palm branch. Legend: "PATRON. REGNI. HUNGARIA 1765." Weight: 60.155 grains. Fineness: 500. Value, \$0.08.6177.

9. Zehner of Joseph II. Obverse: Head of Joseph II. Legend: "JOS. II. D. G. R. I. S. A."



ZEHNER OF JOSEPH II.

Reverse: Austrian double-headed eagle. Legend: "VIRTUTE. ET EXEMPLO. 1768." Exergue: "10" in a scroll. Weight: 60.155 grains. Fineness: 500. Value, \$0.08.6177.

10. Ten Neu-Krentzer, or Ten New Krentzer Piece. Obverse: Head of Francis Joseph I. Legend: "FRANZ JOSEPH I., V. G. G., KAISER VON OESTERREICH." Reverse: A large figure "10," surmounted by an imperial crown. Legend: "SCHEIDE—MUNZE." (*Subsidiary coin.*) Exergue: A laurel and palm branch, above the same "1859." Weight: 30.864 grains. Fineness: 500. Value: \$0.04.3088.

11. Six Krentzer Piece of Francis Joseph I. Obverse: Shield, upon it a double-headed Austrian eagle; a crown surmounting it. Legend: "K. K. OESTERREICHISCHE SCHEIDEMUNZE." (*Kaiserliche Koenigliche Oesterreichische Scheidemünze; meaning: Imperial Royal Austrian Subsidiary coin.*) Reverse: "6" "Krentzer —. —, 1859," inscribed in four lines. Weight: 29.46 grains. Fineness: 437.500. Value: \$0.03.5485.

12. Five Krentzer Piece of Ferdinand I. Obverse: Head Ferdinand I. Legend: "FERD. I., D. G., AVSTR. IMP. HVNG. BOH. R. H. N. V."

Reverse: Double-headed Austrian eagle. Legend: "REX LOM., ET. VEN. DALM. GAL. LOD. ILL. A. A., 1839." Exergue:



FIVE KREUTZERS OF FERDINAND I.

"5." Weight: 34.367 grains. Fineness: 437.500. Value: \$0.04.3088.

13. Five Nen-Kreutzer, or Five New Kreutzer Piece. Obverse: Head of Francis Joseph I. Legend: "FRANZ JOSEPH I., V. G. G., KAISER VON OESTERREICH." Reverse: a large figure 5 surmounted by a crown. Legend: "SCHEIDE—MUNZE." Exergue: Laurel and palm branch, crossed and tied with a ribbon in a bow; above it, "A, 1859." Weight: 20.570 grains. Fineness: 375. Value: \$0.02.0277.

14. Three Kreutzer Piece of Ferdinand I. Obverse: Head of Ferdinand I. Legend: "FERD. I., D. G., AVSTR., IMP. HVNG. BOH. R. H. N. V." Reverse: Double-headed eagle, crowned with three crowns. Dexter talon: Sword and sceptre. Sinister talon: Imperial globe. A large figure "3" in a shield upon the breast of the eagle. Legend: "REX, LOMB., ET. VEN. DALM. GAL. LOD. ILL. A. A., 1840." Weight: 22.25 grains. Fineness: 343.75. Value: \$0.02.2812.

BRONZE COINS OF AUSTRIA.

The Bronze Coins of Austria consist of 95 per cent. of copper and 5 per cent. tin. They are of the new standard rate; dividing the Gulden or Florin into 100 equal parts.

1. The Four Kreutzer Piece, bearing the inscription: "4" "KREUTZER" in two lines. Weight: 201.59 grains. Value: \$0.01.600.

2. The Three Kreutzer Piece, inscription "3" "KREUTZER." Weight: 151.17 grains. Value: \$0.01.200.

3. The Two Kreuzer Piece, inscription "2" "KREUTZER."
Weight: 100.78 grains. Value: \$0.00.800.

4. The One Kreuzer Piece, inscription "1" "KREUTZER."
Weight: 50.39 grains. Value: \$0.00.400.

5. The Half Kreuzer Piece, inscription " $\frac{1}{2}$ " "KREUTZER."
Weight: 25.195 grains. Value: \$0.00.200.

6. The Quarter Kreuzer Piece, inscription " $\frac{1}{4}$ " "KREUTZER."
Weight: 12.597 grains. Value: \$0.00.100.

BELGIUM.

This country was anciently the territory of the Belgæ, who were conquered by Julius Cæsar, 47 B. C., and in modern times was formerly known as Flanders. In 1598, Philip II., of Spain, ceded it to Austria. In 1621, it fell back into the hands of Philip IV., King of Spain, where it remained subject to Spanish rule, till 1713. By the treaty of Utrecht, it was apportioned to Austria. In 1785 it was incorporated with France. In 1815 it became part of Holland. In May, 1830, disregarding six hundred and forty petitions, the government of Holland enacted a new law of the press. Officials holding Belgic opinions were dismissed. The public mind was in a state of excitement, which was raised to its highest pitch of intensity by the revolution of July, 1830, in Paris. At length, on August 25th, 1830, during the performance of Auber's "Massaniello," at the Grand Opera House of Brussels, the insurrectionary spirit was aroused into action by the music. The theatre was rapidly emptied, the office of the *National* newspaper, the Dutch government organ, was sacked, the armorers' shops broken open, and barricades were erected. On August 28th, 1830, a Congress of citizens assembled in the Hotel de Ville, at Brussels, asking for reform. The King of Holland, William I., received them at the Hague, but refused to pledge himself to anything while under menace of force; yet promised an early consideration of the matter.

This answer gave still greater dissatisfaction. On January 31st, 1831, the independence of Belgium was acknowledged, and the nation was established as a Kingdom under Leopold I.

The coinage of Belgium, since 1598, is mostly Austrian, bearing the names and titles of the sovereigns, as Archdukes of Austria and Dukes of Burgundy, Lorraine, Brabant and Counts of Flanders, and is fully described under the head of Austria, from page 495 to page 508 of this work. No coins were issued by Belgium after its conquest by the French, 1795 to 1815. From 1815 to 1831, the Belgian coins were issued under the coinage laws of Holland. In 1831, the first of the present series of Belgium appeared with the head and Legend of "LEOPOLD, PREMIER ROI DES BELGES" (*Leopold I., King of the Belgians*), and "L'UNION FAIT LA FORCE." (*In Union there is Strength.*) The coinage from 1749 to 1795 included the gold "Sovereign" or Sovereign of 171.468 grains, and 916.667 fineness. The silver crown, known as the Brabant Crown of 456 grains and 872 fine. The Kronen Thaler, or Crown Dollar of 454.899 grains and 868.056 fine.

In 1790, a new coinage of gold and silver pieces, called "Lions," was projected by a Congress of Belgian Provinces; but was only partially carried into effect. The gold pieces were 917 fine, and the silver ones of 875 fineness. Of the "Silver Lions" several pieces were struck and circulated, but recalled soon after. The "Gold Lions" were mere pattern pieces, found in the Museums of Europe, and of interest only to the numismatists.

The standard of Belgium has been and still is double, namely, Gold and Silver. The weight of pure metal in the gold coins, as compared with that in the silver legal tender coins, of the same denomination, is fixed by law at 1 to $15\frac{1}{2}$, making the legal value of the gold coins $15\frac{1}{2}$ times that of the silver coins of the same weight and fineness. The legal tender gold and silver coinages have the same degree of fineness; that is, nine-tenths, or 900 of pure metal to one-tenth or 100 of alloy.

In addition to the legal tender coins of gold and silver, there was established on the 23d of December, 1865, between France, Italy, Switzerland and Belgium, by the "Quadripartite Convention," a subsidiary silver coinage of less intrinsic value than the legal tender silver coinage of the like denomination. In this new subsidiary coinage the weight of the pieces was left the same as that of the corresponding legal tender silver coinage; but the fineness was reduced to 835 pure metal and 165 of alloy. The legal weight of pure metal in the subsidiary silver coins is thus fixed at about $14\frac{3}{4}$ times the weight of pure metal in the gold coins of like denomination. In this "Quadripartite Convention of 1865," a provision for an interchange of subsidiary coin to a limited extent is fixed upon the following basis: "To the citizens of the country issuing it, this silver coin is a legal-tender for 50 francs (\$9.65), and for taxes up to 100 francs (\$19.30), in Belgium, France, Italy and Switzerland."

The Franc of Belgium, both gold and silver, is divided into 100 Centimes.

GOLD COINS OF BELGIUM.

1. The Souverain, or Sovereign of 1749 and 1766.



SOUVERAINS ISSUED UNDER AUSTRIAN RULE.

For weight, fineness and value, see page 491.

2. Half Souverain of 1750, 1752 and 1797.

For weight, fineness and value, see page 493.

3. The Gold Lion of the Belgian Revolution of 1790. Obverse: A Lion, *rampant*, supporting a shield, with the word "LIBERTAS" (*Liberty*) upon it. Legend: "DOMINI EST REG-

NUM" (meaning: *The Kingdom is the Lord's*). Exergue: 1790. Reverse: A Sun, surrounded by eleven shields, bearing the



HALF SOUVERAINS ISSUED UNDER AUSTRIAN RULE.

arms of the different Belgian provinces. Legend: "ET IPSE DOMINABITUR GENITUM" (meaning: *and He Himself shall Reign over the Nations*).

This coin having never circulated as money, its exact weight and fineness cannot be given with precision. The pattern pieces were struck of 916.667 fineness, although generally understood to be 917 fine. Value entirely nominal at about \$6.50. Among numismatists, this coin brings a very high premium.

4. Ducat of the Belgian Provinces, under Holland's rule. Obverse: a full length figure of a knight in armor; dexter hand, a drawn sword; in the other, a bunch of arrows tied with a ribbon, the ends loosely floating. At the left of the Knight, "18," and right, "15," changing this date with every new year's issue. Legend: "CONCORDIA RES PARVAE. CRESCUNT." (*Small things increase by concord.*) Reverse: "MO. ORD. PROVIN. FOEDER. BELG. AD. LEG. IMPERII." (*Moneta ordinarea provinciarum foe-*



DUCAT OF THE BELGIANS OF 1825.

deratarum Belgicarum ad legem Imperii; meaning: *the ordinary coin of the Confederated Belgic Provinces, according to the law of the Empire*; referring to the German Empire, standard of 67

Ducats to the Mark, fine gold of Cologne.) Weight: 53.92 grains. Fineness: 983. Value: \$2.28.3706.

5. Ducat of the Belgians of 1825. Obverse: Same as No. 4, changing only the date of issue to "1825." Legend: "B. CONCORDIA RES PARVAE CRESCUNT X."

Reverse: Similar to No. 4. Weight: 53.92 grains. Fineness: 983. Value: \$2.28.3706.

6. Forty Francs Piece of Leopold I. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." (*Leopold the first King of the Belgians.*) Reverse: "40 FRANCS, 1835," inscribed in three lines, the whole enclosed in a heavy wreath of oak. Around the edge: "DIEU PROTEGE LA BELGIQUE." (*God protects Belgium.*) Weight: 199.1235 grains. Fineness: 900. Value: \$7.72.

7. Twenty-five Francs Piece of Leopold I. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES."

Reverse: The Coat of Arms of Belgium, above it the Legend: "L'UNION FAIT LA FORCE." (*In Union there is Strength.*) Underneath: "7.915," "900 M" (meaning: 7.915 grammes in weight, and 900-1000 fine). Exergue: "1848." Weight: 122.146 grains. Fineness: 900. Value: \$4.82½.

In 1848, there appeared, also, another Twenty-five Francs Piece. Obverse: Same as No. 7. The Reverse, bearing the Coat of Arms of Belgium; but the Legend above: "L'UNION FAIT LA FORCE" removed, and "25 FRANCS," inserted instead. To the left of the shield as Legend: "900 M," and to the right: "o. 7.915." Exergue: "1848." Weight: 122.146 grains. Fineness: 900. Value: \$4.82½.

8. Twenty Francs Piece of Leopold I. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: "20 FRANCS, 1835," inscribed in three lines, enclosed by a heavy wreath of oak leaves. Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

9. Twenty Francs Piece of Leopold I. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: "20 FRANCS, 1862." Branches of oak leaves surround

the inscription. Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

10. Twenty Francs Piece of Leopold II. Obverse: Head of Leopold II. Legend: "LEOPOLD II. ROI DES BELGES."



TWENTY FRANCS OF LEOPOLD II.

Reverse: Coat of Arms of Belgium. Legend: "L'UNION FAIT LA FORCE." Exergue: "20 FR." Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

11. Ten Francs Piece of Leopold I. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Coat of Arms of Belgium. Legend: "L'UNION FAIT LA FORCE." Exergue: "1849." At the left side of coat of arms: "10," and at the right: "F," underneath: "G. 3.166," and "900 M." Weight: 48.858 grains. Fineness: 900. Value: \$1.93.

12. Ten Francs Piece of Leopold II., same as No. 11, with the exception of Obverse having the head of Leopold II., instead of his father, Leopold I. Weight: 48.858 grains. Fineness: 900. Value: \$1.93.

SILVER COINS OF BELGIUM.

1. Belgae-Austrian Reichs Thaler of 1618. Obverse: Busts of Albertus and Elisabet. Legend: "ALBERTVS ET ELISABET. DEI. GRATIA. 16-18."

Reverse: Two lions supporting a shield, the crown resting upon their bowed heads; badge of the golden fleece beneath. Legend: "ARCH. AVST. DUCES. BVRG. BRAB. Z." Intrinsic value about \$1.05; but being out of circulation for nearly two hun-

dred years, this coin commands a very high premium among collectors of coins.



BELGAE-AUSTRIAN RIX DOLLAR OF 1618.

2. Kronen Thalers of Belgium, under Austrian Government, For description, weight, fineness and value, see page 498.



CROWN DOLLARS OF BELGIUM, 1756 TO 1795.

3. Silver Lion of the Belgian Revolution of 1790. Obverse: A lion rampant, supporting a shield, with "LIBERTAS," upon it. Legend: "DOMINI EST REGNUM." (*The Kingdom is the Lord's.*) Exergue: "1790."

Reverse: A sun, with eleven escutcheons of the Belgic Provinces round it. Legend: "ET IPSE DOMINABITVR GENTIUM." (*And He Himself shall reign over the Nations.*) Around the

outer edge: "QUID FORTIUS LEONE." (*What is stronger than the*



SILVER LION OF THE BELGIAN REVOLUTION, 1790.

Lion?) Intrinsic value about \$1.05; but out of circulation for many years, it brings a high premium.



FIVE FRANCS OF LEOPOLD I

4. Five Francs Piece of Leopold I., of 1835. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES."

Reverse: "5" "Francs" "1835" inscribed upon the field in three lines, surrounded by a heavy wreath of oak leaves. Around the edge "DIEU PROTEGE LA BELGIQUE." (*God Protects Belgium.*) Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

5. Five Francs Piece of 1849. Obverse: Head of Leopold

I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Crowned shield, with a lion rampant upon the same. Left of shield "5" and to the right "F" (meaning: five francs), surrounded by two branches of laurel leaves, crossed and tied at the ends with a ribbon in a bow. Legend: "L'UNION FAIT LA FORCE." Exergue: "1849." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

6. Five Francs Piece of Leopold II. Obverse: Head of Leopold II., full beard. Legend: "LEOPOLD II. ROI DES BELGES."



FIVE FRANCS OF LEOPOLD II.

Reverse: Same as No. 5, with the exception of the Exergue: "1869." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

7. Two and a half Francs Piece of Leopold I. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES."



TWO AND A HALF FRANCS OF LEOPOLD I.

Reverse: Crowned shield, a lion rampant upon the same;

left of it "2½," and to the right "F," surrounded by two branches of oak leaves, crossed at the end and tied with a ribbon in a bow. Legend: "L'UNION FAIT LA FORCE." Exergue: "1848." Around the edge: "DIEU PROTEGE LA BELGIQUE." Weight: 192.904 grains. Fineness: 900. Value: \$0.48¼.

8. Two Francs Piece of Leopold I., of 1834. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: "2" "Francs" "1834," inscribed upon the field in three lines, surrounded by a heavy wreath of oak leaves. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

9. Two Francs Piece of Leopold I., of 1849. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Crowned shield, a lion rampant upon the same; to the left of it "2," and to the right "F," surrounded by two branches of oak leaves, crossed at the ends and tied with a ribbon in a bow. Legend: "L'UNION FAIT LA FORCE." Exergue: "1849." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

10. Two Francs Piece of Leopold II., of 1869. Obverse: Head of Leopold II. Legend: "LEOPOLD II. ROI DES BELGES." Reverse: Crowned shield with lion rampant; rest same as No. 9, with the exception of the Exergue changed to "1869," and ever since with the date of the year of issue. Weight: 154.323 grains. Fineness: 835. Value: \$0.36.

11. Franc of Leopold I., of 1835. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: "1" "FRANC" "1835," inscribed upon the field in three lines, and surrounded by a heavy wreath of oak leaves. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.3.

12. Franc of Leopold I., of 1849. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Crowned shield, a lion rampant upon the same; to the left of it "1" and to the right "F." Legend: "L'UNION

FAIT LA FORCE." Exergue: "1849." Weight: 77.161 grains. Fineness: 900. Value: \$0.19.3.

13. Franc of Leopold II. Obverse: Head of Leopold II. Legend: "LEOPOLD II., ROI DES BELGES." Reverse: Crowned shield, a lion rampant upon the same; left of it "1," and to the right "F," surrounded by branches of laurel leaves, crossed at the end and tied with a ribbon in a bow. Legend: "L'UNION FAIT LA FORCE." Exergue: "1869," and ever since changed to the date of the year of issue. Weight: 77.161 grains. Fineness: 835. Value: 18 cents.

14. Half Franc of Leopold I., of 1835. Obverse: Laureated head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES."



HALF FRANC OF LEOPOLD I.

Reverse: " $\frac{1}{2}$ " "FRANC" "1835." Wreath of oak leaves surrounding the same. Weight: 38.580 grains. Fineness: 900. Value: \$0.09.65.

15. Half Franc of Leopold I. of 1849. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Crowned shield, a lion rampant upon the same; to the left of it " $\frac{1}{2}$," to the right "F," surrounded by two branches of laurel leaves, crossed and tied at the ends with a ribbon in a bow. Legend: "L'UNION FAIT LA FORCE." Exergue: "1849." Weight: 38.580 grains. Fineness: 900. Value: \$0.09.65.

16. Half Franc of Leopold II. of 1869. Same as the above with the exception of Leopold II. substituted for "Leopold Premier." Weight: 38.580 grains. Fineness: 835. Value: \$0.09.

17. Quarter Franc of Leopold I. of 1835. Same as the Half Franc piece No. 14, with the exception of " $\frac{1}{4}$ " is sub-

stituted for the " $\frac{1}{2}$ " on the Reverse. Weight: 19.29 grains. Fineness: 900. Value: \$0.04.825.

18. Quarter Franc of Leopold I. of 1849. Same as the Half Franc piece No. 15, with the exception of " $\frac{1}{4}$ " is substituted for the " $\frac{1}{2}$ " on the Reverse. Weight: 19.29 grains. Fineness: 900. Value: \$0.04.825. The above two Quarter Franc pieces, by act of Legislature in 1853, were withdrawn from circulation, and have become very scarce, and in demand with collectors of coin, commanding a high premium.

19. Twenty Centimes of Leopold I. of 1853. Obverse: Head of Leopold I. Legend: "LEOPOLD PREMIER ROI DES BELGES." Reverse: Crowned shield, a lion rampant upon the same; left of it "20," and to the right "C," surrounded by branches of laurel leaves, crossed and tied at the ends. Exergue: "1853." Weight: 15.432 grains. Fineness: 900. Value: \$0.03.86.

This Twenty Centimes Piece is no longer coined in silver, and is melted as fast as it returns into the Treasury; in a few years it will be out of circulation entirely.

COPPER COINS OF BELGIUM.

The Copper Coins of Belgium are no longer coined, and those still remaining in circulation are of the reign of Leopold I., the father of the present reigning King of the Belgians.

1. The Ten Centimes Piece. Obverse: A large ornamental "L," surmounted by a Crown. Legend: "10 CENTIMES." Reverse: a Lion seated, holding a tablet, with the inscription, "CONSTITUTION BELGE, 1831." Legend: "L'UNION FAIT LA FORCE." Weight: 154.320 grains. Value: \$0.01.93.

2. The Five Centimes Piece. Same as No. 1, with the exception of the Legend: "5 CENTIMES." Weight: 77.160 grains. Value: \$0.00.965.

3. The Two Centimes Piece. Same as No. 1, with the exception of the Legend: "2 CENTIMES." Weight: 30.864. Value: \$0.00.386.

4. The One Centime Piece. Same as No. 1, with the exception of the Legend: "1 CENTIME." Weight: 15.432. Value: \$0.00.193.

NICKEL COINS OF BELGIUM.

1. Twenty Centimes Piece of Leopold I. Obverse: Head of Leopold I., facing to the right; a raised circle around it. Legend: "LEOPOLD I., ROI DES BELGES." Exergue: "1861" between two stars.



TWENTY CENTIMES OF LEOPOLD I.

Reverse: A Lion, rampant, surrounded by a raised circle. Legend: "L'UNION FAIT LA FORCE." Exergue: "20 C." between two stars. Weight: 108.026 grains. Value: \$0.03.86. Composition, 25 parts Nickel and 75 parts Copper.

2. Twenty Centimes of Leopold II. Same as No. 1, with the exception of the head of Leopold II. and the Legend: "LEOPOLD II. ROI DES BELGES." Weight and value the same as No. 1.

3. Ten Centimes of Leopold I. Obverse: A large "10" inscribed upon the field, which has sunken figures; underneath "CENTIMES" also in sunken letters; beneath is a star sunk in the field, which has a grained surface. Legend: "LEOPOLD PREMIER ROI DES BELGES." Exergue: A Rosette.



TEN CENTIMES OF LEOPOLD I.

Reverse: Same as No. 1 and No. 2, only the field is grained

and the Exergue is changed to the date of issue. Weight: 69.445. Value: \$0.01.93.

4. The Ten Centimes of Leopold II., issued now, have the same devices as No. 3. Weight: 69.445. Value: \$0.01.93.

5. The Five Centimes of Leopold I. Same devices as No. 3, with the exception of the inscription on the Obverse, a "5"



FIVE CENTIMES OF LEOPOLD I.

takes the place of the figure "10." Weight: 46.297 grains. Value: \$0.00.965.

6. The Five Centimes of Leopold II. Same devices as No. 5. Weight: 46.297 grains. Value \$0.00.965.

BOLIVIA

Belonged formerly to Spain and afterwards to Peru; declared its Independence, August 6th, and took the name of Republic of Bolivia, in honor of General Simon Bolivar, its Liberator, August 11th, 1825.

Prior to 1826, Spanish and Peruvian money was in general circulation; although not banished by laws, very little of foreign money finds its way into Bolivia now, owing to its subsidiary coins having been debased to the standard of Billon, or 666 fine.

Under the first issue of 1827, the gold coins were 870 fine, and have continued so; although but sparingly coined.

The silver coinage was started at 900 fine, and continued so until 1851; when up to 1859, the standard "Peso de Plata" was 902.778 fine. In 1860 and 1861 some of the "Pesos de Plata," notwithstanding the mint mark of "10 DS., 20 CS.,"

were found upon assay to be only 898 fine, instead of 902.778, as implied by 10 Denaros, 20 Granos. Besides the variation in fineness, the *Peso de Plata* underwent a reduction in weight from 417 grains Troy down to 306 grains Troy; and have continued ever since to vary in fineness and weight to such a marked degree that their true value cannot be given with precision. The money of account of Bolivia is the "*Peso Corriente*," or current Dollar, divided into "8 Reales Corrientes," or 8 current Reals. The "*Peso de Plata*," or Silver Dollar, is also divided into "8 Reales de Plata," or silver; but of late years both Reals have been abandoned, and the "*Peso Corriente*," as well as the "*Peso de Plata*," are divided into 100 Centesimos.

The "*Peso de Plata*" is always at a premium; usually "16 Pesos de Plata" are equal to "17 Pesos Corrientes." Outside of Bolivia these coins find but little currency, being issued by the Bolivian mint below the legal standard; their home circulation is thus maintained. The Bolivian "*Eseudo*, or *Scudo*," is equal to two "*Pesos de Plata*."

GOLD COINS OF BOLIVIA.

1. *Onza de Oro*, or *Doblon* (Doubloon) of 8 *Esendos*, of 16 *Pesos de Plata*, or 17 *Pesos Corrientes*. Obverse: Bust of Bolivar, in military uniform, with his name inscribed beneath.



ONZA DE ORO, OR DOUBLON OF BOLIVIA.

Legend: "*LIBRE POR LA CONSTITUCION*." (*Free by or through the Constitution*.)

Reverse: The mountain of Potosi, above which the sun is rising; at the left of the mountain, and at the foot of it a Llama, and to the right a sheaf of wheat, from behind which three leaves are protruding; beneath the whole, six stars. Legend: "REPUBLICA BOLIVIANA" (*Bolivian Republic*). Exergue: Monogram of the Mint-mark of Potosi; an involution of the letters: "P. T. S." "8 s" (meaning: 8 *Escudos* or 16 *Dollars*), the date of the year of issue, and the initials of the master of the Mint; as in the above cut, "L. M.," which of course vary frequently. Weight: 416.503 grains. Fineness: 870. Value: \$16.33.5722.

2. Half Doubloon of Four *Escudos*. Devices on the Obverse and Reverse, similar to No. 1, only in proportion to size. On the Exergue of Reverse, instead of 8 *Escudos* is "4 s." Weight: 208.2515. Fineness: 870. Value: \$8.16.7861.

3. One-fourth of a Doubloon of Two *Escudos*. Devices similar to No. 1, only Exergue on Reverse: "2 s.," instead of "8 s." Weight: 104.1257. Fineness: 870. Value: \$4.08-.3930.

4. One-eighth of a Doubloon of One *Escudo*. Devices similar to No. 1.



ONE-EIGHTH OF A DOUBLOON OF BOLIVIA.

Exergue on Reverse: "1 s.," instead of "8 s.," as in No. 1. Weight: 52.0628. Fineness: 870. Value: \$2.04.1965.

SILVER COINS OF BOLIVIA.

1. *Peso* or *Piaster* of 1838. Obverse: Laureated bust of General Bolivar, facing to the right, in military uniform, with his name inscribed beneath. Legend: "LIBRE POR LA CONSTITUCION."

Reverse: A tree, beneath which are reposing two Llamas; above are six stars in an arch. Legend: "REPUBLICA BOLI-

VIANA." Exergue: Monogram of Mint-mark of Potosi. "8



PESO OR PIASTER OF BOLIVIA.

R," "1838." "L. M.," the Mint-master's initials. Weight: 417 grains. Fineness: 900. Value: \$1.00.21.

2. Peso or Piaster of 1851, called also the Peso of 8 Reales de Plata. Obverse: Head of Bolivar facing to the left, with his name inscribed beneath. Legend: "LIBRE POR LA CONSTITUCION." Reverse: A tree, beneath which are reposing two Llamas, left of tree, "10;" meaning: "10" Denaros, and to the right "20;" meaning: "20" Granos in fineness. Above the tree nine stars in an arch. Legend: "REPUBLICA BOLIVIANA." Exergue: The monogram of Mint-mark of Potosi, "1851," and the initials of the Mint-master, "F. M." Weight: 416.503 grains. Fineness: 902.778. Value: \$1.06.4634.

3. Peso or Piaster of 1859. Obverse: Laureated head of Bolivar, facing to the left, with his name inscribed beneath. Legend: "LIBRE POR LA CONSTITUCION." Exergue: "PESO 400 GS." (*Piaster of 400 granus or grains.*) The grains mentioned on this piaster are understood to be Spanish grains, not grains Troy. Their equivalent in Troy weight is 308 grains; but upon carefully submitting this Peso to test, it is found to be only of 306 grains. Reverse: A tree, beneath which are two Llamas; nine stars in an arch above the tree. Legend: "REPUBLICA BOLIVIANA." Exergue: Mint-mark of Potosi. "10 D. 20 GS.," and the date of issue. Here again the fineness is expressed by 10 Denaros and 20 Granos, equal to 902.778 fine,

while in reality the coin is only of 10 Denaros, $18\frac{1}{2}$ Granos, equal to 898 fine. Considering the above, we must give the true weight of 306 grains, and the fineness: 898. Value: \$0.78.0529.

4. In 1861, a new Peso was struck; it varies only in the device on the Reverse, where the "10 ds. 20 gs." are removed from the Exergue, and placed to the left and right of the reposing Llamas. Weight: 306 grains. Fineness: 898. Value: \$0.78.0529.

5. In 1872, a new Peso made its appearance, the device same as No. 2, only "10 D 20 GS," is omitted from the Reverse, and the date changed to the year of issue. This new Peso, or Dollar is claimed to be of the same weight and fineness as the Five Francs Piece of France, and the coin tested was found to be of 385.750 grains and 900 fine, and its value: \$0.96.5. But even this is no guarantee, for the Mint of Potosi is only too famous for variations.

BILLON MONEY OF BOLIVIA.

1. The Half Peso, or Piaster of Four Reales Plata, at first coined of full weight and fineness, but of this coin no traces are left. The present Half Peso de Plata (meaning: *true silver*) is nothing more than Billon of 666 silver and 334 parts of alloy; mostly copper. Obverse: Bust of General Bolivar in military uniform, facing to the right. Legend: "A SU LIBERTADOR SIMON BOLIVAR."



HALF PESO OF FOUR REALS.

Reverse: Same as the Peso No. 1. Exergue: "1827."

Weight: 208.012 grains. Fineness: 666. Value nominal, four Reals or fifty Centesimos; actual intrinsic value: \$0.39.0382.

2. Half Peso of 1830, as called, of Four Reals de Plata; but with no more right than the afore-mentioned. Obverse: Laureated bust of Bolivar. Legend: "LIBRE POR LA CONSTITUCION."



HALF PESO OF 1830.

Reverse: Same as the Peso No. 1, only in proportion to size. Weight: 208 grains. Fineness: 666. Forced value fifty Centesimos or four Reals; intrinsic value: \$0.39.0354.

3. Half Peso of 1846. Obverse: Laureated head of Bolivar, facing to the left. Legend: "LIBRE POR LA CONSTITUCION." Reverse: A tree, Llamas beneath; nine stars in an arch above. Legend: "REPUBLICA BOLIVIANA." Exergue: Monogram of Mint of Potosi, date of issue, and Mint-master's initials. Weight: 208.012 grains. Fineness: 666. Value: \$0.39.0382, intrinsic; forced value, fifty Centesimos.

4. Half Peso of 1850. Obverse: Bust of Belzu. Legend: "M. Y. BELZU PRESIDENTE CONSTITUCIO: DE BOLIVIA." (*M. Y. Belzu, Constitutional President of Bolivia.*) Exergue: "1850." Reverse: Hercules, with his club, treading upon a hydra-headed dragon. Legend: "LA FUERZA NACIONAL TRIUMFO DE LA ANARQUIA" (*The National Force Triumphs over Anarchy*). The weight and fineness of this piece, which was coined for about six years, varies so much that we omit the same, and give only the average value of assayed coins at 34½ cents.

5. In 1856, the coinage of the old Bolivar Half Peso was

again resumed, and although Lenares, Cordova and De Acha have struck coins similar to the above described No. 4, we must omit them, for they were, after all, mere tokens or medals having a fictitious value and forced circulation. The Half Peso of 1856, and after, bear again the well-known head of Bolivar; and the Reverse, the tree, Llamas and nine stars. Exergue: changing the date of issue and the Mint-master's initials. Weight: 208.012 grains. Fineness: 666. Value: \$0.39.0382.

6. The Quarter Peso of two Reales de Plata, but in reality, Billon. Obverse: Laureated bust of Bolivar, facing to the right. Legend: "LIBRE POR LA CONSTITUCION."



QUARTER PESO OF TWO REALES.

Reverse: Same as Peso No. 1, only in proportion to size.

Weight: 103.983 grains. Fineness: 666. Value forced, two Reals of twenty-five Centesimos. Intrinsic value: \$0.19-.5166.

7. The Eighth of a Peso, or One Real. Obverse: Bust of Bolivar, in military uniform, facing to the right. Legend: "LIBRE POR LA CONSTITUCION."



ONE-EIGHTH OF A PESO OR ONE REAL.

Reverse: Same as Peso No. 1, only in proportion to size. Weight: 51.991 grains. Fineness: 666. Value forced, one Real or 12½ Centesimos. Intrinsic value: \$0.09.7583.

8. One-sixteenth of a Peso. Obverse and Reverse: Same as the Peso No. 1, only in proportion to size. Weight: 25.463 grains. Fineness: 666. Forced value, $6\frac{1}{4}$ Centesimos. Intrinsic value: \$0.018156.

BRAZIL.



IMPERIAL MINT AT RIO JANEIRO.

Brazil was discovered by Alvarez de Cabral, a Portuguese, who was driven upon its coast by a tempest in 1500. He called it the Land of the Holy Cross; but it was subsequently named Brazil on account of its red wood. From 1500 to 1821 it was a province of Portugal, and its coins those of Portugal. In 1807 the French, under Napoleon I., having seized Portugal, the royal family and most of the nobles fled to Brazil. All the Portuguese coins from 1807 to 1821 were coined in Brazil.

In 1821 King Joannes VI., of Portugal, returned to Lisbon, leaving his son Dom Pedro as regent. At the breaking out of the revolution in 1822 Dom Pedro threw himself into the ranks of the "Independent Party," and was soon proclaimed Emperor of Brazil, taking the title of Petrus I., by the Grace of God Constitutional Emperor and perpetual Defender of Brazil.

In 1831 Dom Pedro abdicated in favor of his son Dom Pedro, then in his sixth year, who ascended the throne as Dom Pedro II., but was not crowned till 1841, when he became of age.

The *Rei* is an imaginary unit, simply money of account; no coin of so small a denomination is coined. 20 *Reis* make 1 *Vintem*; 80 *Reis* = 1 *Tostao* or *Testoon*; 320 *Reis* = 1 *Pataca*; 400 *Reis* = 1 *Crusado*; 480 *Reis* = 1 *Sello* or *Novo Crusado*; 1000 *Reis* = 1 *Milreis*, and written 1 || 000; these parallel lines are one of several different symbols to indicate the place of thousands; 1000 *Milreis* = 1 *Conto de Reis*, and written 1 : 000 || 000, the colon indicating the place of millions; 1000 *Contos* = 1 *Conto de Conto*, and written 1.000 : 000 || 000, the full point taking the place of thousands of millions. For example: 75,562,374,982 *Reis* are written in accounts in the following manner: 75.562:374 || 982 *Reis*. Gold is now the legal tender as payment in all amounts. Silver is subsidiary, and is not required to be received in payment for any greater amount than 10 || 000 *Reis*, equal to \$5.45.

Besides the usual gold coins of the Empire, gold bars of $1\frac{1}{2}$ fine, stamped with the imperial arms, are taken in payment on home accounts. They are the product of the gold dust found in the beds of various streams. This gold dust, when found, is a common right, but when taken out, is by law bound to be carried to the imperial smelting houses (*Cazas de Fundicas*) established in various districts, where, one-fifth of it being retained, in *natura*, for the Imperial *Quinto*, a bar is made of the remainder, which is weighed, assayed, numbered, stamped and returned to the owner, accompanied by a certificate, signed by the proper officers, showing the value at $1\frac{1}{2}$ fine. These bars serve

as a circulating medium, but it is prohibited to export them. They are ultimately carried to the Imperial Mint at Rio Janeiro, where they are received at their nominal value, and paid for in gold coin valued $6\frac{2}{3}$ per cent. above their nominal value of pure gold, the Emperor thus retaining the difference as Seignorage.

The Mint at Rio Janeiro was erected by the present Emperor, Dom Pedro II., and is a most substantial as well as ornamental building.

Prior to the reign of Dom Pedro II. the export of gold was prohibited; at the present time it has been so modified that gold belonging to the English mines can be exported by paying an export duty, which varies frequently.

PORTUGUESE-BRAZILIAN GOLD COIN.

1. Moëda D'Ouro of 4 || 000 Reis, coined by Joannes VI. during his temporary sojourn in Brazil. Obverse: A crowned shield with the arms of Portugal. Legend: "JOANNES D. G. PORT. ET ALG. P. REGENS." (*Joannes Dei Gratiae Portugal Et Algarviarum Pro Regens*; meaning: *Joannes by the grace of God as Regent of Portugal and Algarvae.*) In 1797, the Queen, Maria I., became mentally deranged; her son, Joannes Maria, began to administer the government as regent of Portugal, Algarvae and Brazil. In 1804, the name of the Queen, Maria,



MOEDA D'OURO OF 4 || 000 REIS, 1816.

was removed from the coins, and that of the Regent substituted. In 1816, when in Brazil, he became King Joannes VI. The above coin was struck in 1816, prior to his majority, and within a few months of his being declared King. Left of the shield, lengthwise, "4000," to the right, three rosettes.

Reverse: A cross *potent*, surrounded by four connected semi-circles, between each semi-circle a rosette, and a complete circle around the whole. Legend: "ET BRAZILIAE DOMINUS ANNO, 1816," between two rosettes. (*And Lord of Brazil, year 1816.*) This coin, notwithstanding being marked 4 || 000 Reis, was, by order of a decree issued in 1747, current in Brazil at 4 || 400 Reis, or one-tenth more than current in Portugal; by the same arbitrary measure it was afterwards increased to 9 || 000 Reis, retaining the nominal 4 || 000 Reis upon its Obverse; and although afterwards current for 9 || 000 Reis, the weight and fineness of the coin remained unchanged, retaining the old standard in intrinsic value of the ancient 4 || 000 Portuguese Reis. The Milreis of Portugal has varied from \$1.04.50 to \$1.08.72, while the Milreis of Brazil in 1816 was only worth \$0.97.848. It has since been reduced in value to \$0.54.5. The weight of the Moeda D'Ouro is 124.400 grains. Fineness: 916.667. Value: \$4.90.9588.

2. Moeda D'Ouro of 4 || 000 Reis, with a forced circulation at 4 || 400 Reis at first; but soon afterward increased to 9 || 000 Reis. Obverse: A belted globe, with arms of Portugal upon it, surrounded by a crown, around it laurel branches. Exergue: "4000."



MOEDA D'OURO OF 4 || 000 REIS OF 1821.

Reverse: Same as No. 1. Weight: 124.400 grains. Fineness: 900. Value: \$4.90.9588.

Prior to the reign of Dom Pedro I., 1822, there circulated in Brazil: The Dobra, a gold coin of 12 || 800 Reis of Portugal. Value: \$17.47. The Meia Dobra, or Joannes, the famous Half Joe of 6 || 400 Reis of Portugal. Value: \$8.73. It is

this gold coin which had an extensive circulation in the American Colonies, now the United States, and when our frugal ancestors wished to criticise the high price of an article of food, they said that to eat it was "like swallowing half-joes."

PORTUGUESE-BRAZILIAN SILVER COINS.

1. The Three Patacas, or Double Sello, or Nouo Crusado Piece of 1816, of Joannes as Regent. Obverse: Crowned shield, with the arms of Portugal; above the shield and left of the surmounting crown "18," and to the right "16." To the left of the shield, lengthwise, "960;" to the right three rosettes, one above the other. Legend: "JOANNES D. G. PORT. P. REGENS. ET. BRAS. D."



THREE PATACAS, OR DOUBLE SELLO, OR NOUO CRUSADO, OF 1816.

Reverse: A cross *potent*, upon which is a globe encircled by a belt, and upon the globe the coat of arms of Portugal. Legend: "SUBQ. SIGN. NATA. STAB." (*Subquo Signo Nata Stabili*; meaning: *Born under a steady sign.*) Although of 960 Reis, Portuguese value, it passed current in Brazil at 1 || 056 Reis. Weight: 413 grains. Fineness: 900. Value: \$1.01.3300.

2. The Three Patacas, or Double Sello, or Nouo Crusado of King Joannes VI. Obverse: A crown, beneath which is inscribed "960," "1821," and "r." (the Mint-mark of Rio de Janeiro) in three lines, between branches of olives crossed at

the end and tied. Legend: "JOANNES VI. D. G. PORT. BRAS. ET. ALG. REX." (*Joannes VI., by the Grace of God, King of Portugal, Brazil, and the Algarves.*)



THREE PATACAS, OR DOUBLE SELLO, OR NOUO CRUSADO, OF 1821.

Reverse: A cross *potent* upon which a globe encircled by a belt. Legend: "NATA. STAB. SUBQ. SIGN." Weight: 413 grains. Fineness: 900. Value: \$1.01.3300.



TWO PATACAS OF 1808.

The Two Patacas Piece of 1808. Obverse: Same as the Three Patacas No. 1, with exception of the date above the shield, and "640" instead of "960" lengthwise.

Reverse: Same as No. 1. Weight: 275 grains. Fineness: 900. Value: \$0.67.6868.

4. The Four Vintems Piece of 1808. Obverse and Reverse same as No. 3, with the exception of the figures "80," which

are substituted for "640." Weight: 46 grains. Fineness: 900. Value: \$0.11.2811.

PORTUGUESE-BRAZILIAN COPPER COINS.

1. The Testoon or Piece of 80 Reis. Obverse: "LXXX," between each letter a rosette, surmounted by a large crown, beneath "1820," and still lower "B." (meaning: *having been coined in Brazil*;) the whole is surrounded by a circle of dots. Legend: "JOANNES VI., D. G. PORT. ET. BRAS. ET. ALG. REX." (*Joannes VI., by the Grace of God, King of Portugal, and Brazil, and Algarvac.*) Reverse: The arms of Portugal upon a globe, enclosed in a tressure of arches. Legend: "PECUNIA TOTUM CIRCUMIT. ORBEM." Nominal value: \$0.08.640.

2. The Half Testoon of 40 Reis. Obverse: "XL," rosettes between each letter; the rest same as Testoon No. 1, only in proportion to size. Nominal value: \$0.04.320.

3. The Vintem of 20 Reis. Obverse: "XX," rosettes between each letter; the rest same as Testoon No. 1, only in proportion to size. Nominal value: \$0.02.160.

4. The Half Vintem of 10 Reis. Obverse: "X," between two rosettes; the rest same as Testoon No. 1, only in proportion to size. Nominal value: \$0.01.080.

GOLD COINS OF BRAZIL.

The two following gold coins of Brazil were issued prior to the decree of October, 1833. They bear upon the Reverse, on the Exergue: "6400" and "4000" respectively. By decree, October, 1833, the government of Brazil raised the first coin from "6400" to 16 || 000 Reis, without increase in the precious metal, and the second from "4000" to 10 || 000 Reis of the new Brazilian currency.

1. Moëda D'Ouro of 4 || 000 Reis of Dom Pedro I., of 1824, afterwards increased nominally to 9 || 000 Reis. Obverse: Head of Dom Pedro I., in military uniform, facing to the left. Legend: "PETRUS I., D. G. CONST. IMP. ET. PERP. BRAS. DEF." (*Petrus I., Dei Gratiae, Constitutional Imperator Et Perpetual*

Brazilian Defensor; meaning: *Petrus I., by the Grace of God, Constitutional Emperor and Perpetual Defender of Brazil*). Exergue: "1824," "R." (Mint-mark of Rio Janeiro). Reverse: A crowned shield bearing the arms of Brazil; surrounded by branches of tobacco leaves, coffee leaves and berries. Legend: "IN HOC SIGNO VINCES." Exergue: "4000." Weight: 123.905 grains. Fineness: 916.667. Value: \$4.88.6777.

2. Half Dobra of 6 || 400 Reis of Dom Pedro II., afterward nominally increased to 16 || 000 Reis. Obverse: Head of Dom Pedro, when seven years old, facing to the right. Legend: "PETRUS II., D. G., CONST. IMP. ET. PERP. BRAS. DEF." Exergue: "1822." Reverse: A crowned shield, with the arms of Brazil upon it, surrounded by branches of tobacco and laurel leaves. Legend: "IN HOC SIGNO VINCES." Exergue: "6400." Weight: 221.346 grains. Fineness: 916.667. Value: \$8.73.4349.

3. The Twenty Milreis of Dom Pedro II. Obverse: Head of Dom Pedro II., full beard, facing to the left. Legend: "PETRUS II., D. G., C. IMP. ET. PERP. BRAS. DEF." Exergue: The date of the year of issue. Reverse: A crowned shield, with the coat of arms of Brazil upon it, surrounded by branches of tobacco leaves, coffee leaves and berries, crossed at the ends and tied in a bow with a ribbon. Weight: 276.701 grains. Fineness: 916.667. Value: \$10.92.4274.

4. The 10 Milreis of Dom Pedro II. Obverse and Reverse same as the 20 Milreis, No. 3, only smaller in proportion to size. Weight: 138.350 grains. Fineness: 916.667. Value: \$5.46.2137.

SILVER COINS OF BRAZIL.

The first two coins, the Three Patacas and the Two Patacas Pieces, bear upon the Reverse the denominations of 960 and 640 Reis respectively, and passed current for that amount up to October, 1833, when, by an imperial decree of Dom Pedro II., they were raised from 960 to 1 || 920 Reis and the 640 Reis to 1 || 280 Reis, and have passed current ever since at the increased rate.

1. The Three Patacas of 960 Reis of Dom Pedro I.; increased afterward by Dom Pedro II., to 1 || 920 Reis. Obverse: Crowned shield with coat of arms of Brazil upon it, surrounded by branches of tobacco leaves, coffee leaves and berries, crossed at the ends and tied with a ribbon in a bow. Legend: "IN HOC SIGNO VINCES."



THE THREE PATACAS OF DOM PEDRO I.

Reverse: "960" in the middle of the field encircled by a wreath. Legend: "PETRUS I. D. G. CONST. IMP. ET PERP. BRAS. DEF." Exergue: "1826," "R" (Mint-mark of Rio Janeiro.) Weight: 413.9865 grains. Fineness: 905. Value: \$1.05.9476.

2. The two Patacas of 640 Reis of Dom Pedro I.; increased afterwards by Dom Pedro II., to 1 || 280 Reis. Obverse: Same as upon the coin No. 1. Reverse: "640" in the middle of the field, the rest same as upon No. 1. Weight: 275.991 grains. Fineness: 905. Value: \$0.70.7064.

In 1833, by decree of the Emperor, Dom Pedro II., a new coinage was ordered. The legal fineness of 916.667, claimed for the coins previous to 1833, was reduced to 891 fine.

3. The 1 || 200 Reis of Dom Pedro II.; coined from 1834 to 1850. Obverse: Crowned shield with the coat of arms of Brazil. Legend: "IN HOC S. VINCES."

Reverse: "1200" in the middle of the field surrounded by a heavy wreath. Legend: "PETRUS II. D. G. CONST. IMP. ET. PERP. BRAS. DEF." Exergue: Date of the year

of issue. Weight: 414 grains. Fineness: 891. Value: \$1.00.4267.



1 || 200 REIS OF DOM PEDRO, 1834-1850.

4. The 800 Reis of Dom Pedro II.; coinage of 1834-1850. Obverse: Same as No. 3. Reverse: "800" in the middle of the field, surrounded by a heavy wreath. Legend and Exergue: Same as No. 3. Weight: 276 grains. Fineness: 891. Value: \$0.66.9847.

5. The 400 Reis of 1834-1850. Obverse: Same as No. 3. Reverse: "400," rest same as No. 2. Weight: 138 grains. Fineness: 891. Value: \$0.33.4923.

6. The 200 Reis of 1834-1850. Obverse: Same as No. 3. Reverse: "200," rest same as No. 3. Weight: 69 grains. Fineness: 891. Value: \$0.16.4044.

7. The 100 Reis of 1834-1850. Obverse: Same as No. 3. Reverse: "100," rest same as No. 3. Weight: 39.500 grains. Fineness: 891. Value: \$0.08.2022.

In 1850, by decree of the Emperor Dom Pedro, the coinage was changed again, the intrinsic value of the Milreis was reduced to the present standard, \$0.545, and a new coinage ordered, to correspond. The fineness of 891 was restored to 916.667, and coins were made of 2000, 1000 and 500 Reis. The device was only changed on the Obverse, by introducing a fancy dash above and below the figures in the middle of the field.

8. The 2000 Reis since 1850. Obverse: Crowned shield

with the coat of arms of Brazil upon it. Legend: "IN ROC SIGNO VINCES."



2000 REIS OF DOM PEDRO II., SINCE 1850.

Reverse: "2000" in the middle of the field; above and below, a fancy —o— dash. Legend: "PETRUS II. D. G. IMP. ET. PERP. BRAS. DEF." Exergue: Date of year of issue. Weight: 393.524 grains. Fineness: 916.667. Value, nominal, in Brazil, \$1.09. Intrinsic value: \$1.02.9058.



1000 REIS OF DOM PEDRO, SINCE 1850.

9. The 1000 Reis, since 1850. Obverse: Same as No. 8. Reverse: "1000" in the middle of the field, the rest same as No. 8. Weight: 196.762 grains. Fineness: 916.667. Value nominal, in Brazil: \$0.54.500. Intrinsic value: \$0.51.4529.

10. The 500 Reis, since 1850. Obverse: Same as No. 8. Reverse: "500" in the middle of the field, rest same as No. 8. Weight: 98.381. Fineness: 916.667. Value nominal, in Brazil: \$0.27.250. Intrinsic value: \$0.25.7264.

11. The 200 Reis since 1850. Obverse: Head of Dom Pedro

II. Legend: "PETRUS II. D. G. C. IMP. ET. PERP. BRAS. DEF." Exergue: Date of the year of issue. Reverse: Crowned shield bearing arms of Brazil, surrounded by branches of the coffee and tobacco plant. No Legend. Exergue: "200 REIS." Weight: 39.352 grains. Fineness: 916.667. Value: \$0.10-.900.

COPPER COINAGE OF DOM PEDRO I., OF BRAZIL.

1. The 80 Reis of Dom Pedro I. Obverse: Crowned shield, with the coat of arms of Brazil upon it, surrounded by a branch of the tobacco and coffee plant. Legend: "IN HOC SIGNO VINCES." Reverse: "80" in the middle of the field, surrounded by eight rosettes, the whole encircled by a laurel wreath. Legend: "PETRUS I. D. G. CONST. IMP. ET. PERP. BRAS. DEF." Exergue: The date of the year of issue, from 1822 to 1831. Value, about $9\frac{1}{4}$ cents, nominally.

2. The 40 Reis of Dom Pedro I. Obverse: Same as No. 1. Reverse: "40" in the middle of the field. Value, about $4\frac{1}{2}$ cents, nominally.

3. The 20 Reis of Dom Pedro I. Obverse: Same as No. 1. Reverse: "20" in the middle of the field, rest same as No. 1. Value, about 2 cents, nominally.

COPPER COINAGE OF DOM PEDRO II., OF BRAZIL.

1. The 40 Reis of Dom Pedro of 1865-1869. Obverse: Head of Dom Pedro II., facing to the right. Legend: "PETRUS II. D. G. C. IMP. ET. PERP. BRAS. DEF." Exergue: Date of the year of issue. Reverse: Crowned shield with the coat of arms of Brazil upon it, surrounded by branches of the tobacco and coffee plant; at the left of the shield, "40," and to the right, "RS." Value, entirely nominal, at $2\frac{1}{2}$ cents.

2. The 20 Reis of Dom Pedro of 1865-1869. Obverse: Same as No. 1. Reverse: "20" at the left of shield, rest same as No. 1. Value, entirely nominal, at $1\frac{1}{8}$ cents.

NICKEL COINAGE OF BRAZIL.

By an imperial decree of September 30th, 1870, the nickel coinage was adopted.

1. The 200 Reis. Obverse: Crowned shield with the coat of arms of Brazil. Legend: "IMPERIO DO BRAZIL." Exergue: Date of the year of issue.



200 REIS IN NICKEL, OF DOM PEDRO II.

Reverse: "200 REIS," in two lines, surrounded by a double circle. Legend: "DECRETO NO. 1817. DE 3 DE SETEMBRO DE 1870" (*Decree, No. 1817, of the third of September, 1870*). Weight: 150 grains. Composition: 75 parts copper and 25 parts nickel. Value, nominally, \$0.10.900.

2. The 100 Reis. Obverse: Same as No. 1.



100 REIS IN NICKEL, OF DOM PEDRO II.

Reverse: "100," rest same as No. 1. Weight: 75 grains. Composition, same as No. 1. Value entirely nominal, at \$0.05.450.

3. The 50 Reis. Obverse: Same as No. 1. Reverse: "50," rest same as No. 1. Weight: 37.50 grains. Composition, same as No. 1. Value entirely nominal, at \$0.02.775.

CENTRAL AMERICA.

Central America at the present day consists of Costa Rica, Guatemala, Honduras, Niaragua, and San Salvador. Prior to 1821, these republics were dependencies of Spain. During 1822 and part of 1823 they were annexed to Mexico; but since 1824 have been independent, having a government of their own, and are known as the Republics of Central America.

Their coinage is faulty and very irregular, their silver coins especially very crude, almost as rough as the "Cob Money" of Mexico.

The mints of Central America are located in Costa Rica, Mint-mark "C. R.," and in New Guatemala, Mint-mark "N. G."

GOLD COINS OF CENTRAL AMERICA.

COINAGE FROM 1824 TO 1850.

1. Doblón, or Onza (*Doubloon*), of "8 Escudos." Obverse: A tree; and the denomination "8" at the left of the trunk,



DOBLÓN OR ONZA (DOUBLÓN) OF 1824-1850.

and "E." at the right (meaning: 8 *Escudos* or 16 *Dollars*;) enclosed by a circular, raised line. Legend: "LIBRE CRESCA FECUNDO," (*In freedom may it be fruitful.*) Exergue: "C. R." (Mint-mark of Costa Rica); "F.," the Mint-master's initial, and "21 Q^s," (21 *Quilates*; meaning: *Equal to 21 Carats*;

when in reality, upon assays at different mints in the United States and Europe, these coins have been found only 833 fine, equal to 20 Carats.

Reverse: Five mountains, sun fully risen above. (The device of the reverse of the gold coins differs from that of the silver pieces. On the gold coins the sun has fully risen above the mountains; on the silver pieces it is just rising, at the left hand of the first mountain, as will be seen illustrated among the silver coinage of Central America on page 551.) Legend: "REPUBLICA DEL CENTRO DE AMERICA." Exergue: Date of the year of issue. Weight: 416.673 grains. Fineness (as indicated by "21 Q" 21 *Quilates*, or Carats, upon the coin:) 875, while in reality it is only 833. Value: \$14.90.3656, instead of 16 *Dollars*, as indicated by "8 E" (8 *Escudos*; meaning: 16 *Dollars*), upon the Obverse of the coin. (See cut, Reverse Quarter Doblón, No. 3.)

2. Half Doblón, or Half Onza, of "4 *Escudos*." Obverse: A tree; at the left "4," at the right "E." Legend: "LIBRE CRESCA FECUNDO." Exergue: "C. R." (Costa Rica Mint-mark); "E.," or some other Mint-master's initial, "21 Q" (21 *Quilates*, or Carats), which, upon assay, has been found to be correct.



HALF DOBLÓN OR HALF ONZA OF 1824-1850.

Reverse: Five mountains, sun fully risen above them, enclosed in a circular, raised line. Legend: "REPUBLICA DEL CENTRO AMERICA." Exergue: Date of year of issue. Weight: 206.021 grains, instead of 208.3366 grains, as might be inferred, or that of the full half ounce ("*Half Onza*,") implied by the name of this coin. Fineness: 875. Value: \$7.76.6022.

The deficiency in weight reduces this Half Doubloon to the above value, instead of 8 *Dollars*, as indicated by "4 E" (4 *Escudos*; meaning: 8 *Dollars*), upon the Obverse. (See cut, Reverse of Quarter Doblón, No. 3.)

3. Quarter Doblón, or Quarter Onza, of "2 *Escudos*." Obverse: A tree; at the left "2," at the right "E." Rest same as No. 2.



QUARTER DOBLÓN, OR QUARTER ONZA, 1824-1850.

Reverse: Five mountains, sun fully risen above them, enclosed in a circular, raised line. Legend: "REPUBLICA DEL CENTRO DE AMERICA." Exergue: Date of the year of issue. Weight: 97 grains, instead of 104.125 grains, or that of the quarter ounce ("Quarter Onza,") implied by the name of the coin. Fineness: 865 instead of 875, as indicated by "21 q^s" (21 *Quilates* or *Carats*), upon the Obverse. Value: \$3.61.4388, instead of 4 *Dollars*, as indicated by "2 E" (2 *Escudos*), upon the Obverse.

4. Eighth Doblón, or Eighth Onza, of "1 *Eseudo*." Obverse: A tree; at the left "1," at the right "E." Rest same as No. 2.

Reverse: Same as No. 3. Weight: 48 grains, instead of 52.625 grains, or that of the eighth of an ounce ("Eighth Onza,") implied by the name of the coin. Fineness: 809, instead of 875, as indicated by "21 q^s" (21 *Quilates* or *Carats*), upon the obverse. Value: \$1.67.2856, instead of 2 *Dollars* as indicated by "1 E" (1 *Eseudo*), upon the Obverse.

5. The Sixteenth Doblón or Sixteenth Onza of " $\frac{1}{2}$ *Eseudo*." Obverse: A tree; at the left " $\frac{1}{2}$," at the right "E." Rest same as No. 2.

Reverse: Same as No. 2. Weight: 24 grains, instead of

26.3125 grains, or that of the sixteenth of an ounce ("Sixteenth Onza"), implied by the name of the coin. Fineness: 809,



THE SIXTEENTH DOBLON OR SIXTEENTH ONZA.

instead of 875, as indicated by "21 q^s" (21 *Quilates*, or Carats), upon the Obverse. Value: \$0.83.6428, instead of 1 *Dollar*, as indicated by "½ E" (½ *Escudo*), upon the Obverse.

GOLD COINAGE FROM 1850 TO 1865.

6. Half Doblon, or Half Onza, of Costa Rica, of "4 Escudos." Obverse: Indian, full length, leaning upon a pedestal,



HALF ONZA, OR HALF DOBLON.

upon which is inscribed "18 DE SET. DE 1821" (meaning: *In memory of the 21st day of September, 1821*. The day of independence from Spanish rule.) Legend: "AMERICA CENTRAL." Exergue: "21 q^s" (21 *Quilates* or Carats), "½ oz." (*Half ounce* or *Half Doubloon*), and "J. B.," the Mint-master's initials.

Reverse: Coat of arms of Costa Rica, in a shield, representing three mountains, sun just rising, and five stars above in a straight line. Legend: "REPUBLICA DE COSTA RICA." Exergue: Date of the year of issue. Weight: 194 grains, instead of the proper 208.250 grains, or that of the full half ounce ("*Half Onza*"), implied by the name of this coin. Fine-

ness : 845, instead of 875, as implied by "21 q^s" (21 *Quilates* or Carats), upon the Obverse. Value : \$7.05.6425, instead of 8 *Dollars*, as implied by "½ oz." or (4 *Escudos*), upon the Obverse. (See cut, Reverse Quarter Doblón, No. 7.)

7. Quarter Doblón, or Quarter Onza of "2 *Escudos*." Obverse: Same as No. 6, except Exergue, "2 E" instead of ½ oz.



QUARTER ONZA, OR QUARTER DOBLÓN.

Reverse: Same as No. 6. Weight : 97 grains, instead of the proper 104.125 grains, or that of the full quarter of an ounce ("Quarter Onza"), implied by the name of this coin. Fineness: 845, instead of 875, as implied by "21 q^s" (21 *Quilates* or Carats), upon the Obverse. Value : \$3.52.8712, instead of 4 *Dollars*, as implied by "2 E." (2 *Escudos*), upon the Obverse.

8. Eighth Doblón or Eighth Onza of "1 *Escudo*" of the new coinage. Obverse: Same as No. 6; except Exergue: "1 E." instead of ½ oz. Reverse: Same as No. 6. Weight : 48.5 grains, instead of the proper 52.625 grains, or that of the full eighth of an ounce ("Eighth Onza"), implied by the name of this coin. Fineness: 845, instead of 875, as implied by "21 q^s" (21 *Quilates* or Carats), upon the Obverse. Value: \$1.76.4356; instead of 2 *Dollars*, as implied by "1 E." (1 *Escudo*), upon the Obverse.

9. The Gold *Peso* since 1860. Obverse: Head of Rafael Carrera, President, facing to the right. Legend: "PRE DE LA BE DE GUATEMALA." Reverse: "1 PESO" (1 *Dollar*), and the date of the year of issue in three lines; surrounded by two palm branches. Exergue: "21 q^s." Weight: 24 grains. Fineness: 900, instead of 875, as implied by "21

Q^s" (21 *Quilates* or Carats), upon the Obverse. Value: \$0.93.2748.

GOLD COINAGE SINCE 1865.

10. Doblón of 1865. Obverse: Head of Rafael Carrera facing right. Legend: "RAFAEL CARRERA PTE DE LA R DE GUATEMALA." (*Rafael Carrera, Presidente de la Republica de Guatemala*; meaning: *Rafael Carrera, President of the Republic of Guatemala*.) Reverse: A shield; upon it, three mountains; at the left of shield "16;" right "P^s," the whole surrounded by palm branches. Legend: "GUATA RA S D PROTNE" (*Guatemala Republica Sub Dominio Protectione*; meaning: *Republic of Guatemala under the Protection of the Dominion*). Exergue: "1865" "21 Q^s" (21 *Quilates* or Carats). Weight: 417.707 grains. Fineness: 875. Value: \$15.73.5016.

11. Diez Pesos (*Ten Dollars*), of 1870. Obverse: A shield; upon it five mountains, sun rising, laurel branches partly surrounding the shield. Legend: "REPUBLICA DE COSTA RICA." Exergue: "1870." Reverse: "DIEZ PESOS" (*Ten Dollars*), in two lines, surrounded by laurel branches, crossed and tied with a ribbon in a bow. Legend: "AMERICA CENTRAL." Exergue: "21 Q^s" (21 *Quilates*, or Carats). Weight: 260.186. Fineness: 875. Value: \$9.75.3272.

12. Cinco Pesos (*Five Dollars*), of 1873. Obverse: Same as No. 11. Reverse: "Cinco Pesos" (*Five Dollars*), in two lines; rest same as No. 11. Weight: 130.093. Fineness: 875. Value: \$4.87.6636.

SILVER COINAGE OF CENTRAL AMERICA.

1. The Peso or Dollar of 1829 of 8 Reales. Obverse: A tree; at the left of it, "8," at the right "R" (8 *Reales*). Legend: "LIBRE CRESCA FECUNDO." Exergue: "N. G." (Mint-mark of New Guatemala), "10 DS 20 GS" (10 *Denaros* 20 *Granos* or 902.778 *fineness*), but found upon assay to be only 896 fine.

Reverse: Five mountains, sun just rising from left, which

device is on the reverse of all silver coins from 1824 to 1870.
Legend: "REPUBLICA DEL CENTRO DE AMERICA." **Exergue:**



PEÑO OR DOLLAR OF 8 REALES 1829.

"1829." **Weight:** 415 grains. **Fineness:** 896. **Value:**
 \$1.05.1868.



2 REAL PIECE 1808. 2 REAL PIECE 1812. 2 REAL PIECE 1815.

2. Three 2 Real Pieces of Guatemala, when under Spanish rule. They are rudely coined, and of irregular weight, fineness and value.

These pieces pass current in Central America for about twenty-five cents.

3. The Two Real Piece of 1831. **Obverse:** A tree; at the left of it, "2," at the right, "R" (2 *Reals*). Rest, except "T. F." (Mint-master's mark), same as No. 1.

Reverse: Same as No. 1. **Weight:** 111.112 grains. **Fineness:** 902. **Value:** \$0.23.3879. The small silver coins of Central America prior to 1850 have been of a better standard than the Peso or Dollar. This is an exception to the general

rule that the fractional coins of the Dollar, of various countries, are of inferior fineness. Four Two Real Pieces are worth



TWO REAL PIECE 1831.

\$1.13.5516, while the Peso or Dollar of 8 Reals is worth \$1.05.1868.

4. The One Real Piece of 1830. Obverse: A tree; at the left of it, "1," at the right, "r" (1 *Real*). Rest same as No. 1.



ONE REAL PIECE OF 1830.

Reverse: Same as No. 1. Weight: 52.469 grains. Fineness: 900. Value: \$0.13.4332.

5. Half Real Piece of 1831. Obverse: A tree; at the left of it, " $\frac{1}{2}$," at the right, "r" ($\frac{1}{2}$ *Real*). Rest same as No. 1.



HALF REAL PIECE OF 1831.

Reverse: Same as No. 1. Weight: 26.234 grains. Fineness: 900. Value: \$0.06.5899.

6. The Peso of Rafael Carrera. Obverse: Head of Rafael

Carrera. Legend: "RAFAEL CARRERA PTE DE LA RA GUATEMALA." Reverse: A shield; upon it, coat of arms of Guatemala, the sun risen above, two flags left and two flags at the right, saltier wise, partly behind the shield; oak and laurel branches crossed at the ends. A band entwines the whole, upon it: "GUATEMALA REPUBLICA SUB. DOM. PROTECTIONE." Exergue: "10 DS 20 GS UN PESO," and the date of the year of issue. Weight: 385.808 grains. Fineness: 900, instead of 902.778 as implied by "10 DS 20 GS." Value: \$0.98.3436.

7. The Two Real Piece of 1873. Obverse: A shield; upon it, "15 de Set. de 1821" (15th of September, 1821), inscribed in five lines one above the other. Legend: "REPA DE GUATEMALA." Exergue: "0.900.1873." Reverse: "2 REALS" surrounded by palm branches. Weight: 104.168 grains. Fineness: 900. Value: \$0.24.3325.



PESO OF GUATEMALA, 1872.

NICKEL COINS OF CENTRAL AMERICA.

1. The One Real Piece of 1869. Obverse: Arms of Honduras, four flags to the left and four to the right, saltier wise, and partly below the shield. Legend: "REPUBLICA DE HONDURAS." Exergue: "CENTRAL AMERICA."

Reverse: "1 REAL, 1869" in three lines, surrounded by laurel branches, crossed and tied at the ends. Exergue: "A" (Mint-mark of the Paris Mint, France, where the coins were struck). Weight: 185.184 grains. Composition: 50 parts of

copper, 30 parts zinc and 20 parts nickel. Value entirely nominal, $12\frac{1}{2}$ cents.



ONE REAL PIECE OF 1869.

2. Half Real Piece of 1869. Obverse: Same as No. 1.

Reverse: " $\frac{1}{2}$ REAL, 1869." Rest same as No. 1. Weight: 92.592 grains. Composition same as No. 1. Value: Entirely nominal, $6\frac{1}{4}$ cents.

3. Quarter Real Piece of 1869. Obverse: Same as No. 1.



QUARTER REAL PIECE OF 1869.

Reverse: " $\frac{1}{4}$ REAL, 1869." Rest same as No. 1. Weight: 46.296 grains. Composition same as No. 1. Value: Entirely nominal, $3\frac{1}{8}$ cents.

4. One-eighth Real Piece of 1869. Obverse: Same as No. 1.



ONE-EIGHTH REAL PIECE OF 1869.

Reverse: " $\frac{1}{8}$ REAL, 1869." Rest same as No. 1. Weight:

23.148 grains. Composition same as No. 1. Value: Entirely nominal, $1\frac{9}{16}$ cents.

These coins, having only a forced value, have found no favor in Central America, and have not been coined since 1875. They still circulate, but are refused outside of Honduras.

5. The Centavo of Costa Rica. Obverse: A shield; upon it coat of arms of Republic of Costa Rica. Legend above: "COSTA RICA." Exergue: "1867."

Reverse: "UN CENTAVO," surrounded by laurel branches, crossed and tied at the end. Weight: 57.972 grains. Composition: 15 parts nickel, 80 parts copper and 5 parts zinc. Value: Entirely nominal, at 1 cent.



TWO REALS SILVER OF SAN SALVADOR.

COPPER COINS OF CENTRAL AMERICA.

1. The Eight Centavos of Central America. Obverse: A triangle; in it, a mountain; above it, a sun with rays; at each side, and at the foot of the mountain, two towers; in a circle surrounding it, "MONEDA PROVISIONAL DEL ESTADO DE HONDURAS." Above, two horns of plenty, and a crown in which four arrows are inserted. Reverse: A tree; at the left of it, "8 C." Legend: "LIBRE CRESCA FECUNDO." Value: Nominal, 8 cents.

2. The Four Centavos. Devices same as No. 1, only "4" instead of "8," on the Reverse. Value: Nominal, 4 cents.

3. The Two Centavos. Devices same as No. 1, only "2" instead of "8," on the Reverse. Value: Nominal, 2 cents.

4. The One Centavo. Devices same as No. 1, only "1" instead of "8," on Reverse. Value: 1 cent.

REPUBLIC OF CHILI.

This country, although in territory smaller than some of her sister South American countries, has an extraordinary length of sea-coast, now stretching southward to Cape Horn. Since her success in the contest with Peru, she has ranked first in the sisterhood of Republics in the continent, and co-equal with the Empire of Brazil as a nation.

Chili was discovered by Diego de Almagro, one of the conquerors of Peru, in 1535. Almagro crossed the Cordilleras, and the natives regarding the Spaniards on their first visit as allied to the Divinity, collected for them gold and silver, amounting to 661,200 dollars, a present which led to the subsequent cruelties and rapacity of the invaders. Chili was partly subdued in 1546. The Chilians fought for liberty at different times and with varied success until 1817, when, after the decisive victory gained by San Martin over the Spanish forces, February 12th, of that year, they were declared independent.

From 1817 to 1850 the money coined was according to the Spanish standard and values. The gold coins from 1818 to 1837 were alloyed with silver, and are of a pale hue. Since 1838 they are mostly alloyed with copper, and show a brighter and richer color to the eye. In 1850 the decimal standard was adopted, and the *Peso Corriente* or *Plata* is now divided in 100 *Centavos Corrientes* or *Plata*. The *Doblon* or *Doubloon* is of 16 *Pesos de Plata*, or $17\frac{1}{2}$ *Pesos Corrientes*.

GOLD COINS OF CHILI.

1. The *Doblon* or *Onza de Oro* of 8 *Escudos*, or 16 *Pesos de Plata*, or $17\frac{1}{2}$ *Pesos Corrientes*. Obverse: A pillar, crossed by two standards *in saltiere*, and surmounted by a globe and a star, the whole enclosed in a laurel wreath. Legend: "POR LA RAZON O LA FUERZA" (*By Reason or Force*). "S" (Mint-mark of Santiago). "S E" (8 *Escudos*). "I. J." Exergue: Date of the year of issue from 1818 to 1834.

Reverse: Two smoking volcanoes and a sun above; below, the date of the year of issue. Legend: "EL ESTADO D. CHILE"



DOBLON OR ONZA DE ORO OF CHILE.

CONSTIT. INDEPENDIENTE" (*The State of Chili Constitutional and Independent*). Weight: 417.707 grains. Fineness: 875. Value: \$15.74.0084.

2. The Doblon or Onza de Oro of 1836. Obverse: A hand resting upon a book, on the back of which is inscribed "CONSTITUCION." Above are the diverging rays of the sun. Legend: "IGUALDAD ANTE LA LEI" (*Equal Rights before the Law*). "8 E" "I. J." (Mint-master's initials). Exergue: "21 Q^s" (21 *Quilates* or Carats).



DOBLON OR ONZA DE ORO OF 1836.

Reverse: A shield bearing the arms of Chili (a star *argent*), surmounted by plumes, and supported by a horse *rampant* and a condor, each crowned. Legend: "REPUBLICA DE CHILE."

"s" (Mint-mark Santiago). Exergue: Date of the year of issue. Weight: 417.707 grains. Fineness: 875. Value: \$15.74.0084.

3. The Doblón, or Onza de Oro, from 1839 to 1859. Obverse: A statue of liberty clad in mail, with her hand resting upon the "CONSTITUCION," and supporting with her left the *fascies*; a cornucopia in the background, and to the left at her feet. Legend: "IGUALDAD ANTE LA LEI." "8 E" "I. J." Exergue: "21 q^s" (21 *Quilates*, or Carats).



DOBLÓN, OR ONZA DE ORO OF CHILE.

Reverse: Same as No. 2. Weight: 417.707 grains. Fineness: 875. Value: \$15.74.0084.

4. Half Doblón, or Half Onza de Oro, from 1839 to 1859. Obverse: Same as No. 3, except size in proportion, and the "8 E" in Legend changed to "4 E." Reverse: Same as No. 2. Weight: 208.8535 grains. Fineness: 875. Value: \$7.87.

5. Quarter Doblón, or Quarter Onza de Oro, from 1839 to



QUARTER DOBLÓN, OR QUARTER ONZA DE ORO,

1859. Obverse: Shield bearing the arms of Chili, surmounted by plumes, and supported by a horse *rampant* and a condor,

each crowned. Legend: "REPUBLICA DE CHILE." Exergue: Date of the year of issue.

Reverse: Same as No. 1, only in proportion to size. Weight: 104.4267 grains. Fineness: 875. Value: \$3.93½.

5. A Quarter Doblón, or Quarter Onza de Oro. Obverse: A pillar crossed by two standards *in saltiere*, and surmounted by a globe and a star, the whole enclosed in a laurel wreath. Legend: "POR LA RAZON O LA FUERZA." Exergue: Date of the year of issue.



Reverse: A hand resting upon a book, on the back of which is inscribed "CONSTITUCION;" above are the diverging rays of the sun. Legend: "IGUALDAD ANTE LA LEI." Exergue: "21 Q^s" (21 *Quilates*). Weight: 104.4267 grains. Fineness: 875. Value: \$3.93½.

6. Eighth Doblón, or Eighth Onza de Oro, from 1839 to 1859. Obverse: Same as No. 1, except "8 E" changed to "1 E."



EIGHTH DOBLÓN, OR EIGHTH ONZA OF CHILI.

Reverse: A hand resting upon a book, on the back of which is inscribed "CONSTITUCION;" above are the diverging rays of the sun. Legend: "IGUALDAD ANTE LA LEI." Exergue: "21 Q^s" (21 *Quilates*). Weight: 52.2134 grains. Fineness: 875. Value: \$1.96¾.

GOLD COINAGE SINCE 1859.

7. Condor of 10 Pesos or 10 Dollars. Obverse: A statue of liberty clad in mail, with her hand resting upon a column upon which is inscribed "CONSTITUCION." Legend: "IGUALDAD ANTE LA LEI." Exergue: "10 P" (10 *Pesos* or 10 *Dollars*). Reverse: Shield bearing the arms of Chili, surmounted by plumes, and supported by a horse rampant and a condor, each crowned. Legend: "REPUBLICA DE CHILE." Exergue: Date of the year of issue. Weight: 235.358 grains. Fineness: 900. Value: \$9.12.4687.

8. Half Condor of 5 Pesos or 5 Dollars. Obverse: Same as No. 7, with the exception of Exergue, which has "5 P" upon it. Reverse: Same as No. 7. Weight: 117.679 grains. Fineness: 900. Value: \$4.56.2343.

9. One-Fifth of a Condor, or 2 Pesos, or 2 Dollars. Obverse: Same as No. 7, with the exception of Exergue, which has "2 P" upon it. Reverse: Same as No. 7. Weight: 47.068 grains. Fineness: 900. Value: \$1.82.4937.

10. The Peso, or Dollar of 1860 and since. Obverse: A statue of liberty clad in mail, with her hand resting upon a scroll upon which is inscribed "CONSTITUCION." Legend: "REPUBLICA DE CHILE." Reverse: "1 PESO" in two lines beneath the date of the year of issue, surrounded by a laurel wreath. Legend: "IGUALDAD ANTE LA LEI." Weight: 23.534 grains. Fineness: 900. Value: \$0.91.2468.

SILVER COINS OF CHILI.

1. The Peso Duro of 1817-1845. Obverse: A volcano in action; above is inscribed, within a wreath of laurel, the value, "UN PESO" (*One Dollar*). Legend: "CHILE INDEPENDIENTE." Exergue: "SANTIAGO."

Reverse: A pillar, supporting a globe, above which is a star and a scroll, the latter bearing the word "LIBERTAD." Legend: "UNION Y FUERZA" (*Union and Force*). "F. J." (Mint-master's initials). Exergue: Date of the year of

issue. Weight: 417.661 grains. Fineness: 906. Value: \$1.07.2145.



PESO DURO OF CHILI FROM 1817 TO 1845.

2. Two Real Piece of 1821 to 1850. Obverse: Same as No. 1, only within the wreath of laurel, the value "DOS R;" meaning: Two Reals.



TWO REAL PIECE OF CHILI FROM 1821 TO 1850.

Reverse: Same as No. 1. Weight: 104.415 grains. Fineness: 906. Value: \$0.26.8036.

3. One Real Piece of 1821 to 1850. Obverse: Same as No. 1, only within the wreath of laurel, the value "UN R."

Reverse: Same as No. 1. Weight: 52.2072 grains. Fineness: 906. Value: \$0.13.4018.



ONE REAL PIECE OF CHILI OF 1821 TO 1850.

4. The Peso Duro of 1845 to 1850. Obverse: A shield, a

single five-cornered star in the field *azure* and *gules*, the shield surmounted by three plumes; at the left of the shield "8," and the right "R" (8 *Reals*, or one dollar), the whole surrounded by a laurel wreath. Legend: "REPUBLICA DE CHILE." "s." (Mint-mark of Santiago). "J. M." (Mint-master's initials).



PESO DURO OF CHILE OF 1845 TO 1850.

Reverse: A condor in the act of breaking a chain. Legend: "POR LA RAZON Y LA FUERZA." Exergue: "10 D's, 20 G's" (10 Denaros, 20 Granos, or 902.778 fine). Weight: 417.506 grains. Fineness: 902.778. Value: \$1.05.8864.

5. Two Reals of 1843 to 1850. Obverse: Same as No. 4, only at the left side of the shield, "2," and at the right "R" and "I. J." (Mint-master's initials).

Reverse: Same as No. 4. Weight: 104.3765 grains. Fineness: 900. Value: \$0.23.8974.



TWO REALS OF 1843 TO 1850.

6. One Real of 1844 to 1850. Obverse: Same as No. 4, only at the left side of shield, "1," and at the right "R."

Reverse: Same as No. 4. Weight: 52.1887 grains. Fineness: 900. Value: \$0.11.9988.

7. A Half Real of 1842 to 1850. Obverse: Same as No. 4, only at the left side of shield, " $\frac{1}{2}$," and at the right "R," and "I. J." (Mint-master's initials).



HALF REAL OF 1842 TO 1850.

Reverse: Same as No. 4. Weight: 26.0943 grains. Fineness: 900. Value: \$0.05.9988.

8. The Peso of 1855 to 1875. Obverse: A shield, a single five-cornered star in the field, the shield surmounted by three plumes. Legend: "REPUBLICA DE CHILE." Exergue: "UN PESO." "S" (Mint mark of Santiago). Reverse: A condor, an oval shield in his left talon, upon the shield the fasces, and thirteen and sometimes fourteen stars in a circle. Legend: "POR LA RAZON O LA FUERZA." Exergue: Date of the year of issue. Weight: 385.808 grains. Fineness: 900. Value: \$0.96.3436.

9. Half Peso of Fifty Centavos (fifty cents). Obverse: Same as No. 8, only the Exergue changed to "50 c." Reverse: A flying condor, a broken chain in his beak, and part of a broken chain attached to his talon. Legend: "POR LA RAZON O LA FUERZA." Exergue: Date of the year of issue. Weight: 192.904 grains. Value: \$0.48.1718.

10. One-fifth of a Peso, or Twenty Centavos, of 1861, and since. Obverse: Same as No. 8, only the Legend changed to "20 c." Reverse: Same as No. 8. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.2687.

11. The Decimo, of Ten Centavos, of 1855, and since. Obverse: "UN DECIMO," in two lines, surrounded by a laurel wreath. Legend: "REPUBLICA DE CHILE." Reverse: Same

as No. 9. Weight: 33.580 grains. Fineness: 900. Value: \$0.09.6343.

12. The Medio Decimo, of Five Centavos, of 1855, and since. Obverse: "MEDIO DECIMO," in two lines, surrounded by laurel wreath. Legend: "REPUBLICA DE CHILE." Reverse: Same as No. 9. Weight: 19.290 grains. Fineness: 900. Value: \$0.04.8121.

13. The Peso of 1875 and since. Obverse: A condor in



PESO OF CHILI, 1875 AND SINCE.

defiant attitude, facing to the right, in his beak broken links of a chain, in his dexter talon an oval shield, upon which *fascies*, surrounded by seventeen stars. Legend: "POR LA RAZON O LA FUERZA." Exergue: Date of the year of issue.

Reverse: A shield, *azure* and *gules*, upon it a star *argent*, surmounted by three plumes, and surrounded by laurel wreath. Legend: "REPUBLICA DE CHILE." Exergue: "UN PESO" (*One Dollar*). "s" (Mint-mark of Santiago). Weight: 385.808 grains. Fineness: 900. Value: \$0.96.3436.

NICKEL COINS OF CHILI.

1. Dos Centavos, or Two Cents, of 1871, and since. Obverse: "DOS CENTAVOS," in two lines, in the middle of the field, surrounded by a circle of dots. Legend: "ECONOMIA ES RIQUEZA" (*Economy is Wealth*). Exergue: Date of the year of issue.

Reverse: Laureated head of Liberty, facing to the left. Le-

gend: "REPUBLICA DE CHILE." Exergue: "s" (Mint-mark of Santiago). Weight: 108.024 grains. Composition: 70



DOS CENTAVOS OF CHILI.

parts of copper, 20 parts of nickel, and 10 parts of zinc. Value entirely nominal at two cents.

2. Un Centavo, or One Cent of 1871, and since. Obverse: "UN CENTAVO," in the middle of the field, rest same as No. 1.



UN CENTAVO OF CHILI.

Reverse: Same as No. 1. Weight: 77.160 grains. Composition: Same as No. 1. Value entirely nominal at one cent.

3. Medio Centavo, or Half Cent of 1871, and since. Obverse: "MEDIO CENTAVO," in two lines, rest same as No. 1. Reverse: Same as No. 1. Weight: 46.296 grains. Composition: Same as No. 1. Value entirely nominal, at half a cent.

COPPER COINS OF CHILI.

1. The Centavo of 1835 to 1850. Obverse: A large five-cornered star in the middle of the field. Legend: "REPUBLICA DE CHILE." Exergue: The date of the year of issue. Reverse: "UN CENTAVO," in two lines, inscribed within a laurel wreath. Legend: "ECONOMIA ES RIQUEZA" (*Economy is Wealth*). Value entirely nominal, at one cent. In 1851, the

thickness of the Copper Centavo was reduced just one-half, and it was coined up to 1870 at the reduced weight, still preserving the same devices and Legends as when first issued in 1835. Since 1870, no more copper coins have been issued from the Mint, and they have gradually disappeared from circulation, the nickel coins of 1871 taking their place.

2. The Medio Centavo. Obverse: Same as No. 1. Reverse: "MEDIO CENTAVO," inscribed within a laurel wreath, rest same as No. 1. Value entirely nominal, at half a cent.

CHINA.

The primitive mode of commercial exchange in China, as in all other countries, was barter, the interchange of certain products of the earth, such as wheat and rice, or those of manual labor, silk, arms, &c. The earliest records of China show that a subject of the "Son of Heaven" was either a husbandman or a merchant. For it is related that *Sinung*, the second known Emperor of China, who reigned about the year 2737, B. C., instituted a market-place in his Empire, in order to gather merchandise and silks; there in the day time, a market was held, in which the people exchanged their products.

But while barter prevailed among the common people, there seems to have been a kind of metallic money current among the travelling merchants. This coinage was of the reign of *T'ai-Hao*, 2852, B. C.; its circulation was quite limited, as it was not used by the agricultural population.

There is also some evidence that in the remotest times, of which history is almost silent, there was in China a currency of shells, much resembling the *Sevan*, of *Suckauhook* or *Wampum*, of the American Indians. For we find in many Chinese works, articles referring to money and wealth, where the author has used the ideographical sign which signifies "Shell." Besides, we discover that King "*Pwan-Kang*," 1400, B. C., lamented

the greediness of his ministers, saying: *Here are those ministers of my government, who share with me the offices of the State, and yet only think of hoarding up Cowries.*

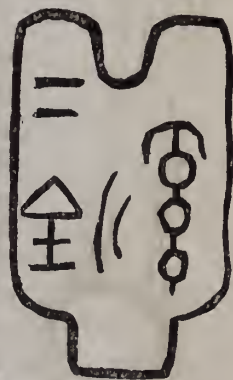
In the reign of *T'ai-Hao*, money was called "*K'in*," or metal. In that of *Yeu-Nui-Si*, 2697, B. C., and up to *K'uo-Sin-Si*, 2435, B. C., money was called "*Ho*," or merchandise. In that of *T'ao-l'Ang-Si*, it was called "*Ts'u'en*," or fountain, for the people maintained that money streamed as fast as a fountain, that it spread more widely than "*Pu*;" a piece of hemp or silk cloth, which was also current as money; and that it was more advantageous than "*Tao*" or knives.

PRIMITIVE COINS OF CHINA.

The money coined during the first three dynasties of *Yü*, *Hia*, and *Sang*, 2255 to 1766, B. C., is described as having been made of three kinds of metal, "yellow" (gold), "white" (silver), and "red" (copper), and the currency consisted further of cloth (of hemp and silk), knives of iron, tortoise shells and cowries. The coinage of *King Yü* was mostly of silver.

"MERCHANDISE MONEY."

The oldest Chinese coin still in existence is of the *Yü* dynasty; it is now over 4000 years old, and is represented by the accompanying engraving. The inscription on this coin reads from the right upwards, and means: "*Current (Ho) merchandise of the second metal circulating in the peaceful capital.*" By the second metal, silver is meant. "*Ho*" of the Chinese, has the same meaning as the word money with us, although the literal translation would be: "*Merchandise Money.*" This piece was first coined, 2853, B. C.



THE OLDEST CHINESE
COIN, 2853, B. C.

TAO COINS—KNIFE MONEY.

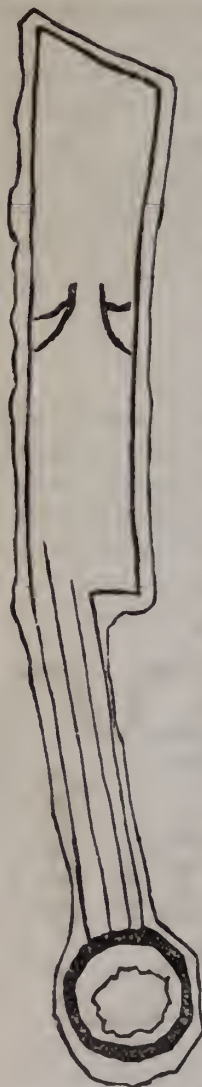
The *Tao* coins were of iron, and in form an imitation of a

knife, such as the Chinese might be supposed to use. Knives were the earliest articles of trade, generally used before money was current in China, hence the Chinese adopted as representative currency an imitation of the shape of that article. The first *Tao* coins were cast in 2453, B. C. The characters upon the coins mean: "*To Exchange for Merchandise.*" When gold, silver, and copper began to circulate more freely, this *Tao* or knife currency gradually disappeared.

When *Wang-Mang*, A. D. 14, became Emperor of China, he re-introduced the knife-shaped coins and called them "*KI-TAO,*" which was cast upon them in mandarin characters, meaning: "*Knives to make Agreements or Bonds.*" These cast-iron knives were a legal tender for 50 cash, or 8 cents of our money.

To create a variety of this currency, which should represent a greater value, *Wang-Mang* ordered some knives marked "*TS'O-TAO,*" and had the lettered part of the knife washed with gold. The meaning of *TS'O-TAO* is: "*Gilded Knives, or Precious Merchandise, and Little Money.*" These gilded knives had an arbitrary valuation of 500 cash, or 80 cents; but the gilding was soon removed or worn from them, when, as the knife money was all made of the same form, and from the same metal, the Legend alone indicated the variety or denomination.

This state of affairs soon created a kind of money rebellion, and *Wang-Mang* was forced to abolish the knife money.



TAO COIN, 2453 B. C.

THE "HO" "PU" COINAGE.

Besides these *Tao* coins the "*Pu*" or cloth, or dress, money was current. The *Pu*-coins, of which we give an illustration, and which, to the minds of the Chinese, represents the shape of a dress, was first cast 2085 B. C. The design on the right side of the engraving signifies "HO" or *Merchandise*, and that at the left, "PU," which means *Cloth*. This coin was cast of iron, and sometimes, but very seldom, of copper.



PU COIN, 2085 B. C.

CHINESE GOLD.

As China itself is not rich in precious metals, gold and silver money, though in use in the earliest times, when currency was little needed, after a while became totally unfit for ancient Chinese society on account of its high valuation. At the beginning of the Christian Era, gold, in China, had ten times the value of silver, silver ten times the value of copper, and about that time an individual of the lower class of the people did not spend even one "*Cash*" (iron money about one-seventh part of a cent) a day to supply his wants; it is evident that a currency of great intrinsic value, like gold and silver, was of little use in those simple times. Gold and silver coins were then used mostly as presents to princes, and as rewards for meritorious actions to the highest officers of State.

THE KIN AND YII GOLD COINS.

The principal gold coin of the Chinese was the "*Kin*" or "*Pound of Gold*," of the "*Tseu*" dynasty, 1122, B. C. Value: 24 *Taels*, about \$38.64.

The *Tseu* dynasty was dethroned 221, B. C., by Princee *Tsing*, who, under the name of *Si-hoang-ti*, united the many feudal states of China into an indivisible empire. The Imperial gold coin were called "*Yi*." Value: 20 *Taels*, about \$32.20.

Under *Wang-Mang*, A. D. 14, the "*Kin*," or principal gold coin, was much alloyed. Value: 10 *Taels*, about \$16.10.

TRADE GOLD, GOVERNMENT "CHOP."

Ever since the reign of *Wang-Mang* the Chinese have gradually disused gold as money, and at the present day it is bought and sold by them like any other merchandise, and varies in price according to supply and demand.

Gold in China is cast into the form of a "*Shoe*," or into bars, and often sold in dust put up in strong paper packages and marked with the government "*Chop*" or stamp.

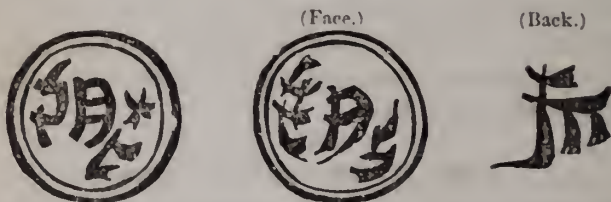
PYCEE CHOP.

Pure gold or 100 fine is called "*Pycee*," but is not cast into either shoes or bars.

TUNGZEE AND YEUNZEE TINGWAN CHOP.

Gold bearing the genuine *Tungzee* stamp of *Chop* is next in purity to the *Pycee* gold, being 96 touch (96 fine), meaning 96 parts pure gold and 4 parts alloy, generally silver; but sometimes copper and occasionally tin.

The *Tungzee*, and the *Yeunzee* or *Tingwan* stamps, or *chops*, are seldom found on any but round bar gold. If found on



TUNGZEE, OR 96 TOUCH.

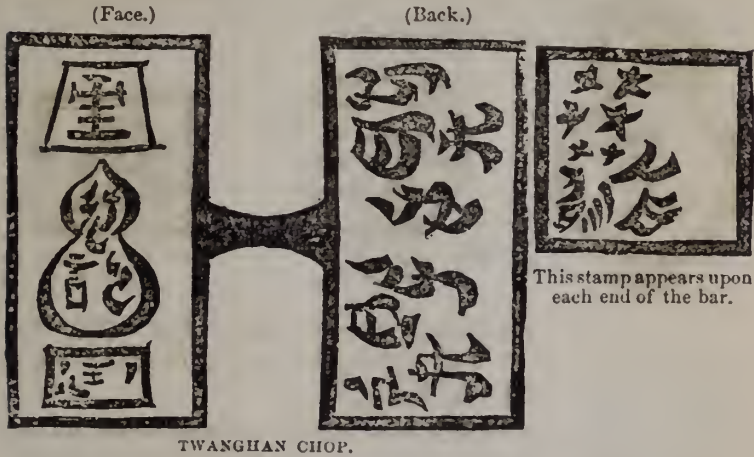
YEUNZEE OR TINGWAN, 95 TOUCH.

square bars, or upon *shoe* gold, these stamps or *chops* are generally counterfeit and the gold debased.

TWANGHAN CHOP.

Bar gold bearing the genuine *Twanghan* stamp or *chop* is 94½

touch (94½ fine). The Chinese, however, generally sell *Twanghan* bar gold as 95 *touch* (95 fine). This gold is cast at the gov-



ernment assay office, at Coe Sue, near Peking. The bottom or back of the genuine is very rough; if smooth, the stamp or chop is counterfeit, and the gold debased.

YEUKXZEE CHOP.

Gold bearing the genuine *Yeukxzee* stamp or chop is always in round bars, and between 95 and 96 *touch* (95 to 96 fine).



SEON YEUX CHOP.

Gold bearing the genuine *Seon Yeux* stamp or chop is always in square bars, is sometimes called *Song Yeux*, and is 94, and sometimes 95 *touch* (94 to 95 fine).

Both the *Yeukxzee* and *Seon Yeux* Chops of gold bars are assayed and cast at Coe Sue, near Peking.



POUZEE, CHAUZEE AND CHUZE OR CHUJA CHOP.

Shoe gold bearing the genuine *Pouzee* stamp or *chop* as here represented is sometimes called SEONG PO, and is 94 touch (94 fine).



POUZEE.

CHAUZEE.
93 and 94 touch.CHUZE OR CHUJA.
94 touch.

Gold bearing the genuine *Chauzee* stamp or *chop* is 93 or 94 touch (93 to 94 fine). Gold bearing the genuine *Chuze* or *Chuja* stamp or *chop* is 94 touch (94 fine).

The stamp of the *Pouzee*, *Chauzee* and *Chuze* or *Chuja* chops, is used both on bar and *shoe* gold; when found on the *shoes* it indicates an excellent quality, in great demand among the Chinese, though foreigners prefer bars of the same *chop*.

SEONG POU OR SOANG POA CHOP.

(Face.)



(Back.)



SEONG POU.

Gold bearing the genuine *Seong Pou* or *Soang Poa* stamp or *chop* is 93½ touch (93½ fine). The back or bottom is pretty smooth. The face has little rough knobs in the middle.

TOOZEE CHOP.



TOOZEE.

Gold bearing the genuine *Toozee* stamp or *chop*, should, according to the regulations of the Chinese assay office, be 93 touch (93 fine), but it is often no more than 90 touch (90 fine).

POUZEE AND SEONG PO CHOPS.

Gold bearing the genuine *Pouzee* stamp or *chop*, as here represented, if in bars, is called *Pouzee*, if in *shoes*, *Seong Po*. If in bars, it is a little better than 93 *touch* (93 fine), if in *shoes* it is invariably 94 *touch* (94 fine).

This *chop* has been frequently counterfeited; if the bottom of the *Seong Po* or *shoe* gold is smooth the stamp or *chop* is counterfeit, and the gold debased, often hardly 85 *touch* (85 fine).



POUZEE.

ONGEE CHOP.

Gold bearing the very popular genuine *Ongee* stamp or *chop*, is invariably full 92 *touch* (92 fine).



ONGEE.

TOUJEE CHOP.

Gold bearing the genuine *Toujee* stamp or *chop*, has a little projection at the bottom, like a twig with two branches, and is 92 *touch* (92 fine). If the bottom is smooth, the stamp or *chop* is counterfeit, and the gold debased.



TOUJEE.

CHEZEAU OR SWAJZEE CHOP.

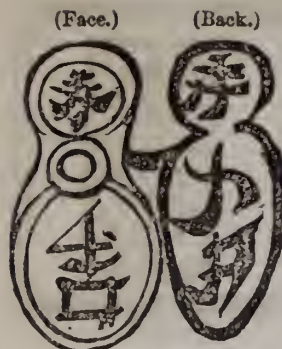
Gold bearing the genuine *Chezeau*, or *Swajzee* stamp or *chop*, has a large knob at the bottom, and is 92 *touch* (92 fine). If the bottom is smooth, the stamp or *chop* is counterfeit, and the gold debased.

Both the *Toujee* and *Chezeau* or *Swajzee* chops have been counterfeited in Japan of late years.



CHEZEAU.

CUTZEE SONG CHOP.



CUTZEE SONG.

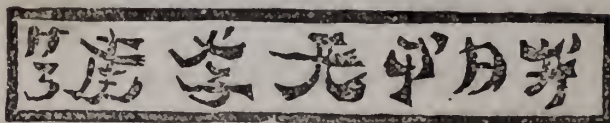
The *Cutzee Song* stamp or *chop* is used upon *shoe gold*. *Song* being the Chinese word for double, or a pair of shoes, and *Cutzee* the name for that kind of gold, which name has been corrupted into *Song Cutt*, instead of *Cutzee Song*.

SEONG KUTT CHOP.

Gold bearing the genuine *Seong Kutt* stamp or *chop* is 92 *touch* (92 fine). It is very rough, and has a large knobby branch at the bottom; if the bottom is smooth, the stamp or *chop* is counterfeit, the gold debased, never above 88 *touch* (88 fine).

CURRENT GOLD DUST.

The current gold dust of China is usually put up in square paper packages, and is generally 95 *touch* (95 fine).

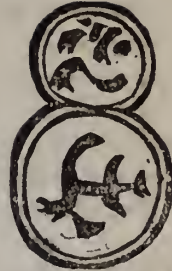


HOE-SZEE-YEUN-JUNG.

When genuine, the paper is vermilion color, and the *chop* printed in gold. About a hundred years ago this dust gold, put up in paper, was never questioned, and passed current; but of late, especially since foreigners had the handling of it, it has often been found but 75 *touch* (75 fine).

OUTZEE ONGEE CHOP.

The *Outzee-ONGEE* double ring chop is printed in gold characters upon the packages containing gold-dust which is put up in imitation of the cast *shoe* gold. In unbroken packages bearing the genuine *Outzee-ONGEE* stamp or chop, the gold dust is 92 touch (92 fine), but this chop has been counterfeited to an alarming extent, and the gold dust adulterated.



OUTZEE ONGEE.

SPELTER MONEY OF CHINA.

At the beginning of the Chinese period, "*Yuen-Seu*," the "*Phi-Pi*" money, which previously had been much used, was still in circulation. The term *Phi-Pi* means: "*Valuable Skins*," and this peculiar currency consisted of pieces of parchment, made from the skins of a certain kind of white deer, bred in an enclosure within the precincts of the Imperial palace.

The *Phi-Pi* were a Chinese square foot in size, beautifully ornamented with gold painting and embroidery. Their arbitrary value was 400,000 copper coins, or \$644.00 United States money. (In England, a few years ago, they were sold at 112 guineas apiece.) Being too bulky and heavy to be carried constantly, a little piece was cut from each of them as a token of possession. Ownership was proved when the small piece in hand fitted the hole in the *Phi-Pi*.

In the reign of the Emperor *Wuti*, during the first years of the period *Yuen-Seu*, the Imperial treasury was almost empty, and the "Son of Heaven," with all his ministers, deliberated upon the grave financial situation. In the privy treasury of the Emperor there was a large amount of silver bullion and of tin; the Imperial Council decided to restore the currency of silver, and so provide for the monetary wants of the government.

Accordingly, an order was given forbidding the breeding of the white deer which had formerly been kept within the Im-

perial palace to supply leather for the *Phi-Pi* fiat money; and the Emperor *Wuti* issued an edict that a new metallic currency be instituted forthwith. This new coinage, made in the fourth year of the period *Yuen-Seu* (119 B. C.), consisted of three coins of different size and form, all composed of silver and tin melted together; the denomination being at a nominal value, much in excess of their intrinsic worth.

The edict of the Emperor was brief; the document is unique;

日。莫。如。龍。天。白。又
金。如。馬。地。用。金。造
三。龜。人。用。莫。以。銀
品。故。用。莫。如。爲。錫

we give the whole of its original text, and an English translation:

"The Emperor orders a white metallic currency of a mixture of silver and tin, considering that in

heaven there is nothing superior to the dragon, and on earth nothing superior to the horse, and among men nothing superior to the tortoise; therefore there shall be three sorts of metallic coins."



其一日。重八兩。
圓之。其文龍。名
曰撰。直三千。

Of the first: "It shall have a value of 8 *Tales*; make it round; its device shall be a dragon; its name shall be '*T'suan*,' and its value, 3000 coins."

(The word "T'suan" in Chinese signifies *Regulator*.) The value of this coin was about \$12.80.



五方二
百之曰
其文其以
馬。蓋
直。小

Of the second: "Make it different, and smaller in comparison to the first in thickness, and of a square form, its device shall be a horse; its value: 500 coins. Weight: 6 *Taels*." Its value was about \$9.65.

直其小三
三文擗曰。
百。龜。之。後

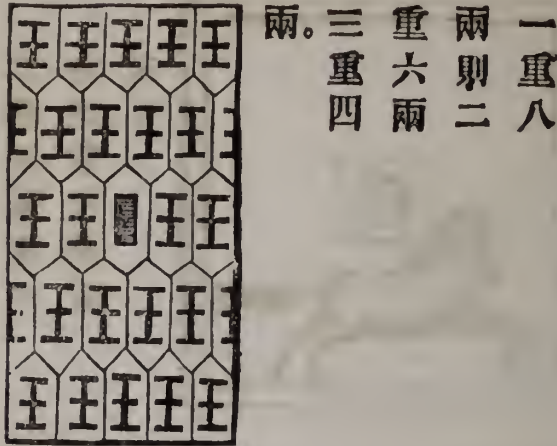
Of the third: "Make it still smaller in size, and in weight, four *Taels*."

"Let it be of oblong form, its device shall be a tortoise, and its value: 300 coins." Its value was about \$6.45.

From the drawing of the coin it will be seen that the figure of the tortoise is not imitated, but the surface reminds one of the back of a tortoise-shell with its sexangular figures. The character 王 called WANG, in each hexagon, signifies: "The Emperor."

As to the symbolical significance of these pieces we find the

Chinese regard the round exterior form of coins as emblematical of heaven, whereas the square form of the inner hole is in



imitation of the earth, which they believe to be square. The dragon is their emblem of imperial dignity; one part of the year, as they maintain, he resides in heaven, and is the cause of the rain, and another part of the year he resides in the ocean.

The end of those glittering and medal-like coins was sad. They were counterfeited on a large scale, not only by the people, but also by the State officials. Their value, being arbitrary, diminished rapidly in exchange, and the people refused to receive them as money. The Emperor tried to avert the evil, by reducing the coinage to a minimum; but his efforts proved of no avail, and the Chinese, in the interior, to this day refuse silver money of their own coinage.

MODERN SILVER COINAGE FOR CHINA.

THE SILVER TAEI.

The East India Company, with the consent of the Emperor, coined *Tael*s of silver for general circulation; but the natives in the

interior of China still refuse the coin, and the "*Money Shops*," as the Banks in China are called, melt them, almost as soon as presented, into "*Sycee*" or government standard silver bars, to be used in turn to pay taxes to the government collectors.

These Banks have furnaces in which the workmen place the *Tuels* of silver to fuse them, and then pour the *Sycee* silver into clay moulds. After the metal is cold it is thrown out of the moulds, the ingot having upon it the date of a given year, the mark of a given district, and often the kind of tax, it was cast to pay, with the name of the workman and the "*Shop*" where it was cast. Then, after it has been lodged in the interior provisional treasury, if found to be debased, inquiries can be made respecting it at the "*Shop*" from whence it came. This *Tuel* weighs 565 grains. Fineness: 990. Value: \$1.58.1612.

SILVER DOLLARS.

In 1804, a silver dollar, "*Five Shillings*" *Token*, was struck by the Bank of England with its own device for circulation in China and the Orient. The bank has since occasionally issued this coin, which is here represented. By reference to the illustration, it may be seen the figure of *Britannia* upon this piece is closely imitated in that of *Liberty* upon the United States



FOREIGN-FACED MONEY.

Trade Dollar, coined from 1874 to 1878 (\$35,959,360), for the same market. The Chinese call the Bank of England Dollar: "*Foreign-Faced Money*." Weight: 415.68 grains. Fineness: 901. Value: \$1.01.

In 1845 a Native Silver Dollar was struck at Canton by private bankers. Same size as the Mexican Dollar. Obverse: Chinaman, bowing, holding in his hand a stalk of sugar cane. The figure is rather heavy; with a coarse face and very high forehead. Legend: Chinese characters, meaning: "*Native*

Dollar." To the left, the private chop mark of the banker; to the right, Chinese characters, denoting the bullion value and fineness of the coin: "8 *Macc.* 98 *touch*" (98 fine), with the guarantee chop of the coiner. Weight: 411.5 grains. Fineness: 980. Value: \$1.14.0720.

In 1852 a Silver Dollar was struck in England, by order of certain English merchants, for circulation in China. Smaller than the United States Dollar. Obverse and Reverse: Chinese characters, denoting the bullion value of the coin: "7 *Macc.* 1 *Candareen*, 8 *Cash.*" Edge milled with flowers; hence the Chinese call this dollar: "*Flower-Edged Money.*" Weight: 345 grains. Fineness: 956. Value: \$0.94.2381.

In 1860 a Native Silver Dollar, generally believed to have been struck by Chinese officials, was put in circulation in the seaports of China. It is very handsome, bearing Chinese characters, denoting the bullion value and fineness of the coin: "8 *Macc.* 5 *Cash.* 98 *touch*" (98 fine). The Chinese have accepted this dollar more readily than any preceding one, and call it to this day: "*Precious Cover for Merchandise.*"

The Chinese Government has no proper general Mint, and the only legal tender currency of China is the bronze or copper coin, the *Cash*. The government assay offices give their *chop* to ingots of silver and gold, which, as commodities, are passed as equivalents in trade. Accounts in China are generally kept by weight, in *Haikwan Sycee* silver, expressed nominally in *Taels*, *Macc.*, *Candareen*, and *Cash*.

Foreign coins are accepted in China only at their bullion value, in comparison with *Haikwan Sycee* silver, supposed to be 1000 fine, but in reality of an average fineness of 985.5. However, the decimal system of notation and account, by dollars and cents, is becoming popular in many parts of "*The Celestial Empire.*"

The Chinese are very notional in regard to foreign coins, choosing some and rejecting others, merely in consideration of the device. Spanish Dollars with pillars, especially those issued in the reign of Charles IV., have been the most popular,

and often command a slight premium. Yet the "*Pillar Dollar*," or the "*Dollar Spanish*," is now commercially merely a quotation of nominal value, rather than a coin in practical circulation.

The Mexican Dollars have an extensive market among the Chinese, and they are strongly prejudiced in their favor; yet the old Mexican "*Sun Dollar*" is taken without question, while the New Mexican "*Scale Dollar*," though assayed at a higher value, is accepted in many places only at a heavy discount.

The United States Trade Dollar, though in circulation at Amoy, Foochow, Swatow, and the Formosa ports, and sometimes at a premium of three per cent., is elsewhere refused altogether, or taken at a discount of some five or six per cent., and if introduced in some places would be "*boiled, chop, chop*," *i. e.*, smelted. The Chinese call the Trade Dollar "*Precious Goose*," "*Precious Duck*," and "*Flying Hen Dollar*," out of respect to the eagle on the Reverse. They also call the Trade Dollar "*Devil's Head Money*." The Spanish Dollars are also known by the nick-name: "*Two Candlestick Dollars*."

Gold and silver being nothing but commodities in China, valued solely by their weight and fineness, all foreign coin is considered as simply so much bullion. The convenience of coin, however, gives it considerable circulation, each piece being regarded as a small ingot. Native gold and silver, in *shoes, bars, etc.*, bears, as has been noted, the government *chop*, by which it is rated. The Chinese have so much distrust of foreign mintages, and there have been so many counterfeits of all sorts among themselves, that, according to a commercial rule, originating and established in the south of China, every mercantile firm paying out foreign coin is required to give a guarantee of the character of each piece disbursed, by stamping upon its surface their *chop*, or Chinese trade-mark, or firm name.

Begun as a precaution against imposition, this practice of

chopping has grown into a flagrant abuse, and been made the pretence and cover for dishonesty and fraud. When nothing but dies are used, and the coin properly stamped, it is soon battered and defaced beyond all possibility of recognition, but, worse than this, gonges and drills are often fraudulently used, and considerable portions of silver adroitly removed in making the *chop*, so that holes are sometimes cut quite through the piece.

Passing from hand to hand the coin is mutilated again and again repeatedly, until a very large fraction of its weight has been *chopped* away and stolen. It has been reported by the merchants of Hong-Kong to the Chinese authorities that the rule and custom of *chopping* coin should be abolished; but all efforts for a uniform and clean currency are opposed in China by the *Schroffs*, *Compradores*, money-brokers and bankers, since the greater the irregularities and complexities the more they can make of inordinate profit at the expense of the ignorant. Trade Dollars are preferred unchopped in some places in China; but new, bright, perfect Mexican Dollars are often at a discount, not being (as it were) properly endorsed.

COPPER AND IRON MONEY OF CHINA.

After the final abolition of the ancient *Tao* coinage, or knife money, which the Emperor *Wang-Mang* had reintroduced, A. D. 14, that "Son of Heaven" ordered a new kind of iron currency to be coined. The pieces were called "*Yik-Tseu*," which literally means "*Bended round, and surrounded with red*," on account of the raised edge of the coin which was made of red copper. Each piece was worth 5 *Tsu* or 5 *Cash*, about $3\frac{1}{2}$ cents, although its arbitrary value was five times as much. The former currency had been extensively counterfeited; within two years counterfeits of the new iron money were so numerous, the whole coinage fell into disrepute, the people refused to circulate the issue at the legal valuation, and it was soon after abolished.

The Emperor having learned wisdom by adversity, decided that money should be made of the full value of its denomina-

tion. An Imperial Mint was established, and three officials of the *Sang-Lin* (Academy of Science) were appointed Mint-Masters. After this the provinces and districts did not, as formerly, each make its own money.

The Mint-Masters had to do their utmost in order to provide the whole empire with a good and valuable currency. To all money not issued by them, the character of a legal tender was denied.

All the metallic currency of whatever nature formerly in use was withdrawn and brought to the State Mint, in order to be melted and recoined. As they considered it too expensive to destroy the few false coiners who still remained, they made the most formidable and skilled of them workmen in the service of the State, at the new Mint. A curious practice. How different from our system!

For about forty years nothing remarkable happened. The *Five Tsu* pieces, issued by the *Sang-Lin* Mint-Masters, were soon after that time extensively counterfeited; and under the reign of Emperor *Yuen-Ti*, counterfeiting was practiced to such an extent, that the Minister of Finance, *Kung-Yü*, presented a memorial to the Throne, in which he earnestly proposed to abolish the iron and copper money and to go back again to the use of grain and cloth, as well as knives, as a medium of exchange.

The memorial of *Kung-Yü* reported the following startling facts: "The number of persons who, in order to make money, are grasping at copper and iron, amounts to over 100,000 in the course of a single year. The people cease to plough, and being engaged in false coining, they incur punishment. Besides, many rich men accumulate money in treasuries, and are filling their dwellings with it, and yet they are not satisfied. The minds of the people are agitated, they leave their ordinary employment and throw away their prospects. Husbandry cannot afford to lose half of the hands that plough the fields, and the false coiners are not to be checked in their unlawful doings.

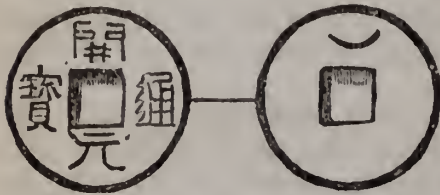
"If taxes, salaries, and rewards were all reckoned by means

of silk, cloth, and grain, the people would henceforth turn their thoughts to husbandry, and the cultivation of mulberry trees."

His advice was, however, rejected by the Emperor.

During the one hundred and seventeen years the *Sung-Lin* Mint-masters coined that copper-iron money, they cast 280,000 million coins. After that time a free coinage was resorted to again.

The *Five Tsu* pieces, which had been the standard coin for more than eight hundred years, were afterwards held in such contempt that it was impossible to retain even the name. Accordingly the *Kai-Yuen-T'-Ung-Pao*, an entirely new coin, was instituted.



KAI-YUEN-T'-UNG-PAO.

This new money was uncommonly good, and it may safely be considered the best and most successful coin issued, having maintained its position for

centuries. The reverse chronicles an event in history.

The Obverse bears in Chinese *Tswen* and *Li* characters: "KAI-YUEN-T'-UNG-PAO," meaning "*Current Money of the Newest Beginning.*" Exergne: Date of the year of the Emperor's reign. Reverse: A blank field, with a nail mark at the top. This nail mark has rather a strange history, namely: When her august majesty the Empress *Wen-Tek* was shown the design of the new coin, it was modeled in wax; her majesty reaching for it, left on it the impression of her fashionable long nail, and the Minister not daring to efface it the Mint-masters imitated that nail mark on their coins thereafter. This coin is now called "*Cash*" by the foreigners, and by the natives "*Tsien*," and is the only legal tender coin for all debts, private and public. It is thin and circular, and nearly an inch in diameter, having a square hold in the centre, with a raised edge both around the outside and around the hole.

Those now in use have the name of the reigning Emperor

as a Legend at the top, to the right "TUNG," and to the left "PAOU." Exergue: The date of the year of the Emperor's reign, all in Chinese characters and numerals. The translation of "TUNG," "PAOU," is *Precious Circulating Medium*.

The Chinese *Tael* of the present day is divided into 10 *Mace*, or *Li*; 100 *Candareens*, or *Fun*; and 1000 *Cash*, or *Tsien*. Ten of these *Cash* ought to weigh an ounce avoirdupois, and the *Tael* of one thousand *Cash* should weigh six pounds and four ounces; they are, however, often much lighter. The intrinsic value of this currency is whatever such a mixture of tin, spelter, copper, and iron of the same weight would bring; yet the *Tael* of one thousand *Cash* passes current in China, at a value of \$1.61 United States money.

DENMARK AND POSSESSIONS.

The general name of Denmark is, in Danish, *Danmark*, and is supposed to be derived from *Dan*, the founder of the Danish monarchy, and *Mark*, a German word signifying country; thus *Dan-Mark* means: *Country of Dan*.

The Danish coinage for the last century included that of Norway, up to 1813, and of Schleswig-Holstein to 1864. Up to 1813, Denmark had three kinds of coinage: 1st, Danish proper; 2d, that of Norway, and 3d, of Schleswig-Holstein, and still uses the arms of Norway and Schleswig-Holstein upon its coins, although Norway was incorporated with Sweden in 1813, and in 1864 Schleswig-Holstein reverted to Germany.

In 1813 a royal edict was promulgated, making an entire change in the coinage. In 1836 the pieces of 4, 3 and 2 Skillings were added to the coinage. In 1875 an entire and radical change was made and the present *Krone* and *Oere* established.

GOLD COINS OF DENMARK.

1. Specie Ducat of 1802. Obverse: A wild man, leaning

with his right hand upon an oval shield bearing the arms of Denmark, and supporting with his left hand a large club, the butt end resting upon the ground; at the left side is inscribed "18," and at the right "02." Legend: "MONETA AUREA DANICA" (*Danish Gold Money*). Reverse: A square shield containing "67 AEGV. POND. MARC. COL. PRETH. 23½ KARAT" (67 equal in weight to one Cologne mark, and of 23½ Carats fineness). Some of the Specie Ducats have the same inscription in the Danish language, namely: "1 SPECIES DUCAT. 23½ KARAT. 67 STYKKER 1 MARK BRUTO" (1 Ducat specie, 23½ Carats fine, 67 pieces to the Mark gross). Weight: 53.92 grains. Fineness: 983. Value: \$2.28.3703.

Ducats, prior to 1802, bear on the Obverse the head, name and title of the reigning king, and on the Reverse the arms of Denmark, and the Legend: "PRUDENTIA ET CONSTANCIA" (*Prudence and Perseverance*). Others bear on the Reverse a ship, with the Legend: "DUCE PRUDENTIA CONSTANCIA COMITE" (*Prudence being the guide, Perseverance the companion*).

In 1813 the Ducats were abolished and the double and single Frederik and Christian D'Or, or pieces of 10 and 5 Dalers of 896 fineness, substituted.

2. Double Christian D'Or. Obverse: Head of Christian VIII. facing to the right. Legend: "CHRISTIANUS D. G. DANÆ V. G. REX" (*Christianus VIII. Dei Gratia, Danicæ, Vandalarum, Gotorum Rex*; meaning *Christian VIII. by the Grace of God, King of Denmark, Vandavia and Gothen*). Reverse: A crowned shield, quartered by a cross, bearing the arms of Denmark, Norway, Schleswig, Gothen and Wenden; upon the cross is suspended a smaller shield, bearing the arms of Holstein and Ditmarson, Oldenburg and Delmenhorst; at either side is a wild man, each carrying a club, and leaning upon the shield; the whole displayed upon a mantle of ermine, draped from a crown. Legend: "2 CHR. D'OR." Exergue: Date of the year of issue. Weight: 205.002 grains. Fineness: 895.833. Value: \$7.90.8062.

3. Double Frederiks D'Or. Obverse: Head of Frederik

VII. facing to the right. Legend: "FREDERICUS VII. D. G. DANLÆ V. G. REX." Reverse: same as No. 2. Weight: 205.002 grains. Fineness: 895.833. Value: \$7.90.8062.

4. Frederiks D'Or of Frederik VI. Obverse: Head of Frederik VI. facing to the left. Legend: "FREDERICUS VI. REX. DANLÆ." Reverse: A crowned shield, quartered by a cross, and bearing the arms of Denmark, Norway, Sweden, Schleswig, Gothen and Wenden; upon the cross is suspended a smaller shield, bearing the arms of Holstein, Stormarn and Ditmarson, with a shield of pretence, bearing the arms of Oldenburg and Delmenhorst. At the side of the shield, to the left, "1 FR." and to the right "D'OR." No Legend. Exergue: Date of the year of issue. Weight: 102.501 grains. Fineness: 895.833. Value: \$3.95.4031.

5. Christian D'Or of Christian VIII. Obverse: Head of Christian VIII. facing to the left. Legend: "CHRISTIANUS VIII. D. G. DANLÆ. V. G. REX." Reverse: Same as No. 2. Weight: 102.501 grains. Fineness: 895.833. Value: \$3.95.4031.

6. Frederiks D'Or of Frederik VII. Obverse: Head of Frederik VII. Legend: "FREDERICUS VII. D. G. DANLÆ. V. G. REX" (*Fredericus VII. Dei Gratia Daniæ, Vandalorum, Gotorum Rex*; meaning: *Frederic VII. by the Grace of God, King of Denmark, Vandalia and Gothen*). Reverse: Same as No. 2. Weight: 102.501 grains. Fineness: 895.833. Value: \$3.95.4031.

7. Christian D'Or of Christian IX. Obverse: Head of Christian IX. Legend: "CHRISTIANUS IX. D. G. DANLÆ V. G. REX." (*Christianus IX. Dei Gratia Daniæ, Vandalorum, Gotorum Rex*; meaning: *Christian IX. by the Grace of God, King of Denmark, Vandalia and Gothen*). Exergue: Date of the year of issue.

8. 20 Kroner Gold of 1875. Obverse: Head of Christian IX. Legend: "CHRISTIAN IX. KONGE AF DANMARK" (*Christian IX. King of Denmark*). Exergue: 1875. Reverse: Crowned shield bearing the arms of Denmark. At the left of shield, a fish; at the right, a spray of wheat. Exergue:

"20 KRONER" (*Twenty Crowns*). Weight: 138.280 grains. Fineness: 900. Value: \$5.35.800.

9. 10 Kroner Gold of 1875. Obverse: Same as No. 8. Reverse: Similar to No. 8, with exception of the Exergue, which bears "10 KRONER" (*Ten Crowns*). Weight: 69.140 grains. Fineness: 900. Value: \$2.67.900.

SILVER COINS OF DENMARK.

1. The Old Ducatoon of Schleswig-Holstein, of 1622.



OLD DUCATOON OF 1622.

This coin is only found in the museums of Europe, its value is whatever numismatists fancy. Originally, it was worth 95 cents.



RIGS-DALER SPECIES OR RIX-DOLLAR SPECIE.

2. Rigs Daler Species of 1696. Obverse: Head of Chris-

tian V. Legend: "CHRISTIAN V. D. G. REX. DAN. NOR. V. G." (*Christian V. Dei Gratia Rex Danice, Norvegiæ Vandalarum, Gotorum*; meaning: *Christian V. King of Denmark, Norway, Vandalia and Gothen.*)

Reverse: A crowned shield, quartered by a cross, and bearing the arms of Denmark, Norway, Sweden, Schleswig, Gothen and Wenden; upon the cross is suspended a smaller shield, bearing the arms of Holstein, Stormarn and Ditmarson. Legend: "PIETATE ET IUSTITIA" (*Devotion and Justice*). Exergue: 16-96. Original value about \$1.02; present value fictitious.

3. Eight Marks Specie of 1675. Obverse: Christian V. on horseback. No Legend or Exergue.



EIGHT MARKS SPECIE OF 1675.

Reverse: Crowned shield bearing the arms of Denmark; three lions *courant*, and nine hearts *argent*. Legend: "VIII MARCK DANSKE 1675" (*Eight Marks Danish currency, 1675*).

Original value about \$1.12½; present value fictitious.

4. Sixty Shillings Schleswig-Holstein currency of 1787. Obverse: Head of Christian VII. Legend: "CHRISTIAN VII. D. G. REX. DAN. NOR. V. G." Reverse: An oval shield crowned, divided in three parts, bearing the arms of Denmark, Norway, and Sweden. Legend: "60 SHILLINGS SCHLESWIG. HOLST. COURANT." Exergue: "1787." Original value about 98 cents; present value fictitious.

5. Species-Daler of 1801. Obverse: Head of Christian VII. Legend: "CHRISTIAN VII. D. G. REX DAN. NOR. V. G."

Reverse: Crowned square shield, with the arms of Norway, a lion rampant upon, and holding, a long curved battle axe. At the left of shield, "1;" at the right, "SP^s" (meaning: *One Specie Dollar*). Beneath the shield, "9 $\frac{1}{4}$ ST. 1 MK. F. S." (9 $\frac{1}{4}$ *Stuck Mark Fein Silver*; meaning: *9 $\frac{1}{4}$ Pieces make one Mark fine silver*). Still lower, "18," two hammers crossed, "01"



SPECIE DOLLAR OF 1801.

(Signifying: *Struck at the Mint of Norway from silver obtained from the silver mines at Konigsberg in 1801*). Original value, about 97 $\frac{1}{2}$ cents; present value, fictitious.

6. Species-Daler of 1824. Obverse: Head of Frederik VI. Legend: "FREDERICVS VI. D. G. REX DAN. NOR. V. G."



SPECIE DOLLAR OF 1824.

Reverse: Same as No 5. Value: Same as No. 5. The letters "J. M. K." on the Exergue of No. 5 and No. 6 are the Mint-master's initials.

7. Rigs-Daler Species of 1838. Obverse: Head of Fred-
ericus VI., same as No. 6.

Reverse: Crowned, quartered shield same as No. 2. Ex-
ergue: "1838." Legend: "EN RIGSDALER SPECIES" (*One*



RIGSDALER SPECIE OF 1838.

Rix Dollar Specie). Weight: 455.886 grains. Fineness:
875. Value: \$1.11.0166.

8. Rigs-Daler Species of 1839. Obverse: Same as No. 6.



RIGSDALER SPECIES OF 1839.

Reverse: Crowned, quartered shield same as No. 2. Le-
gend: "EN RIGSDALER SPECIES." Weight: 455.886 grains.
Fineness: 875. Value: \$1.11.0166.

9. Rigs-Daler of Christian VIII. of 1844. Obverse: Head
of Christian VIII. Legend: "CHRISTIANVS VIII. D. G.
DANIE V. G. REX." Reverse: A crowned shield, bearing the
arms of Denmark, Norway, Sweden, Schleswig, Gothen, and

Vandalia; upon the cross is suspended a smaller shield, bearing the arms of Holstein, Stormarn and Ditmarson. The shield on this coin is encircled by the chain, and badge of the Order of the Elephant. On the base, the initials of the designer, "H. C." Weight: 455.886 grains. Fineness: 875. Value: \$1.11.0166.

10. Species-Daler of Christian VIII. Obverse: Head of Christian VIII., facing right. Legend: "CHRISTIANVS VIII. D. G. DANLÆ V. G. REX." Reverse: Crowned shield: at either side a wild man, carrying a club, and leaning upon the shield; the whole displayed upon a mantle of ermine, draped from a crown. Above the Legend: "1 SPECIES." Exergue: "1846." Weight: 455.886 grains. Fineness: 875. Value: \$1.11.0166.

11. Species-Daler of Frederik VII. of 1848. This Species-Daler is an exceptional piece, as it bears the portraits of two sovereigns: that of the one dying in 1848, having been struck upon the Obverse, and that of his successor, the same year, upon the Reverse of the coin. Obverse: Head of the preceding King, Christian VIII., upon it a chaplet of oak and laurel. Legend: "CHRISTIAN VIII. KONGE AF DANMARK." Inside of that Legend, another one, but in smaller letters: "DOD DEN 20 JANUAR 1848" (*Christian VIII., King of Denmark, died January 20th, 1848*). Exergue: "1 SPECIES." Reverse: Head of Frederik VII., the succeeding King. Legend: "FREDERIK VII. KONGE AF DANMARK." Weight: 455.886 grains. Fineness: 875. Value: \$1.11.0166.

12. Species-Daler of Frederik VII. of 1849. Obverse: Head of Frederik VII. Legend: "FREDERICVS VII. D. G. DANLÆ V. G. REX." Reverse: Crowned and quartered shield of arms of Denmark, etc., surrounded by an oak wreath; left of it, "1849," and to the right, the Mint-mark of Copenhagen. Exergue: "1 SPECIES." Weight: 455.886 grains. Fineness: 875. Value: \$1.11.0166.

13. Two Rigs-Daler of 1855. Obverse: Head of Frederik VII. Legend: "FREDERICVS VII. D. G. DANLÆ V. G. REX."

Exergue: "1855." Reverse: "2 RIGSDALER," in two lines in the middle of the field; beneath, "9¼ ST: = 1 M: F: S:" (9¼ pieces to make one Mark fine silver). The whole surrounded by a heavy oak wreath.

14. Two Rigs-Daler of Christian IX. of 1868 to 1874, inclusive. Obverse: Head of Christian IX. Legend: "CHRISTIANVS IX. D. G. DANÆ V. G. REX." Exergue: "1868."



TWO RIGS-DALER OF 1868.

Reverse: Same as No. 13. Weight: 455.886 grains. Finesness: 875. Value: \$1.11.0166.

15. Four Mark Piece of Christian IV. Obverse: Full length figure of King Christian IV. Legend: "CHRISTIANVS IIII. D. G. DANÆ."



FOUR MARK PIECE OF 1620.

Reverse: In the centre of field a large crown; above it, in

an arch, "1.6.2.0.;" underneath, "R. F. P." (Mint-mark), surrounded by a circle. Legend: "NORVEG. VANDAL. GOTOR. REX" (*Norvegiorum, Vandalorum, Gotorum Rex*; meaning: *King of Norway and of the Vandals and Goths*). Original value, about 50 cents; present value fictitious.

16. Four Mark Piece of Christian V. Obverse: The royal monogram, two "C's" and two "S's" interlaced, surmounted by a crown. Legend: "D. G. REX DAN. NOR. VAN. GOT."



FOUR MARK DANSKE OF 1694.

Reverse: Crowned lion *courant* upon, and holding a long curved battle axe, surrounded by laurel wreath, tied with the order of the elephant. Legend: "III MARCK DANSKE, 1694,"



FOUR MARKS OF 1699.

and two hammers crossed; Mint-mark of Norway. Original value about 50 cents; present value fictitious.

17. Four Mark Piece of Frederik IV. Obverse: An equestrian image of King Frederik IV. Legend: "FREDERICVS IIII D. G. REX DAN. NOR. V. G." Exergue: "IIII MARCH DANSKE" (*IIII Marks Danish*).

Reverse: Crowned and quartered shield of Denmark, etc. Legend: "PIETATE ET IUSTITIA" (*Devotion and Justice*). Original value 50 cents; present value fictitious.

18. Two-third Rigs-Daler of 1796. Obverse: Head of Christian VII. Legend: "CHRISTIAN VII. D. G. DAN. NORV. V. G. REX."



TWO-THIRD RIGS-DALER OF 1796.

Reverse: Crowned oval shield, bearing the arms of Denmark, Norway and Sweden. Legend: " $\frac{2}{3}$ RIGSDALER. SPECIES." Exergue: "17," two hammers saltiere wise "96," and the Mint-master's initials. Original value about 67 cents; present value fictitious.



RIGS-BANK-DALER OF 1813.

19. The Rigs-Bank-Daler of 1813. Obverse: Head of Frederik VI. Legend: "FREDERICVS VI. D. G. DANLÆ NOR. V. G. REX."

Reverse: Crowned and quartered shield of Denmark, Sweden, Norway, etc. Legend: "EN RIGSBANKDALER." This Rigs-Daler was issued by the National Bank of Denmark during the war of Napoleon I., in 1813; it had a nominal value of about 48 cents; but was soon withdrawn from circulation.

20. Sixteenth Skilling of Christian IV. of 1644. Obverse: Crowned bust of Christian IV. below the arms of Denmark, three lions *courant* and nine hearts *argent*. Legend: "CHRISTIA 4. D. G. D. DAN. N. V. G. R."



SIXTEEN SKILLING OF 1644.

Reverse: Large letter "C," inside of which the figure "4," surmounted by a crown. Legend: "XVI SKILLING DANSK 1644." Value originally about 12½ cents; present value fictitious.



TWENTY-FOUR SKILLING OF 1730.

20. Twenty-four Skilling of Christian VI., 1730. Obverse: Head of Christian VI. Legend: "CHRISTIANVS VI."

Reverse: The royal monogram, two "C's" and two "G's" interlaced, surmounted by a crown. Legend: "D. G. REX DAN. NORV. VAN. G." Original value about 25 cents.

21. Twenty-four Skilling of Frederick V. Obverse: Crowned lion *courant* upon, and holding, a long curved battle-axe. Legend: "24 SKILLING DANSKE 1757." Exergue: two hammers crossed.



TWENTY-FOUR SKILLING OF 1757.

Reverse: The royal monogram, two "F's" and two "S's" interlaced, surmounted by a crown. Legend: "D. G. REX DAN. NORV. VA. GO." Original value about 25 cents; present value fictitious.



TWENTY-FOUR SKILLING OF 1766.

22. Twenty-four Skilling of Christian VII. Obverse: Same as that of No. 21.

Reverse: The royal monogram, two "C's" and two "7's"



TWENTY SCHILLING OF HOLSTEIN, 1792.

interlaced. Legend: "D. G. DAN. NOR. VAN. GOT. REX." Original value about 25 cents.

23. Twenty Skilling of 1792. Obverse: Head of Christian VII. Legend: "CHRISTIANVS VII., D. G. DAN. NORV. V. G. REX."

Reverse: "XX SCHILLING 1792," in four lines; surrounded by a laurel wreath. Original value 21 cents.

24. Twelve Skilling of 1722. Obverse: Head of Frederik IV. Legend: "FREDERICVS IV D. G. DAN. N. V. G. R."



TWELVE SKILLING OF 1722.

Reverse: Crowned, heart-shaped shield, bearing the arms of Denmark, Norway, and Sweden. Legend: "XII SKILLING DANSKE, 1722." Original value about 12½ cents; intrinsic value 10 cents; present value whatever numismatists fancy.

25. Rigs-Bank-Daler of 1841. Being the integer, or monetary unit, established by an edict of Christian VIII., this silver coin is the Rigs-Bank-Daler, or Dollar of the National Bank of Denmark, and is just half the weight and value of the old Specie Dollar. The smaller denominations of 32, 16 and 8 Rigs-Bank-Skillings are therefore about one-sixth, one-twelfth, and one-twenty-fourth of the old Specie Daler or Dollar. Since then the 4, 3, 2, and 1 Skilling pieces have been added to the coinage, and are coined 250 fine. The Specie-Daler, although no longer a unit or integer, still exists as a coin at its former standard; but since 1875 (when Denmark adopted a new coinage, upon the gold standard, as legal tender), has been almost swept out of circulation. Since 1875 this Rigs-Bank-Daler of 1841 has been a legal tender. Obverse: Head of Christian VIII. Legend: "CHRISTIANVS VIII. D. G. DANIE V. G. REX." Reverse: Crowned and quartered shield similar to that described in No. 9. Legend above:

"1 RIGS-BANK-DALER." Exergue: "30 SCHILLING COURANT." Weight: 222.936 grains. Fineness: 875. Value: \$0.56.2685.

26. Rigs-Daler of Frederik VII., 1855. Obverse: Head of Frederik VII. Legend: "FREDERICVS VII., D. G. DANIÆ V. G. REX." Exergue: "1855." Reverse: "1 RIGSDALER" in the middle of field, in a half circle below "18½ ST: 1 M: F: S:" (18½ *pieces to make one Mark fine silver*). The whole surrounded by a heavy oak wreath. Weight: 222.936 grains. Fineness: 875. Value: \$0.56.2685.

27. Half Rigs-Daler of Frederik VII., of 1855. Obverse and Reverse same as on No. 26, only in proportion to size, and instead of 1 Rigsdaler, "½ RIGSDALER" in two lines, and the half circle below entirely omitted. Weight: 111.648 grains. Fineness: 875. Value: \$0.28.1342.

28. Rigs-Daler of Christian IX., of 1868 to 1874, inclusive. Obverse: Head of Christian IX. Legend: "CHRISTIANVS IX., D: G: DANIÆ V. G. REX." Exergue: Date of the year of issue. Reverse: "1 RIGSDALER," below in a half circle "18½ 1 M: F: S:" (18½ *pieces equal to one Mark fine silver*). The whole surrounded by a heavy laurel wreath. Weight: 222.943 grains. Fineness: 875. Value: \$1.55.5084.

29 Half Rigs-Daler of Christian IX., of 1868 to 1874 inclusive. Obverse: Same as No. 28. Reverse: Same as No. 28, only "½ RIGSDALER" is substituted for "1 RIGSDALER" and the half circle below it is omitted. Weight: 111.471 grains. Fineness: 875. Value: \$0.27.7542.

This completes all the silver coins of Denmark, up to the latest edict of January 1st, 1875, when a new silver coinage was ordered. The fineness of 875 was reduced to 800 fine silver and 200 copper. The unit to be a "Krone" or Crown, to weigh 7.500 grammes, French standard, and to be 25 millimetres of France in diameter. The Double Krone to weigh 15 grammes, and be 31 millimetres in diameter. The Krone of 1875 to be exchanged for 48 Skillings of 1868-1874, and the Double or Two "Kroner" for one Rigs-Daler of 1868-1874.

30. Double or Two Kroner of 1875 and since. Obverse: Head of Christian IX. Legend: "CHRISTIAN IX KONGE AF DANMARK." Exergue: "C. S.," Engraver's initials; "1875," and a small heart, Mint-mark of Copenhagen.



TWO KRONER OF 1875 AND SINCE.

Reverse: Crowned shield bearing the arms of Denmark, three lions *courant*, and nine hearts *argent*. To left of shield, a fish; to the right, a spray of wheat. Exergue: "2 KRONER." Weight: 231.480 grains. Fineness: 800. Value: \$0.53.600.

31. Krone or Crown of 1875 and since. Obverse: Same as No. 30. Reverse: Same as No. 30, only "1 KRONE" is substituted for 2 Kroner. Weight: 165.740 grains. Fineness: 800. Value: \$0.26.800.

This silver coinage is no longer a full legal tender; but is receivable for government taxes and private debts, to the amount of 20 Kroner, or \$5.36 cents of our money. The Krone of 1875 is divided in 100 Oere instead of 48 Skillings as heretofore.

BILLON COINS OF DENMARK.

1. One-third Rigs-Daler of 32 Skillings, of the Rigs-Bank. Obverse: Head of Christian VIII. Reverse: Crowned shield of Denmark, etc. Weight: 94.584 grains. Fineness: 687.50. Value: 18 cents.

2. One-sixth Rigs-Daler of 16 Skillings, of the Rigs-Bank. Obverse: Head of Frederik VII.

Reverse: Crowned shield of Denmark, etc. Weight: 65.031 grains. Fineness: 500. Value: 9 cents.



16 SKILLING OF THE RIGS-BANK.

3. One-twelfth Rigs-Daler of 8 Skillings, of the Rigs-Bank. Obverse and Reverse same as No. 2. Weight: 32.530 grains. Fineness: 500. Value: $4\frac{1}{2}$ cents.



8 SKILLING SPECIE OF 1788.

4. Eight Skilling Specie of 1788. Obverse: Head of Christian VII.

Reverse: Crowned shield of Denmark, etc. Value: 9 cents.

5. Four Specie Skilling of Christian VIII.



FOUR SPECIE SKILLING OF CHRISTIAN VIII.

Reverse: Crowned shield of Denmark, etc. Weight: 28.642 grains. Fineness: 250. Value: $2\frac{1}{2}$ cents.

6. Two Skilling of 1781. Obverse: Head of Christian VII.

Reverse: Crowned oval shield bearing arms of Denmark.
Value: 2½ cents.



TWO SKILLING OF CHRISTIAN VII.

7. Four Rigs-Bank Skilling of Christian VIII. Obverse:
Head of Christian VIII.



FOUR RIGS-BANK SKILLING OF CHRISTIAN VIII.

Reverse: A Crown; beneath sword and sceptre crossed.
Value: 4 cents.

8. 50 Oere piece of 1875 and since. Obverse: Head of Christian IX. Reverse: "50 OERES." Weight: 77.160 grains. Fineness: 600. Value: \$0.13.350.

9. 40 Oere Piece of 1875, and since. Obverse and Reverse: Same as No. 8, only "40" instead of "50," on Reverse. Weight: 61.728 grains. Fineness: 600. Value: \$0.10.700.

10. 25 Oere Piece of 1875, and since. Obverse and Reverse: Same as No. 8, only "25" instead of "50," on Reverse. Weight reduced to 37.345 grains, instead of 38.580, in exact proportion to the 50 Oere piece. Fineness: 600. Value: \$0.06.500.

11. 10 Oere Piece of 1875, and since. Obverse and Reverse: Same as No. 8, only "10" instead of "50," on Reverse. Weight: 22.376 grains. Fineness, only 400. Value: \$0.02.700. The 50 Oere Piece is taken in exchange for 24 Skillings; the 40 for 20; the 25 for 12; the 10 for 5 Skillings.

COPPER COINS OF DENMARK.

The old copper coins of Denmark, prior to 1875, are all called in, and their value being entirely nominal, we only mention that they formerly passed for 1 Rigs-Bank Skilling, and its parts, the one-fifth and one-sixth. The coins all bear their value upon the Reverse. The 2 Courant Skilling of 1810 still circulates to some extent, and is known by its monogram, "F. R.," interlaced, and upon the Reverse: "2 Skilling Courant." It is current for 4 Rigs-Bank Skillings, valued at about 2½ cents. The new and only legal tender copper coins are the 5, 2 and 1 Oere of 1875, and since.

1. 5 Oere Piece. Obverse: Christian IX. Reverse: Large "5 OERE," in two lines, the letter O has a dart through it; to the left, a fish; to the right, a spray of wheat. Weight: 123.456 grains. Composition, 95 parts copper, 4 parts tin, and 1 part zinc. Value: \$0.01.370.

2. 2 Oere Piece. Obverse and Reverse: Same as No. 1, only "2" instead of "5" on Reverse. Weight: 61.728 grains. Value, about half a cent.

3. 1 Oere, same as No. 1, only "1" instead of "5," on Reverse. Weight: 30.864 grains. Value, one-fourth of a cent.

 DANISH POSSESSIONS.

SILVER COINAGE.

In the Danish West Indies up to 1859 the Skilling was cur-



TWENTY SKILLING OF 1845.

rent, since then the Dollar has been adopted as the integer, and the cent as its fraction.

1. 20 Skilling of 1845. Obverse: Crowned shield, with arms of Denmark.

Reverse: "XX SKILLING DANSK AMERIKANSK MYNT" (20 shillings *Danish-American Money*). Exergue: "1845." Weight: 75.186 grains. Fineness: 625. Value: 13 cents.

2. 12 Skilling of 1767. Obverse: Head of Frederik VI.



TWELVE SKILLING OF 1767.

Reverse: Ship partly under sail; beneath, 1767. Legend: "XII SKILL. DANSKE AMERICANSK M." Weight: 40.120 grains. Fineness: 600. Value: 7 cents.

3. 6 Skilling of 1850. Obverse: Crowned shield, with arms of Denmark.



SIX SKILLING OF 1850.



TWO SKILLING OF 1842.

Reverse: "VI SKILLING DANSK. AMER. MYNT." Weight: 20.055 grains. Fineness: 625. Value: 3 cents.

4. 20 Cent Piece of Frederik VII. Obverse: Head of Frederik VII. Legend: "FREDERIK VII. KONGE AF. DANMARK" (*Frederik VII., King of Denmark*). Exergue: "1859." Reverse: Ship under sail. Legend: "DANSK VEST INDISK MOENT" (*Danish West India Money*). Exergue: "20 CENTS." Weight: 108 grains. Fineness: 700. Value: 20 cents.

5. 10 Cent Piece of Frederik VII. Obverse: Same as No. 4. Reverse: Three sugar canes. Legend: "DANSK VEST INDISK MOENT" (*Danish West India Money*). Exergue: "10

CENTS." Weight: 54 grains. Fineness: 700. Value: 10 cents.

6. 5 Cent Piece. Obverse and Reverse: Same as No. 4, only "5 cents" instead of "20," on Exergue upon Reverse. Weight: 27 grains. Fineness: 700. Value: 5 cents.

7. 3 Cent Piece. Obverse: Head of Frederik VII. Reverse: Large "3," beneath "CENTS." Legend: "DANSK VEST INDISK MOENT" (*Danish West India Money*). Edge, plain. Weight: 17 grains. Fineness: 700. Value: 3 cents.

The 20, 10, 5, and 3 Cent Pieces of Denmark are now coined with the head of Christian IX. upon the Obverse. Legend: "CHRISTIAN IX. KONGE. AF DANMARK" (*Christian IX., King of Denmark*); but are in other respects the same as the coins of like value but earlier date, numbers 4, 5, 6, and 7, as described above

ECUADOR.

The Republic of Ecuador became an independent State in 1831. It derives its name from the fact that its territory lies immediately beneath the equator. In 1833 a Mint was established at Quito, the capital, and coins issued in conformity in their divisions to the Spanish money, the unit being the dollar of eight reals. In 1858 Ecuador adopted the French standard. The coinage of Ecuador is very limited, and often faulty.

GOLD COINS OF ECUADOR.

1. The Doubloon, or Onza de Oro of 8 Eseudos, or 16 Pesos. Obverse: Head of Liberty with "LIBERTAD" inscribed upon a band around it. Legend: "EL PODER EN LA CONSTITUCION" (*The Power in the Constitution*). Exergue: "21 Q^s" (21 *Quilates*; meaning: 20.28 *Carats*, (870) *fine*). Date of the year of issue, and "8 E" (8 *Eseudos* or 16 *Dollars*).

Reverse: Two mountains; upon one is a castle, and upon the other a condor; in the background a volcano; above is the

sun, with the signs of the Zodiac, and seven stars. Legend: "REPUBLICA DEL ECUADOR." Exergue: "QUITO." "M. V." (*Mint-mark and Mint-master's initials*). Weight: 416.673 grains. Fineness: 870. Value: \$15.61.3354.

2. The Doubloon of 1865 and since. Obverse: Head of General Bolivar. Legend: "EL PODER EN LA CONSTITUCION." Exergue: Date of the year of issue. "21 Q." Reverse: Oval shield bearing the arms of Ecuador; above it a condor with outstretched wings; four flags saltiere wise; oak branches to the left of shield, and palm branches to the right. Legend: "REPUBLICA DEL ECUADOR." Exergue: "QUITO" and "G. J." (*Mint-master's initials*). At the left of shield and flags "8," at the right "E" (8 *Escudos*). Weight: 416.673 grains. Fineness: 870. Value: \$15.61.3354.

3. Half Doubloon or Half Onza de Oro of 4 Escudos or 8 Pesos. Obverse: Same as No. 1.

Reverse: Same as No. 1. Weight: 208.336 grains. Fineness: 870. Value: \$7.80.6677.



HALF DOUBLOON OR HALF ONZA.

PISTOLE OF 1835.

4. Quarter Doubloon or Pistole. Obverse: A female bust, the hair confined by a band upon which is inscribed "LIBERTAD." Legend: "EL ECUADOR EN COLUMBIA." Exergue: "QUITO." Reverse: Two mountain peaks, upon each of which is perched a condor; above is the sun. Legend: "EL PODER EN LA CONSTITUCION." Exergue: Date of the year of issue. Weight: 104.168 grains. Fineness: 870. Value: \$3.90.

5. Eighth of a Doubloon. Obverse: Fasces, arrow and

bows, surrounded by horns of plenty, occupying the field. Legend and Exergue, same as No. 4.



EIGHTH OF A DOUBLOON OR HALF PISTOLE.

Reverse: Same as No. 4. This coin has been struck with great irregularity as to size and weight, and its value varies from \$1.78 to \$1.95.

SILVER COINS OF ECUADOR.

1. The Peso or Dollar of 8 Reales of 1831. Obverse: Head of a female with a band around the hair, upon it "LIBERTAD." Legend: "EL PODER EN LA CONSTITUCION." Exergue: "1831." Weight: 416.673 grains. Fineness: 875 and sometimes 900. Value: \$1.04 to \$1.07½. This coin is very scarce and out of general circulation for years. Among collectors of coins it brings a very high premium.

2. The Peso or Dollar of 1846. Obverse: Head of Liberty, with "LIBERTAD" inscribed upon liberty cap. Legend: "EL PODER EN LA CONSTITUCION." Exergue: "1846."



PESO OF EIGHT REALES OF ECUADOR, 1846 TO 1858.

Reverse: Arms and ensigns of Ecuador. Legend: "REPUB-

LICA DEL ECUADOR." Exergue: "QUITO." "G. J." "8 R." Weight: 416.673 grains. Fineness: 900. Value: \$1.07-.3300.

In 1857 a Macuquino Piaster of 4 Reals or 8 Decimos was struck at Quito; it was a compromise between the former coinage of Ecuador and the new 5 Franc Piece of 25 grammes, and was coined to weigh 20 grammes. Its coinage has been very limited.

3. The Macuquino Piaster of 1857. Obverse: Head of Liberty. Legend: "EL PODER EN LA CONSTITUCION." Exergue: the date "1857," and "8 DS" (8 *Decimos*; meaning: 8 *Tenths*). Reverse: The arms and ensigns of Ecuador. Legend: "REPUBLICA DEL ECUADOR." Exergue: "QUITO. G. J.;" at the left of the shield "4" and at the right "R." Weight: 308-.646 grains. Fineness: 900. Value: \$0.78.9975.

In 1858 Ecuador joined the Latin Monetary Union and reduced its Dollar to the standard of the Five Franc Piece of France.

4. The Cinco Francos Piece of 1858 and since. Obverse: Head of Liberty, heavier in face than No. 2. No inscription on band. Legend: "EL PODER EN LA CONSTITUCION." Exergue: "1858. 0.900" (900 fine). Reverse: Arms and ensigns of Ecuador. Legend: "REPUBLICA DEL ECUADOR." Exergue: "QUITO, G. J." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

5, 2 Reals of 1835. Obverse: Head of Liberty. Legend: "REPUBLICA DEL ECUADOR."



TWO REALES OF ECUADOR, 1835.

Reverse: Two mountain peaks, a condor perched on each;

sun above, at the left "2;" right "R." Legend: "EL PODER EN LA CONSTITUCION." Value nominal at 24 to 25 cents.

The remainder of the circulation of silver and copper coins is supplied by the neighboring republics. Mexican coppers are most abundant.

FRANCE.

France is famous for the amount of her specie circulation, especially in silver. There is no country in the world which compares with France in the amount of coinage, and possesses as many Mints. The Mint of Paris is known by the letter A. (During the Commune of 1870, the Mint-mark of Paris was the letter A, between an oak leaf, an anchor, and a trident.) A. A, is the Mint-mark of Metz; A. and M. *interlocked*: Marseilles. A. R: Arras. B: Rouen. Band and acorn: Boulogne. B. B: Strasbourg. C: St. Loo, near Caen. C. C: Besancon. D: Lyons. E: Tours. F: Angers. G: Poitiers. H: La Rochelle. I: Limoges. K: Bordeaux. L. L: Lille. M: Toulouse. N: Montpellier. O: St. Pourcain. P: Dijon. Q: Chalon sur Saone. R: Villeneuve. S: Noyes. T: St. Menhold. X: Villefranche. Y: Bourges. Z: Dauphine. &: Provence. 9: Resmes. 9 9: Nantes.

The coins struck by the French during their occupation of Geneva, in Switzerland, bear the Mint-mark of "G" and a lion. During Napoleon's reign in Italy the coins struck in Milan bear the letter "M" and an inverted cup; those coined in Rome, the letter "R" with a crown and a wolf; and those of Venice, the letter "V" and an anchor. During the occupation of Holland some coins were minted in Utrecht, and they bear the Mint-mark of two fishes.

In France the unit of money is the Franc, equal to $19\frac{3}{10}$ cents United States money. The standard is double, gold and

silver. The weight of pure metal in the gold coins, as compared with that in the silver legal tender coins of the same denomination, is fixed *by law*, at 1 to $15\frac{1}{2}$; making the legal value of the gold coins $15\frac{1}{2}$ times that of silver coins of the same weight and fineness.

When the *market* value of gold relatively to silver is *less* than the *legal* ratio (which has been the case for fourteen years, 1853 to 1866, since the discovery and opening of the gold fields of California and Australia, the market ratio for this period having averaged $15\frac{3}{8}$ to 1), the legal tender *silver* coins of France have a smaller legal value, as against gold coins, than they command in open market; and are, therefore, either hoarded, remelted, or otherwise kept from circulation.

When the *market* value of gold as against silver is greater than $15\frac{1}{2}$ to 1, the *legal* ratio, the gold coinage of France must be driven from general circulation, except at a premium, and silver becomes the prevailing monetary medium. This was the case in France for a series of years just prior to 1849; the value of gold as against silver, in the markets of Europe, for the twenty-nine years from 1820 to 1848, having averaged about $15\frac{1}{8}$ to 1.

The legal tender gold and silver coinages have the same degree of fineness; that is, nine-tenths fine, or 900 parts of pure metal and 100 parts alloy.

In addition to the legal-tender coins of gold and silver, there was established in 1865, by the monetary convention of that year, concluded between France, Belgium, Italy, and Switzerland, a *subsidiary* silver coinage, of less intrinsic value than the legal tender silver coinage of like denomination. In this new or subsidiary coinage the *weight* of the pieces was left the same as that of the corresponding legal tender silver coinage, but the fineness of the metal was much reduced; the new coins containing only 835 parts of pure metal to 165 parts alloy; they are a legal tender in their respective countries of issue for fifty francs (about \$10) in payment of all private dues, and to any amount for public taxes; they are also received for taxes

in sums of 100 francs (about \$20) or less by other countries of the convention.

The silver Five Franc Piece of France is, therefore, the only silver coin which is a legal tender in all amounts.



HOTEL DES MONNAIES; OR THE MINT OF PARIS.

This magnificent edifice, 360 feet long on the principal facade, and 80 feet in height, presenting three stories, having 25 openings for windows and doors, was constructed from plans fur-

nished by Jacques Denis Antoine, and is perhaps the finest ornament of the left bank of the Seine. The establishment consists of eight district courts, surrounded by buildings devoted to coinage, or the administration of the public service in connection with the operations of the Mint.

The first stone of this great structure was laid May 30th, 1771, by the Abbe Terray, Comptroller General of the Finances to Louis XV. The old Mint was situated in a street called "*De La Monnaie*," opposite the Pont Neuf.

GOLD COINS OF FRANCE.

1. The Double Louis D'or, of 1786 to 1792, of Louis XVI. Obverse: Head of Louis XVI. Legend: "LUD. XVI. D. G. FR. ET NAV. REX," that is, LUDOVICUS XVI. DEI GRATIA FRANCIA ET NAVARRA REX; meaning: Louis XVI., by the Grace of God, King of France and Navarre.



DOUBLE LOUIS D'OR OF LOUIS XVI., 1786 TO 1792.

Reverse: The arms of France of the Bourbon family and Navarre, with a crown over them. Legend: "CHRIS. REGN. VINC. IMPER. 1786" (*Christus regnat, vincit, imperat*; meaning: *Christ reigns, conquers, governs*). Under the arms is a letter, the mark of the Mint where the piece was coined. Weight: 235 grains. Fineness: 901. Value: \$9.11.900.

2. Double Louis D'or of 1792, of Louis XVI. Obverse: Same as No. 1.

Reverse: Two sceptres, saltiere wise, a crowned lily of France in each angle; in the middle the Mint-mark, "M," of

Toulouse. Legend: Same as No. 1. Weight: 235 grains.
Fineness: 901. Value: \$9.11.900.



DOUBLE LOUIS D'OR OF LOUIS XVI., 1792.

3. Louis D'or of 1726 to 1773 of Louis XV. Obverse:
Head of Louis XV. Legend: Same as No. 1.



LOUIS D'OR OF LOUIS XV.

Reverse: Same as No. 1, except that the shields are oval and distinctly separated. Weight: 124 grains. Fineness: 897.
Value: \$4.79 cents.

4. Louis D'or of Louis XVI., of 1786 to 1790. Obverse:
Same as No. 1.



LOUIS D'OR OF LOUIS XVI., FROM 1786 TO 1790.

Reverse: Same as No. 3, except a double united shield instead of the oval, similar to No. 1. Weight: 116.500 grains.
Fineness: 900. Value: \$4.51.600.

The Louis D'ors of Louis XVI.; struck in the year 1792; have on the obverse the Head of Louis XVI., with the Legend: "LOUIS XVI., ROI DES FRANÇOIS" (*Louis XVI., King of the French*). Reverse: The genius of France, writing the Constitution, on a tablet, resting on a pillar, with a cock on one side, and on the other the fasces and cap of liberty. Legend: "REGNE DE LA LOI" (*Reign of the Law*); and at the bottom, "L'AN 4 DE LA LIBERTE" (*The year 4 of liberty*). Value: \$1.51.600.

The Louis D'or of 1793 has on the Obverse: A crown of oak leaves containing the words: "24 LIVRES." Legend: "REPUBLIQUE FRANÇOISE L'AN II." (*French Republic, second year*). Reverse: "REGNE DE LA LOI" (*Reign of the law*). Value: \$4.51.600.

5. 100 Franc Piece of Napoleon III. Obverse: Head of Napoleon III. Legend: "NAPOLEON III EMPEREUR" (*Napoleon III., Emperor*). Reverse: Two sceptres, saltire wise through a square shield, bearing an eagle, and surrounded by an order chain; the drapery suspended from a crown, and forming a canopy behind the shield and sceptres; to the left of it "100," to the right "FR." Legend: "EMPIRE FRANÇAIS." Exergue: Date of the year of issue. Weight: 497.816 grains. Fineness: 900. Value: \$19.30.

6. 100 Franc Piece of the Republic. Obverse: Head of Liberty. Legend: "REPUBLIQUE FRANÇAISE." At the left of head of Liberty: fasces; at the right: an olive branch.

Reverse: Laurel and oak wreath surrounding: "100 FRANCS," in two lines. Legend: "LIBERTÉ. EGALITÉ. FRATERNITÉ." Exergue: Date of the year of issue. Weight: 497.816 grains. Fineness: 900. Value: \$19.30.

7. 50 Franc Piece of Napoleon III. Obverse: Same as No. 5. Reverse: Same as No. 5, with the exception of "50 FRANCS" being substituted for 100 Francs. Weight: 248.908 grains. Fineness: 900. Value: \$9.65.

8. 50 Franc Piece of the Republic. Obverse: Same as No. 6. Reverse: Same as No. 6, with the exception of "50

FRANCS" being substituted for 100 Francs. Weight: 248.908 grains. Fineness: 900. Value: \$9.65.

9. 40 Franc Piece of the Republic. Obverse: Head of Napoleon I. Legend: "BONAPARTE PREMIER CONSUL" (*Bonaparte first Consul*).



40 FRANC PIECE OF THE REPUBLIC.

Reverse: "40 FRANCS" in two lines, surrounded by two laurel branches. Legend: "REPUBLIQUE FRANÇAISE." Exergue: "L'AN 13" (*13th year of the Republic*). Weight: 199.1235 grains. Fineness: 900. Value: \$7.72.

10. 40 Franc Piece of Napoleon I. Obverse: Laureated head of Napoleon I. Legend: "NAPOLEON EMPEREUR." Reverse: "40 FRANCS," in two lines, surrounded by two laurel branches. Legend: "EMPIRE FRANÇAIS" (*French Empire*). Weight: 199.1235 grains. Fineness: 900. Value: \$7.72.

11. 40 Franc Piece of Charles X. Obverse: Head of Charles X. Legend: "CHARLES X ROISPE FRANCE" (*Charles X., King of France*). Reverse: Crowned square shield with three Bourbon lilies, surrounded by two laurel branches. Exergue: "1830." Weight: 199.1235 grains. Fineness: 900. Value: \$7.72.

12. 20 Franc Piece of the Republic. Obverse: The genius of France, writing upon a tablet, the word: "CONSTITUTION;" to the left of him: fasces; to the right: a cock. Legend: "REPUBLIQUE FRANÇAISE."

Reverse: "20 FRANCS," in two lines, surrounded by oak and

laurel branches. Legend: "LIBERTÉ EGALITÉ FRATERNITÉ."
Weight: 99.561 grains. Fineness: 900. Value: \$3.86.



20 FRANC PIECE OF THE REPUBLIC.

13. 20 Franc Piece of Napoleon I. Obverse: Head of Napoleon I. Legend: "NAPOLEON EMPEREUR."



20 FRANC PIECE OF NAPOLEON I.

Reverse: "20 FRANCS," in two lines. Legend: "EMPIRE FRANÇAIS." Exergue: "1812." Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

14. 20 Franc Piece of Louis XVIII. Obverse: Head of Louis XVIII. Legend: "LOUIS XVIII. ROI DE FRANCE."



20 FRANC PIECE OF LOUIS XVIII., 1814 TO 1824.

Reverse: Shield bearing the arms of Anjou (three lilies), surmounted by a crown, and inclosed between two branches of laurel, crossed. Legend: "PIECE DE 20 FRANCS" (20 Francs piece). Exergue: Date of the year of issue. On the outer

edge to prevent mutilation the following Legend: "DOMINE SALVUM FAC REGEM" (*O Lord save the King*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

15. 20 Franc Piece of Charles X. Obverse: Bust of Charles X. Legend: "CHARLES X ROI DE FRANCE" (*Charles X. King of France*).



20 FRANC PIECE OF CHARLES X., 1824 TO 1830.

Reverse: Crowned shield bearing the arms of Anjou. No Legend. Exergue: Date of the year of issue. Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

16. 20 Franc Piece of Louis Philippe. Obverse: Head of Louis Philippe facing to the left. Legend: "LOUIS PHILIPPE ROI DES FRANÇAIS" (*Louis Philippe, King of the French*).



20 FRANC PIECE OF LOUIS PHILIPPE FROM 1831 TO 1848.

Reverse: "20 FRANCS;" immediately beneath, the date of the year of issue, inclosed in a wreath composed of two branches of laurel crossed. On the outer edge: "DIEU PROTEGE LA FRANCE" (*God protects France*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

17. 20 Franc Piece of the Republic. Obverse: Head of Ceres facing to the right; at the left of the head: fasces; at the right: an olive branch. Legend: "REPUBLIQUE FRANÇAISE." The coins minted during the Republic of 1848-1852

are distinguishable from those of 1830-1831, that above the head of Ceres and between the words "REPUBLIQUE FRANÇAISE," in the former, there is a prominent star.



20 FRANC PIECE OF THE REPUBLIC FROM 1848 TO 1852.

Reverse: "20 FRANCS:" immediately beneath the date of year of issue, the whole in three distinct lines, surrounded by a heavy laurel wreath. Legend: "LIBERTÉ ÉGALITÉ FRATERNITÉ." On the outer edge: "DIEU PROTEGE LA FRANCE" (*God protects France*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

18. 20 Franc Piece of February 24th and 25th, 1848. Obverse: The genius of France writing upon a tablet which bears the inscription: "24, 25 Fev. 1848" (24 and 25 *Fevrier*, 1848). Fasces and a cock at either side of device. Legend: "REPUBLIQUE FRANÇAISE." Reverse: "20 FRANCS 1848," inclosed in a wreath of oak leaves. Legend: "LIBERTÉ ÉGALITÉ FRATERNITÉ." On the outer edge: "DIEU PROTEGE LA FRANCE" (*God protects France*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.



20 FRANC PIECE OF NAPOLEON III. FROM 1852 TO 1856.

19. 20 Franc Piece of the second empire. Obverse: Head of Napoleon III. Legend: "NAPOLEON III EMPEREUR."

Reverse: "20 FRANCS," and the date of the year of issue, in three distinct lines, surrounded by laurel branches, crossed. Legend: "EMPIRE FRANÇAIS." Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

20. 20 Franc Piece of Napoleon III., from 1857 to 1870. Obverse: Laureated head of Napoleon III. Legend: "NAPOLEON III EMPEREUR." Reverse: Two sceptres, saltier wise, through a square shield, bearing the French eagle perched, and surrounded by a chain of the grand order of the "*Legion D'honneur*" (*Legion of Honor*), the drapery suspended from a crown and forming a canopy, behind the shield, a sceptre. "20 FRANCS" at either side of shield. Exergue: "Date of the year of issue." Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

21. 20 Franc Piece of the Republic, from 1870 to the present day. Obverse: Head of Ceres, Ffasces to left of it, and olive branch to the right of it. Legend: "REPUBLIQUE FRANÇAISE." Reverse: "20 FRANCS," surrounded by oak and laurel branches, crossed and tied. Legend: "EGALITÉ LIBERTÉ FRATERNITÉ." Exergue: "Date of the year of issue." Weight: 99.516 grains. Fineness: 900. Value: \$3.86.

The 10 Franc Pieces of Louis XVI., 1774 to 1789, of the first Republic of 1789 to 1800; of Napoleon as Consul up to 1804; as Emperor from 1804 to 1814; of Louis XVIII., from 1814 to 1824; of Charles X., from 1824 to 1830; of the second Revolution, 1830; of Louis Philippe, from 1830 to 1848; of the third Revolution and Republic of 1848 to



10 FRANC PIECES OF THE REPUBLIC AND NAPOLEON III.

1852; of Napoleon III. as Emperor, 1853 to 1870, and of the present Republic, are similar in devices and Legends on

Obverse and Reverse, to the 20 Franc Pieces of their respective periods, with the exception that the figure 10 is substituted for "20."

The weight of the 10 Franc Pieces of France, is 49.769 grains. Fineness: 900. Value: \$1.93. The 5 Franc Pieces of France of the different periods already mentioned in the preceding paragraphs, correspond with the devices and Legends on the Obverse and Reverse of the 20 and 10 Franc Pieces, with the exception of the figure "5" being substituted for the "20" and "10."



5 FRANC PIECE OF NAPOLEON III.

The weight of the Five Franc Piece of France, of the different periods, is 24.876 grains. Fineness: 900. Value: \$0.96½.

During the Revolution and anarchy of 1790 to 1793, a Six Franc Piece was struck of gold, of 885 to 902 fine, weighing 29.750 to 29.8495 grains. Obverse: A Senator in his long robe, and a citizen in his *sans-cullottes* dress, holding a platform on which stands the goddess of reason and liberty. Legend: "DU SENAT ET DU PEUPLE" (*Of the Senate and of the People*).



SIX FRANC PIECE OF THE FIRST REVOLUTION.

Reverse: "SIX FRANCS," surrounded by a heavy oak and laurel wreath, intertwined. Weight: from 29.750 to 29.8495 grains. Fineness: 885 to 900. Value varying from \$1.08 to \$1.15½.

SILVER COINS OF FRANCE.

1. Crown or Ecu of Six Livres or Francs of Louis XVI.
 Obverse: Bust of Louis XIV. Legend: "LVD XIII. D. G. FR.
 ET. NA. RE." (*Ludovicus XIII. Dei Gratiae Franciae et
 Navarrae Rex*) (*Louis XIV.*, by the grace of God, of France
 and Navarre King). Exergue: "1690."



CROWN OR ECU OF LOUIS XIV.

Reverse: Eight L's, so placed as to form a cross *potent*, each two L's surmounted by a crown; the lily of Anjou in each angle of the cross; in the centre of the cross a cow (*The Mint-mark of Bearn, abolished since 1789*). Legend: "CHRIS REGN VINC IMP" (*Christus regnat, vincit, imperat*; meaning: *Christ reigns,*



CROWN OR ECU OF LOUIS XIV.

conquers, governs). Weight: 452.545 grains. Fineness: 902.
 Value: \$1.10.800.

2. Crown or Ecu of Louis XIV. Obverse; Bust of Louis XIV. Legend: Same as No. 1. No Exergue.

Reverse: Three crowns placed in a triangle, the lily of Anjou between each crown. In the centre of the crowns, the letter "H," the Mint-mark of Rochelle. Legend: "SIT NOMEN DOMINI BENEDICTUM" (*Blessed be the name of the Lord*). Around the edge: "DOMINE SALVUM FAC REGEM" (*O Lord, save the King*). Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.



CROWN OR ECU OF LOUIS XV.

3. Crown or Ecu of Louis XV. Obverse: Youthful bust of Louis XV. Legend: "LUD. XV. D. G. FR. ET. NAV. REX."

Reverse: Cross potent, with crowns and the lilies of Anjou



CROWN OR ECU OF LOUIS XV. OF 1765.

in the angles. Legend: "SIT NOMEN DOMINI BENEDICTUM" (*Blessed be the name of the Lord*). Around the edge: "DO-

MINE SALVUM FAC REGEM" (*O Lord, save the King*).
Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.

4. Crown or Ecu of Louis XV. Obverse: Head of Louis XV., full face. Legend: Same as No. 3.

Reverse: Oval shield bearing the arms of Anjou, surmounted by a crown, surrounded by laurel branches, crossed and tied. Legend: "SIT NOMEN DOMINE BENEDICTUM. 1765." Exergue: Letter K, the Mint-mark of Bordeaux. Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.



CROWN OR ECU OF LOUIS XVI.

5. Crown or Ecu of Louis XVI. Obverse: Head of Louis XVI. Legend: "LOUIS XVI ROI DES FRANÇOIS" (*Louis XVI, King of the French*). Exergue: "1790."



CROWN OR ECU OF LOUIS XVI.

Reverse: Same as No. 4. Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.

6. Crown or Ecu of Louis XVI. Obverse: Same as No. 5. Reverse: Same as No. 5. Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.

7. Crown or Ecu of the First Republic. Obverse: The genius of France, writing upon a tablet, upon which is already inscribed the word "CONSTITUTION;" at right of it, a cock; at the left, fasces and a star. Legend: "REGNE DE LA LOI" (*Reign of the Law*). Exergue: "L'AN 5 DE LA LIBERTE" (*Fifth year of Liberty*).



CROWN OR ECU OF THE FIRST REPUBLIC, 1793.

Reverse: "SIX LIVRES." "A" (*Six Livres or Francs, and the letter "A," the Mint-mark of Paris*). Surrounded by a heavy oak wreath. Legend: "REPUBLIQUE FRANÇOISE." Exergue: "L'AN II" (*Year second of the Republic*). Weight: 452.545 grains. Fineness: 902. Value: \$1.10.800.



FIVE FRANC PIECE OF THE REPUBLIC.

8. Five Franc Piece of the First Republic. Obverse:

Heracles joining the hands of Liberty and Equality. Legend: "UNION ET FORCE" (*Union and Force*), (*In union there is strength*).

Reverse: "5 FRANCS." "L'AN 6" (*Year six of the Republic*). Surrounded by oak and laurel branches, crossed and tied. Legend: "REPUBLIQUE FRANÇAISE." Exergue: Letter "A," mint-mark of Paris. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½. The edge of this piece bears the Legend: "NATIONALE GARANTIE" (*National Guarantee*).

9. 5 Franc Piece of Napoleon I., as Consul. Obverse: Head of Napoleon I. Legend: "BONAPARTE PREMIER CONSUL" (*Bonaparte first Consul*).

Reverse: "5 FRANCS," surrounded by laurel branches, crossed and tied. Legend: "REPUBLIQUE FRANÇAISE." Exergue: "L'AN XI" (*Year Eleven of the Republic*). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

10. 5 Franc Piece of Napoleon I., as Emperor. Obverse: Head of Napoleon I. Legend: "NAPOLEON EMPEREUR."



FIVE FRANC PIECE OF NAPOLEON I.

Reverse: "5 FRANCS," surrounded by laurel branches, crossed and tied. Legend: "EMPIRE FRANÇAIS" (*French Empire*). Exergue: "1812." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

11. 5 Franc Piece of Louis XVIII. Obverse: Bust of

Louis XVIII. Legend: "LOUIS XVIII ROI DE FRANCE"
(*Louis XVIII., King of France*).



FIVE FRANC PIECE OF LOUIS XVIII.

Reverse: Crowned shield, bearing the arms of Anjou, surrounded by laurel branches, crossed and tied. Legend: "PIECE DE 5 FRANCS" (*Piece of five francs*). Exergue: 1814. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

12. 5 Franc Piece of Charles X. Obverse: Head of Charles X. Legend: "CHARLES X ROI DE FRANCE."



5 FRANC PIECE OF CHARLES X.

Reverse: Crowned shield, bearing the arms of Anjou, surrounded by two laurel branches, crossed and tied. Exergue: "1830." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

13. 5 Frank Piece of Louis Philippe. Obverse: Head of

Louis Philippe facing to the right. Legend: "LOUIS PHILIPPE ROI DES FRANÇAIS."

Reverse: "5 FRANCS 1843," surrounded by laurel branches, crossed and tied. No Legend. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.



5 FRANC PIECE OF LOUIS PHILIPPE I.

14. 5 Franc Piece of the Republic, 1848 to 1852. Obverse: Hercules joining the hands of Liberty and Equality. Legend: "LIBERTÉ EGALITÉ FRATERNITÉ." Reverse: "5 FRANCS," and date of issue, surrounded by oak and laurel branches, crossed and tied. Legend: "REPUBLIQUE FRANÇAISE." Ex-



5 FRANC PIECE OF THE REPUBLIC, 1848.

ergue: Letter "A," Mint-mark of Paris. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½. The Legend: "DIEU PROTEGE LA FRANCE," with three stars, appears raised on the edge, a guard against mutilation. The piece resembles

in part the Five Franc Piece of the First Republic. See No. 8, 1793.

15. 5 Franc Piece of the Republic. Obverse: Head of Ceres facing to the left. Legend: "REPUBLIQUE FRANÇAISE."

Reverse: "5 FRANCS 1848," surrounded by a heavy oak and laurel wreath. Legend: "REPUBLIQUE FRANÇAISE." Exergue: "A." Mint-mark of Paris. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

16. 5 Franc Piece of Louis Napoleon Bonaparte, as President of the Republic, 1849. Obverse: Head of Louis Napoleon. Legend: "LOUIS NAPOLEON BONAPARTE."



5 FRANC PIECE OF LOUIS NAPOLEON BONAPARTE, 1849.

Reverse: "5 FRANCS 1849," surrounded by oak and laurel branches, crossed and tied. Legend: "LIBERTÉ ÉGALITÉ FRATERNITÉ." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

17. In 1850, there were struck at the Mint in Paris 5 Franc Pieces of the Republic, under Louis Napoleon Bonaparte, as President. Obverse: Same as illustration No. 15. Reverse: Same as No. 16, except change of the date to 1850. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

In 1851 there were struck at the mint in Paris 5 Franc Pieces similar in appearance to No. 15. A slight change was made in the die representing the head of Napoleon III. One of the pattern pieces was brought to the palace for approval, but Louis Napoleon, having his attention directed to some other

affairs of state, forgot all about the new pattern for a few days. When he came to examine it, he noticed a lock of hair curled forward near the temple, which much displeased him, and he gave orders to have the die altered. The Director of the Paris Mint, taking his silence for consent, had commenced the issue, and of the 26,000 pieces coined, twenty-three Five Franc Pieces could not be withdrawn from circulation. These coins are called the "Piece de Cinq Francs a la meche (*Piece of five Francs with the curled lock of hair*), and are highly prized by the numismatists of Europe, often bringing 300 to 400 Francs (60 to 80 Dollars) apiece.

In 1852 only a few Five Franc Pieces were issued; they are similar to the pieces of 1851, with Louis Napoleon as President of the French Republic. The pieces of 1850, 1851 and 1852 are distinguishable from the other coinages of the French Republic, by having on the Obverse four branches of laurel and oak intertwined, instead of two. The ends are crossed and tied with a ribbon in a bow, and all four are plainly visible.



5 FRANC PIECE OF NAPOLEON III.

18. 5 Franc Piece of Napoleon III. as Emperor. Obverse: Head of Napoleon III. Legend: "NAPOLEON III. EMPEREUR."

Reverse: Two sceptres, saltiere wise, through a circular shield, bearing the French eagle, perched on fasces, and surrounded by the chain of the order *Legion d'Honneur*, from which is suspended the grand cross of the Legion of Honor; the drapery

suspended from a crown above, forming a canopy behind the shield and sceptres; at the left "5," at the right "F" (5 *Francs*). Exergue: Date of the year of issue. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

19. 5 Franc Piece of the Republic of 1870. Obverse: Large head of Ceres. Legend: "REPUBLIQUE FRANÇAISE." Reverse: "5 FRANCS, 1870," surrounded by oak and laurel branches, crossed and tied. Legend: "REPUBLIQUE FRANÇAISE." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

20. 5 Franc Piece of the Republic from 1871 and since. Obverse: Hercules joining the hands of Liberty and Equality. Legend: "LIBERTÉ EGALITÉ FRATERNITÉ."



5 FRANC PIECE OF THE REPUBLIC OF 1871 AND SINCE.

Reverse: "5 Francs," and the date of the year of issue. Legend: "REPUBLIQUE FRANÇAISE." Exergue: The Mint-mark. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

On the edge the device bears the Legend: "DIEU PROTEGE LA FRANCE" (*God protects France*), a guard against mutilation of the coin.

21. Two Franc Piece of the first Republic. Obverse: Large head of Ceres. Legend: "REPUBLIQUE FRANÇAISE."

Reverse: "2 FRANCS," surrounded by a laurel wreath. Legend: "LIBERTÉ EGALITÉ FRATERNITÉ." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

22. Two Franc Piece of Napoleon I., as Emperor, on the Obverse, while the Reverse bears the Legend: "REPUBLIQUE



TWO FRANC PIECE OF THE FIRST REPUBLIC.

FRANÇAISE." Obverse: Head of Napoleon I. Legend: "NAPOLEON EMPEREUR." Reverse: "2 FRANCS," surrounded by laurel branches crossed and tied. Legend: "REPUBLIQUE FRANÇAISE." Exergue: Date of the year of issue from 1803 to 1808. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

23. Two Franc Piece of Louis XVIII. Obverse and Reverse same as the Five Franc Piece of that period, see No. 11, with the exception that upon the Reverse "2 Francs" is substituted for 5 Francs. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

24. Two Franc Piece of Charles X. Obverse: Same as No. 12.



TWO FRANC PIECE OF CHARLES X.

Reverse: Crowned shield bearing the arms of Anjou; at the left "2," at the right "F," surrounded by laurel branches crossed and tied. Exergue: Date of the year of issue from 1824 to 1830. Weight: 154.323 grains. Fineness: 900. Value: \$0.38

25. Two Franc Pieces of Louis Philippe, of 1828, 1834 and of 1840. Obverse: Same as No. 13.



TWO FRANC PIECES OF LOUIS PHILIPPE.

Reverse: "2 FRANCS," and the date of the different years of issue. The Two Franc Pieces of 1834 are distinguishable from those of 1840, by the heavy oak wreath. No Legend or Exergue on either. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

26. Two Franc Piece of the Republic of 1848 to 1852. Obverse: Same as No. 14. Reverse: Same as No. 14, with the exception of "2 FRANCS" being substituted for 5 Francs. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

27. Two Franc Piece of Napoleon III., from 1853 to 1865. Obverse: Same as No. 16. Reverse: Same as No. 16, with the exception of "2 FRANCS" being substituted for 5 Francs. Weight: 154.323 grains. Fineness: 900. Value: \$0.38.6.

28. Two Franc Piece of Napoleon III., from 1866 to 1870. Reverse: Same as No. 25. Weight: 154.323 grains. Fineness: 835. Value: \$0.36.5.

29. Two Franc Piece of the Republic from 1870 to present

day. Obverse: Large head of Ceres, a star above it. Legend: "REPUBLIQUE FRANÇAISE."



TWO FRANC PIECE OF THE REPUBLIC SINCE 1870.

Reverse: "2 FRANCS" and the date of the year of issue, surrounded by laurel and oak branches. Legend: "LIBERTÉ, ÉGALITÉ, FRATERNITÉ." Weight: 154.323 grains. Fineness: 835. Value: \$0.36.500.

30. One Franc Pieces from 1808 to 1865.



REVERSE OF ONE FRANC PIECES OF 1808, 1828 AND 1844.

The Obverse and Reverse of the One Franc Pieces from 1808 to 1865 are similar to the Two Franc Pieces of the same period, with the exception that on the reverse of each piece "1 FRANC" is substituted for 2 Francs. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.3.

31. One Franc Piece of Napoleon III., from 1865 to 1870. Obverse: Head of Napoleon III. Legend: "NAPOLEON III EMPEREUR." Reverse: "1 Franc" and the date of the year of issue, surrounded by laurel branches, crossed and tied. Legend: "EMPIRE FRANÇAIS." Weight: 77.161 grains. Fineness: 835. Value: \$0.18.250

32. One Franc Piece of the Republic of 1870 and since. Obverse: Large head of Ceres; a star above it. Legend: "REPUBLIQUE FRANÇAISE."



ONE FRANC PIECE OF THE REPUBLIC OF 1870 AND SINCE.

Reverse: "1 FRANC," and the date of the year of issue; surrounded by oak and laurel branches, crossed and tied. Legend: "LIBERTÉ, ÉGALITÉ, FRATERNITÉ." Weight: 77.161 grains. Fineness: 835. Value: \$0.18.250.

33. Demi-Franc (*Half Franc*), or 50 Centimes of 1808 to 1865.



HALF FRANC FROM 1808 TO 1865.

Obverse and Reverse same as the One Franc Pieces of their respective periods, with the exception that the reverse bears the inscriptions: "DEMI FRANC," $\frac{1}{2}$ F. " $\frac{1}{2}$ FRANC," and "50 CENT." instead of "1 FRANC." Weight: 38.580 grains. Fineness: 900. Value: \$0.09.650.

34. The Half Franc Pieces of 1866 to the present day bear the devices and legends of the One Franc Pieces of their respective periods, with the exception that "50 CENT." takes the places of "1 FRANC." Weight: 38.580. Fineness: 835. Value: 9 cents.

35. 25 Centimes or $\frac{1}{4}$ Franc Piece of 1808 to 1865.

The Obverse and Reverse are the same as the Half Franc or

50 Centimes of their respective periods, with the exception that their denomination takes the place of the Half Franc or 50 Centimes. Weight: 19.29 grains. Fineness: 900. Value: \$0.04.822.



25 CENTIMES OR $\frac{1}{4}$ FRANC PIECES.

36. 25 Centimes or $\frac{1}{4}$ Franc Pieces of 1866 to the present day are similar to the Half Franc Pieces of that period. Weight: 19.29 grains. Fineness: 835. Value: \$0.04.500.

37. Twenty Centimes of the Republic of 1848 to 1852. Obverse: Head of Ceres; a star above it. Legend: "REPUBLIQUE FRANÇAISE." Reverse: "20 CENT." and the date of the year of issue; surrounded by heavy oak and laurel branches, crossed and tied. Legend: "LIBERTÉ EGALITÉ FRATERNITÉ." Weight: 15.432 grains. Fineness: 900. Value: \$0.03.86.

38. Twenty Centimes of Napoleon III. Head of Napoleon III. Legend: "NAPOLEON III. EMPEREUR." Reverse: "20 CENT." and the date of the year of issue; surrounded by laurel branches, crossed and tied. Legend: "EMPIRE FRANÇAIS." Weight: 15.432 grains. Fineness up to 1866: 900. Value: \$0.03.86. Since 1866 they are only 835 fine. Value: 3 cents.

SILVER COINS OF FRANCE FROM 1643 TO 1799.

The following coins have, by order of the different Governments of France, been almost withdrawn from circulation. Since 1831 they have not been a legal tender, and their commercial value is that of the pure silver they contain. To the numismatists they are of great value, owing to their scarcity.

1. Petit Ecu or Half Crowns of Louis XIV. and Louis XV.



HALF CROWN LOUIS XIV.



HALF CROWN LOUIS XV.

Nominal value: 3 Francs or \$0.58.400.

2. 30 Sous or 1 Franc 50 Centimes of Louis XV.



30 SOUS OF LOUIS XV.

Nominal value: 1 Franc 50 Centimes or \$0.29.200.

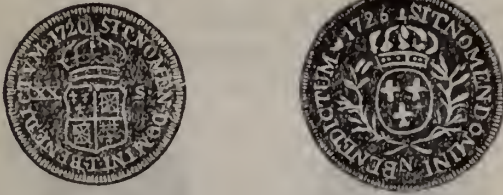
3. 30 Sous or 1 Franc 50 Centimes of the Reign of Terror and the first Republic.



30 SOUS OF THE REPUBLIC.

Nominal value: 1 Franc 50 Centimes or \$0.29.200.

4. 20 Sous or 1 Franc of 1720 and 1726.



TWENTY SOUS OF 1720 AND 1726.

Nominal value: A trifle more than 1 Franc, or about 20 cents United States money.

5. 15 Sous of 75 Centimes of 1643 to 1793.



15 SOUS FROM 1643 TO 1793.

Nominal value: 75 Centimes or about 15 cents United States money.

6. Half Franc Piece of different dates from 1643 to 1774.



HALF FRANC PIECES OF 1643 TO 1774.

These coins passed in some localities in the north of France

for 10 Sous, half a Franc or 50 Centimes, while in the Southern Departments, they were current for 12 Sous or 60 Centimes. Intrinsic value: From $8\frac{1}{2}$ to $9\frac{3}{4}$ cents.

7. Isles du Vent Piece of 50 Centimes, coined in 1731 to 1758 for the French West Indies.



HALF FRANC PIECE OF ISLES DU VENT.

The Isles du Vent Pieces were struck in Paris from 900 to 750 fine, and have no commercial value. Specimens assayed have shown them to be mere billon money.

COPPER COINS OF FRANCE.

Un Decime of the first Republic. Obverse: Head of Liberty, facing to the left. Legend: "REPUBLIQUE FRANÇOISE." Reverse: "UN DECIME," in two lines; beneath: "L'AN 8." Value: About $1\frac{7}{8}$ cents.

2. Un Decime of Napoleon I. Obverse: A large "N," crowned and surrounded by a heavy oak wreath. Reverse: "UN DECIME." "1814." in three lines; beneath, the Mint-mark; the whole surrounded by an oak wreath. Value: About $1\frac{7}{8}$ cents. The above copper coins are no longer a legal tender, and their value, therefore, that of old copper, or whatever the fancy of the numismatists may dictate.

BRONZE COINS OF FRANCE.

1. Dix Centimes of Napoleon III. Obverse: Laureated head of Napoleon III., surrounded by a circle of dots. Legend: "NAPOLEON III EMPEREUR." Exergue: Date of the year of issue. Reverse: the Eagle of France, surrounded by a circle of dots. Legend: "EMPIRE FRANÇAIS." Exergue:

"DIX CENTIMES" (10 *Centimes*). Weight: 154.320 grains. Value: \$0.01.93.

2. Cinq Centimes of Napoleon III. Obverse: Same as No. 1.



5 CENTIMES OF NAPOLEON III.

Reverse: Same as No. 1, with the exception that upon the Exergue "CINQ CENTIMES" (*Five Centimes*), takes the place of Dix Centimes. Weight: 77.160 grains. Value: \$0.00.965.

3. Deux Centimes of Napoleon III. Obverse: Same as No. 1. Reverse: Same as No. 1, with the exception of "DEUX CENTIMES" (*Two Centimes*) upon the Exergue. Weight: 30.864 grains. Value: \$0.00.386.

4. Un Centime of Napoleon III. Obverse: Same as No. 1. Reverse: Same as No. 1, with the exception of "UN CENTIME" (*One Centime*) upon the Exergue. Weight: 15.432 grains. Value: \$0.00.193.

5. Dix Centimes of the Republic of 1870 to the present day. Obverse: Head of Liberty, encircled by dots. Legend: "REPUBLIQUE FRANÇAISE." Exergue: Date of the year of issue. Reverse: "10 CENTIMES," surrounded by laurel branches crossed and tied. Legend all round the coin: "LIBERTÉ EGALITÉ FRATERNITÉ." Weight: 154.320 grains. Value: \$0.01.93.

6. Cinq Centimes of the Republic. Obverse: Same as No. 5. Reverse: "5 CENTIMES," rest same as No. 5. Weight: 77.160 grains. Value: \$0.00.965.

7. Deux Centimes of the Republic. Obverse: Same as No. 5. Reverse: "2 CENTIMES," rest same as No. 5. Weight: 30.864 grains. Value: \$0.00.386.

8. Un Centime of the Republic. Obverse: Same as No. 5.

Reverse: "1 CENTIME," rest same as No. 5. Weight: 15.432 grains. Value: \$0.00.193.

GERMAN EMPIRE.

Since the formation of the second German Empire, April, 1871, there is now a uniform coinage throughout Germany, which consists of the Mark of 100 Pfennige.

The coins of the German Empire include the 20, 10 and 5 Mark gold pieces; the 5, 2 and 1 Mark silver pieces; also the 50 and 20 Pfennige in silver; the 10 and 5 Pfennige in nickel, and 2 and 1 Pfennige in bronze. Gold is the legal standard of the present German Empire.

GOLD COINS OF THE GERMAN EMPIRE.

1. Double Krone of 20 Marks Piece. Obverse: Head of Wilhelm, Emperor of Germany. Legend: "WILHELM DEUTSCHER KAISER KÖNIG V. PREUSSEN" (*Wilhelm, German Emperor, King of Prussia*).



DOUBLE KRONE OF 20 MARKS OF THE GERMAN EMPIRE.

Reverse: The German imperial eagle; at the left "20," at the right "M." (20 Marks). Legend: "DEUTSCHES REICH" (*German Empire*). Exergue: Date of the year of issue. Weight: 122.880 grains. Fineness: 900. Value: \$4.76.

2. Krone or 10 Mark Piece. Obverse: Same as No. 1.



KRONE OF 10 MARKS OF THE GERMAN EMPIRE.

Reverse: Same as No. 1, with the exception that "10 M." is substituted for "20 M." Weight: 61.440 grains. Fineness: 900. Value: \$2.38.

3. Half Krone or 5 Mark Piece. Obverse: Same as No. 1. Reverse: Same as No. 1, only "5 M." is substituted for "20 M." Weight: 30.720 grains. Fineness: 900. Value: \$1.19.

SILVER COINS OF GERMANY.

1. 5 Mark Piece. Obverse: Head of Wilhelm, Emperor of Germany. Legend: "WILHELM DEUTSCHER KAISER KÖNIG V. PREUSSEN" (*Wilhelm, German Emperor, King of Prussia*).



FIVE MARKS OF THE GERMAN EMPIRE.

Reverse: The German imperial eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK" (*Five Marks*). Weight: 476 grains. Fineness: 900. Value: \$1.19.

2. 2 Mark Piece. Obverse: The German imperial eagle.

Reverse: "2 MARK," surrounded by laurel branches crossed and tied. Legend: "DEUTSCHES REICH" (*German Empire*). Exergue: Date of the year of issue. Weight: 190.400 grains. Fineness: 900. Value: \$0.57.600.

3. 1 Mark Piece. Obverse: The German imperial eagle.



ONE MARK OF THE GERMAN EMPIRE.

Reverse: "1 MARK," surrounded by laurel branches crossed and tied. Legend: "DEUTSCHES REICH." Exergue: Date of the year of issue. Weight: 95.200 grains. Fineness: 900. Value: \$0.23.800.

4. 50 Pfennige. Obverse: The German imperial eagle. Reverse: Large figure "50." Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "PFENNIGE." Weight: 47.600 grains. Fineness: 900. Value: \$0.11.900.

5. 20 Pfennige. Obverse: The German imperial eagle. Reverse: Large figure "20." Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "PFENNIGE." Weight: 38.080 grains. Fineness: 900. Value: \$0.04.760.

NICKEL COINS OF THE GERMAN EMPIRE.

1. 10 Pfennige. Obverse: The German imperial eagle.



10 PFENNIGE OF THE GERMAN EMPIRE.

Reverse: Large figure "10." Legend: "DEUTSCHES

REICH," and the date of the year of issue. Exergue: "PFENNIGE." Weight: 38.580 grains. Composition: 25 parts Nickel and 75 parts copper. Value nominal, at \$0.02.380.

2. 5 Pfennige. Obverse: same as No. 1.



5 PFENNIGE OF THE GERMAN EMPIRE.

Reverse: Large figure "5," rest same as No. 1. Weight: 19.295. Composition same as No. 1. Value nominal, \$0.01.190.

BRONZE COINS OF THE GERMAN EMPIRE.

1. 2 Pfennige. Obverse: The German Imperial eagle. Reverse: Large figure: "2." Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "PFENNIGE." Value entirely nominal, \$0.00.0476.

2. 1 Pfennig. Obverse: same as No. 1. Reverse: Large figure "1," rest same as No. 1. Value entirely nominal at \$0.00.0238.

Since the formation of the Empire, the former gold and silver coins issued prior to 1872 are now called in and exchanged for the Imperial Mark and Pfennige; still the old gold, but especially the old silver coins, are in general circulation all over Europe, and since the remonetization of silver in the United States, large quantities of the former German silver coins have found their way into this country.

The different German Governments which prior to 1872 have issued coins of their own mintage, are given in alphabetical order, irrespective of their rank and station in the now German Empire.

ANHALT AND ANHALT-BERNBURG.

SILVER COINS.

1. Double Thaler or $3\frac{1}{2}$ Gulden or Florins of Leopold Friedrich. Obverse: Head of Leopold Frederick facing left. Legend: "LEOPOLD FRIEDRICH HERZOG ZU ANHALT" (*Leopold Frederick Duke of Anhalt*). Reverse: The arms of Anhalt, displayed upon a mantle of ermine, draped from a crown. Legend: "2 THALER VII EINE F MARK $3\frac{1}{2}$ GULDEN:" (2 *Thalers or Dollars seven to weigh a mark of fine silver, $3\frac{1}{2}$ Gulden or Florins.*) Exergue: "VEREINS" date of the year of issue, "MÜLZE." (*Confederation money.*) Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

2. Double Thaler or $3\frac{1}{2}$ Gulden or Florins of Heinrich. Obverse: Head of Heinrich facing left. Legend: "HEINRICH HERZOG ZU ANHALT" (*Henry Duke of Anhalt*). Reverse: The arms of Anhalt, displayed upon a mantle of ermine, draped from a crown. Legend: Same as No. 1. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

3. Double Thaler or $3\frac{1}{2}$ Gulden or Florins of Alexander Carl. Obverse: Head of Alexander Carl facing right. Legend: "ALEX. CARL HERZOG ZU ANHALT" (*Alexander Charles Duke of Anhalt*). Reverse: the arms of Anhalt-Bernburg, upon a mantle of ermine, draped from a crown. Legend and Exergue: Same as No. 1. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

4. Thaler of Alexander Carl. Obverse: "SEGEN DES ANHALT BERGBAUES" and beneath the date of the year of issue, the whole inscribed in four lines upon the middle of the field. (*Blessing of the Anhalt mines*). Exergue: Two sledge hammers, crossed. Legend: "ALEXANDER CARL HERZOG ZU ANHALT." Reverse: A bear, with a crown upon its head, a collar around his neck, in the act of walking upon the wall of a fortress, with an arched doorway beneath. Legend: "EIN THALER XIV EINE FEINE MARK." (*One Thaler or Dollar, 14*

to weigh one Mark fine silver). Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

5. Vereins or Confederation Thaler (Dollar) of Alexander Carl. Obverse: Head of Alexander Carl. Legend: "ALEXANDER CARL HERZOG ZU ANHALT." Reverse: The crowned arms of Anhalt, supported by two crowned bears. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." (*Confederation Thaler or Dollar, 30 to weigh one pound fine silver*). Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.7441.

6. Vereins or Confederation Thaler of Leopold Friedrich. Obverse: Head of Leopold Frederick. Legend: "LEOPOLD FRIEDERICH HERZOG ZU ANHALT." Reverse: Crowned arms of Anhalt, supported by two crowned bears. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." (*Confederation Thaler or Dollar, 30 to weigh one pound fine silver*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.7441.

7. 5 Silber Grossehen of Alexander Carl. Obverse: "6 EINEN THALER," and the date of the year of issue; the whole inscribed upon the middle of the field, in four lines, surrounded by laurel branches, crossed and tied. Legend: "LXXXIV EINE FEINE MARK" (*84 to weigh one fine Mark*). Reverse: Same as No. 4. Weight: 82.485 grains. Fineness: 520.833. Value: \$0.12.2216.

BADEN.

GOLD COINS OF BADEN.

1. Ten Gulden or Florins of Ludwig. Obverse: Head of



10 GULDEN OR FLORINS OF BADEN.

Ludwig. Legend: "LUDWIG GROSHERZOG VON BADEN"
(*Ludwig, Grand Duke of Baden*).

Reverse: "Crowned shield, between branches of laurel, crossed, bearing the arms of Baden; the denomination: "10" at the left, and "G" at the right. No legend. Exergue: Date of the year of issue. Weight: 106.142 grains. Fineness: 902.778. Value: \$4.12.6378.

2. 5 Gulden or Florins of Ludwig. Obverse: Same as No. 1. Reverse: Same as No. 1, with the exception that "5 g." are substituted for "10 g." Weight: 53.071 grains. Fineness: 902.778. Value: \$2.06.3189.

3. Ducat of Leopold. Obverse: Head of Leopold. Legend: "LEOPOLD GROSHERZOG VON BADEN." Reverse: Crowned shield of Baden, surrounded by laurel branches. Legend: "EIN DUCAT AUS RHEIN GOLD ZU 22 K, 6 G." (*One Ducat coined from gold from the Rhine, 22 Karats, 6 grains fine*). Exergue: Date of the year of issue. Weight: 56.652 grains. Fineness: 937.500. Value: \$2.28.6237.

4. Ducat of Friedrich. Obverse: Head of Frederick. Legend: "FRIEDRICH PRINZ UND REGENT ZU BADEN" (*Frederick Prince and Regent of Baden*). Reverse: Same as No. 3. Weight: 56.652 grains. Fineness: 937.500. Value: \$2.28.6237.

SILVER COINS OF BADEN.

1. Double Thaler of $3\frac{1}{2}$ Gulden or Florins of Leopold.



$3\frac{1}{2}$ GULDEN, OR FLORINS, OR 2 THALERS OF BADEN.

Obverse: Head of Leopold. Legend: "LEOPOLD GROSHERZOG VON BADEN."

Reverse: "3½ Gulden 2 Thaler" and the date of year of issue beneath; surrounded by heavy oak branches, crossed and tied. Legend: "VEREINS MÜNZE." Exergue: "VII EINE FEINE MARK." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

2. Double Thaler of 3½ Gulden or Florins of Leopold. Obverse: Head of Leopold. Legend: "LEOPOLD GROSHERZOG VON BADEN." Reverse: Crowned shield of arms of Baden, upon a mantle of ermine; draped from a crown. Legend: "3½ GULDEN VII EINE F. MARK 2 THALER." (3½ Florins, seven to weigh one Mark fine silver, 2 Thalers or Dollars). Exergue: "VEREINS," date of the year of issue, "MÜNZE," (*Confederation money*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

3. Double Thaler of Friederich. Obverse: Head of Frederick. Legend: "FRIEDERICH PRINZ UND REGENT VON BADEN" (*Frederick, Prince and Regent of Baden*). Reverse: Same as No. 2. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

4. Kronen Thaler or Crown Dollar of 1816. Obverse: Coat of arms of Baden. Legend: "GROSHERZOGTHUM BADEN." Reverse: "1 KRONEN THALER" surrounded by laurel branches. Weight: 455.485 grains. Fineness: 871.528. Value: \$1.13.0493.



KRONEN THALER OR CROWN DOLLAR OF BADEN.

Reverse: "1 KRONEN THALER" surrounded by laurel branches. Weight: 455.485 grains. Fineness: 871.528. Value: \$1.13.0493.

5. Kronen Thaler of Ludwig. Obverse: Head of Ludwig.
 Legend: "LUDWIG GROSHERZOG VON BADEN."



KRONEN THALER OF LUDWIG OF BADEN.

Reverse: Crowned shield of arms of Baden, upon a mantle of ermine, draped from a crown. Exergue: "KRONEN THALER." Weight: 455.485 grains. Fineness: 871.528. Value: \$1.13.0493.

6. Kronen Thaler of Leopold. Obverse: Same as No. 2.



KRONEN THALER OF LEOPOLD OF BADEN, 1831.

Reverse: Crowned shield of arms of Baden, supported by two griffins. Legend: "KRONEN THALER." Exergue: Date of the year of issue. Weight: 455.485 grains. Fineness: 871.528. Value: \$1.13.0493.

7. One Thaler or 100 Krentzer Piece of Ludwig. Obverse:

Head of Ludwig. Legend: "LUDWIG GROSHERZOG VON BADEN." Exergue: Date of the year of issue.



THALER OF 100 KREUTZER OF LUDWIG OF BADEN.

Reverse: Crowned shield of arms of Baden, surrounded by laurel branches. Legend: "EIN THALER ZU 100 KRZR." (*One Thaler or Dollar of 100 Kreuzers*). Exergue: "IM KRONEN THLR FUSS." (*At the rate of the Crown Thaler*). Weight: 280.204 grains. Fineness: 875. Value: \$0.69.4488.

8. Double Gulden of Leopold. Obverse: Head of Leopold. Legend: "LEOPOLD GROSHERZOG VON BADEN."



DOUBLE GULDEN OR FLORIN OF LEOPOLD OF BADEN.

Reverse: Crowned shield of arms of Baden, supported by two griffins. Legend: "ZWEI GULDEN" (*Two Gulden or Florin*). Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.1360.

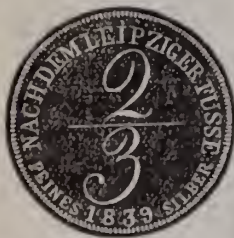
9. Double Gulden of Friedrich. Obverse: Head of Frederick. Legend: "FRIEDRICH PRINZ UND REGENT VON

BADEN." Reverse: Same as No. 8. Weight, fineness and value: Same as No. 8.

10. Gulden of Leopold. Obverse: Same as No. 8. Reverse: A crowned griffin *rampant*, holding an oval shield upon which are two sledge-hammers, *saltier-wise*; beneath, a ducal crown and the date of the year of issue. Legend: "SEGEN DES BADISCHEN BERGBANES" (*Blessing of the Baden mines*). Exergue: "EIN GULDEN" (*One Gulden or Florin*). Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

11. Gulden of Friedrich. Obverse: Head of Friedrich. Legend: "FRIEDRICH GROSHERZOG VON BADEN" (*Frederick Grand Duke of Baden*). Reverse: "1 GULDEN" and the date of issue, in three lines, surrounded by heavy oak branches crossed and tied. Weight: 163.304 grains. Fineness: 900. Value: \$0.41.4899.

12. Half Gulden of Leopold. Obverse: Same as No. 8. Reverse: Same as No. 11, only " $\frac{1}{2}$ " being substituted for "1." Weight: 81.837 grains. Fineness: 900. Value: \$0.20.7834.



FLORIN OF BADEN.

13. Half Gulden of Friederich. Obverse: Same as No. 11. Reverse: Same as No. 11, only " $\frac{1}{2}$ " being substituted for "1." Weight: 81.837 grains. Fineness: 900. Value: \$0.20.7834.

14. 6 Kreuzer. Obverse: Crowned shield of Baden; supported by two crowned Griffins; above "BADEN." Reverse: "6 KREUTZER," and the date of the year of issue; surrounded by laurel branches, crossed and tied. Weight: 40.092 grains. Fineness: 333 $\frac{1}{2}$. Value, nominal at 3 $\frac{3}{4}$ cents.

15. 3 Kreuzer. Obverse and Reverse: Same as No. 14, only "3" being substituted for "6." Weight: 20.046. Fineness: 333 $\frac{1}{2}$. Value, nominal at 1 $\frac{3}{4}$ cents.

BAVARIA.

GOLD COINS OF BAVARIA.

1. Carolin of 1773. Obverse: Bust of Carolus Philip.



CAROLIN OF CHARLES PHILIP, 1773.

Reverse: A circular shield, with C's reversed, interlaced, and surmounted by crowns, placed at opposite sides; P's similarly arranged at the two remaining angles, the whole forming a cross. Value: \$4.75.

2. Half Carolin of Carolus. Obverse: Bust of Carolus. Legend: "CA. D. G. V. B. V. P. S. D. G. PR. S. R. I. A. & ELL." *Carolus Dei Gratia, Utrinsque Bavariae et Palatinus Dei, Princeps Sancti Romani Imperii Archiduk Et Elector*; meaning: *Charles by the Grace of God, Duke of both Bavarias and the Palatinate, Prince Archduke, and Elector of the Holy Roman Empire*).



HALF CAROLIN OF CHARLES.

Reverse: The virgin and child, supporting the arms of Bavaria. Legend: "CLYPEVS OMNIBVS IN TE SPERANTIBVS" (*A shield to all who hope in Thee*).

3. Ducat of Ludwig I. Obverse: Bust of Ludwig I. Legend: "LUDOVICUS I BAVARIAE RES" (*Ludwig I. King of Bavariae*). Reverse: Neptune seated, his right hand upon a

vessel from which a heavy stream of water flows (*Allegorical representation of the source of the river Danube*). Legend: "EX AURO DANUBII" (Coined of gold from the river Danube). Weight: 53.334 grains. Fineness: 937.500. Value: \$2.15.4438. At the same time (1830) and for almost twenty years the Reverses of the Ducat were changed three times; the Obverse remaining the same. The Reverse of the Ducats of gold from the river Isar and the river Inn are identical in device; the Legends only mention the kind of gold used. The Exergues of these Ducats up to 1850 are in Roman numerals. Weight, Fineness and Value: Same as No. 3. The Reverse of the Ducat of gold from the river Rhine has for device the view of a city on the banks of the flowing Rhine, a steamboat in the foreground. Legend: "EX AURS RIENI" (*Of gold from the river Rhine*). Weight: 53.858 grains. Fineness: 986.111. Value: \$2.28.6242.

4. Ducat of Maximilian II. Obverse: Head of Maximilian. Legend: "MAXIMILIAN II KOENIG VON BAIERN" (*Maximilian II. King of Bavaria*). Reverse: Crowned shield, bearing the arms of Bavaria, supported by two crowned lions. Legend: "EIN DUCATEN." Exergue: Date of the year of issue. Weight: 53.858 grains. Fineness: 986.111. Value: \$2.28.6242.

5. Ducat of Ludwig II. Obverse: Head of Ludwig II. Legend: "LUDWIG II KOENIG VON BAIERN." Reverse: Same as No. 4. Weight, fineness and value: Same as No. 4.

Since 1872 and up to the present day, the gold coinage of Bavaria is that of the German Empire. The devices upon the Obverse bear the head of Ludwig II., and the Legends: "LUDWIG II KOENIG VON BAIERN." The Reverses are identical with the coins described on pages 640 and 641. Weight, fineness and value: Same as stated on same pages.

SILVER COINS OF BAVARIA.

1. Reichs-Thaler of Maximilian Joseph. Obverse: Bust of Maximilian Joseph.

Out of circulation. Intrinsic value: \$1.00.



RIX-THALER OF MAXIMILIAN JOSEPH, 1755-1767.

2. Reichs-Thaler of Maximilian Joseph. Obverse: Bust of Maximilian Joseph.



RIX-THALER OF MAXIMILIAN JOSEPH, 1768-1771.

Out of circulation. Intrinsic value: \$1.00.



CONVENTION-THALER OF CHARLES THEODORE, 1765-1767.

3. Convention-Thaler or Dollar of Carolus Theodor. Obverse: Bust of Charles Theodore.

Out of circulation. Intrinsic value: \$0.90.

4. Crown-Thaler of Charles Theodore. Obverse: Same as No. 3.



CROWN THALER OF CHARLES THEODORE, 1799-1804.

Out of circulation. Value: \$1.12.

The Thalers No. 1, 2, 3 and 4, are very scarce and highly valued by numismatists.

5. Crown-Thaler of Maximilian Joseph of 1807-1809. Obverse: Bust of Maximilian Joseph in full uniform. Legend: "MAXIMILIAN JOSEPH, KOENIG VON BAIERN." Reverse: Shield surmounted by the royal crown, and supported by two lions; a shield of pretence, bearing a sword and sceptre *saltiere* wise, the date beneath. Legend: "FÜR GOTT UND VATERLAND" (*For God and Fatherland*). On the edge: "ZEHEX EINE FEINE MARK" (*Ten to weigh one Mark, fine silver*). Weight: 455.871 grains. Fineness: 817.528. Value: \$1.12-.5425.

6. Crown-Thaler of Maximilian Joseph, 1810-1825. Obverse: Head of Maximilian Joseph. Legend: "MAXIMILIANUS JOSEPHUS BAVARIAE REX."

Reverse: Sword and sceptre in *saltiere*; surmounted by a royal crown. Legend: "PRO DEO ET POPULO" (*For God and the People*). Exergue: Date of the year of issue. On the edge:

"BAYERISCHER KRONENTHALER" (*Bavarian Crown Dollar*).

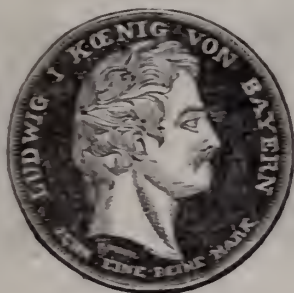


CROWN-THALER OF MAXIMILIAN JOSEPH, 1810-1825.

Weight: 455.871 grains. Fineness: 817.528. Value: \$1.12-5425.

7. Crown-Thaler of Ludwig I., 1826 and 1828. Obverse: Bust of Ludwig I. Legend: "LUDWIG KOENIG VON BAIERN." Reverse: The royal crown inclosed in a wreath composed of oak and laurel branches crossed. Legend: "GERECHT UND BEHARRLICH" (*Just and constant*), and the date of 1826 or of 1828. On the edge: "BAYERISCHER KRONENTHALER." Weight: 455.871 grains. Fineness: 817.528. Value: \$1.12-5425.

8. Species-Thaler of Ludwig I. Obverse: Bust of Ludwig I. Legend: "LUDWIG KOENIG VON BAIERN." Exergue: "ZEHN EINE FEINE MARK" (*Ten one Mark, fine silver*).



SPECIES-THALER OF LUDWIG I., 1827.

Reverse: Star of the order of Theresa, inclosed in a wreath.

Legend: "DIE KOENIGIN VON BAYERN STEFET DEN THERESIEN ORDEN" (*The Queen of Bavaria founds the Order of Theresa*). Edge grained. Weight: 433.078 grains. Fineness: 833.333. Value: \$1.02.3992.

9. Species-Thaler of Ludwig I., 1833. Obverse: Same as No. 8. Reverse: The goddess of Commerce leaning against a pedestal, and holding a Mercury wand in her right, and a horn of plenty in her left; an anchor at one side, and the prow of a galley at the other; "1833" beneath. Legend: ZOLLVEREIN MIT PREUSSEN, SACHSEN, HESSEN U. THURINGEN" (*Customs League with Prussia, Saxony, Hessen and Thuringia*). Weight: 433.078 grains. Fineness: 833.333. Value: \$1.02.3992.

10. Species-Thaler of 1834. Obverse: Same as No. 8. Reverse: "LANDTAG, 1834" (Diet of 1834), inclosed in a heavy wreath of oak. Legend: "EHRE DEM EHRE GEBÜHRT" (*Honor to whom Honor due*). Weight: 433.078 grains. Fineness: 833.333. Value: \$1.02.3992.

11. Species-Thaler of 1835. Obverse: Same as No. 8. Reverse: Mercury's wand, between two branches of laurel, crossed. Legend: "BEYTRITT VON BADEN ZUM TEUTSCHEN ZOLLVEREIN" (*Joining of Baden to the German Custom League*), beneath, 1834. Weight: 433.078 grains. Fineness: 833.333. Value: \$1.02.3992.

In 1828 and 1832 there were struck the two following



QUEEN THERISE SPECIE THALER, 1828.

commemoration Species-Thalers; the one of 1828 is the royal

family Thaler, containing the effigy of Queen Therese and her eight children. Legend: "SEGEN DES HIMMELS" (*Heaven's Blessing*).



OTTO OF BAVARIA, KING OF GREECE, 1832.

The other was struck in honor of Otto, Prince of Bavaria, ascending to the throne of Greece as King of the Hellenes. Weight of both Thalers: 433.078 grains each. Fineness: 833.333. Value: \$1.02.3992.

12. Double-Thaler of $3\frac{1}{2}$ Gulden or Florins of 1838. Obverse: Undraped bust of Ludwig I. Legend: "LUDWIG I KOENIG VON BAYERN." Reverse: "DIE EINTHEILUNG D. KONIGREICHS AUF GESCHICHTL GRUNDLAGE ZURÜCKGEFÜHRT, 1858" (*The Union of the Kingdom founded upon historical basis*). The whole is inscribed in the middle of the field in seven lines, and surrounded by eight small wreaths, united by bands, and containing the names of the different provinces of Bavaria. On the edge: "DREI EIN HALB. GULDEN * * VII E. F. M." (*Three and a half Florins, seven to one Mark, fine silver*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

13. Double Thaler of $3\frac{1}{2}$ Gulden, 1845 to 1848. Obverse: Same as No. 12.

Reverse: Crowned shield, bearing the arms of Bavaria, supported by two crowned lions. Legend: " $3\frac{1}{2}$ GULDEN VII EINE F. MARK 2 THALER." Exergue: "VEREINS-MÜNZE" (*Conven-*

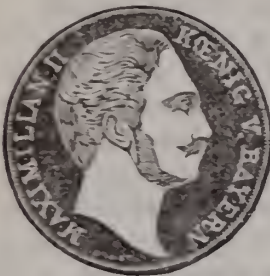
tions money), beneath, date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.



DOUBLE THALER OF $3\frac{1}{2}$ GULDEN OR FLORINS, 1845 TO 1848.

14. Double Thaler of $3\frac{1}{2}$ Gulden of Maximilian II. Obverse: Bust of Maximilian II. Legend: "MAXIMILIAN II KOENIG VON BAYERN." Reverse: Weight, Fineness and Value, Same as No. 13.

15. Marien-Thaler of 1855. Obverse: Same as No. 14.



MARIEN-THALER OF MAXIMILIAN II., 1855.

Reverse: Full figure Virgin and Child. Legend: "ZUR ERINNERUNG AN DIE WIEDERHERSTELLUNG DER MARIEN SAULE IN MÜNCHEN, 1855" (*In commemoration of the rebuilding of the St. Mary Monument in Munich, 1855*). At the left of Virgin and Child "PATRONA," at the right "BAVARIAE" (*Patron of Bavaria*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.9975.

16. 2 Gulden or Florin Piece. Obverse: Bust of Maximilian II. Legend: "MAXIMILIAN II KOENIG VON BAYERN." Reverse: Crowned shield, bearing the arms of Bavaria, supported by two crowned lions. Legend: "ZWEI GULDEN." Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

17. Vereins or Convention Thaler of 1 $\frac{3}{4}$ Gulden. Obverse: Same as No. 16. Reverse, device, and exergue: Same as No. 16. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN" (*Convention Thaler or Dollar, 30 to weigh one pound fine silver*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.9975.

18. Gulden or Florin of Maximilian II. Obverse: Same as No. 16.



GULDEN OR FLORIN OF MAXIMILIAN II.

Reverse: "1 GULDEN," beneath date of the year of issue, surrounded by heavy oak branches. Weight: 163.304 grains. Fineness: 900. Value: \$0.41.5682.

19. Half Gulden of Maximilian. Obverse: Same as No. 16. Reverse: Same as No. 16, only " $\frac{1}{2}$ " being substituted for "1." Weight: 81.652 grains. Fineness: 900. Value: \$0.20.7841.



6 KREUZERS OF MAX JOSEPH II.

20. 6 Kreuzers of Maximilian Joseph. Obverse: Head of

Maximilian Joseph. Legend: "MAX JOSEPH KOENIG VON BAYERN."

Reverse: Crown shield, arms of Bavaria, surrounded by a palm and laurel branch. Legend: "LANDMÜNZ" "6 K." Exergue: "1808." Value, nominally, 3 cents.

21. 6 Kreuzers of Maximilian II. Obverse: Coat of arms of Bavaria. Legend: "KOENIGREICH BAYERN" (*Kingdom of Bavaria*).



6 KREUTZERS OF MAXIMILIAN II.

Reverse: "6 KREUTZER," and the date of the year of issue; surrounded by heavy oak branches, crossed and tied. Weight: 40 grains. Fineness: 333.333. Value, nominally, 3½ cents.

22. 3 Kreuzers of Maximilian II. Obverse: Same as No. 21.



3 KREUTZERS OF MAXIMILIAN II.

Reverse: Same as No. 21, only "3" being substituted for "6." Weight: 20 grains. Fineness: 333.333. Value: 1½ cents.

The silver money of Ludwig II., successor to Maximilian II., is identical with all the issues of that monarch, only "LUDWIG II" is substituted on the respective obverses of the coins. Their weight, fineness, and value have remained unchanged, and have only been discontinued by the Imperial mint act of 1872.

Since 1872 the Silver Coins of Bavaria are identical with those of the German Empire, the obverses only being changed,

and they bear the effigy of Ludwig II.; and the legends: "LUDWIG II KOENIG VON BAIERN." The reverses all bear the Imperial German Eagle. Their weight, fineness, and value are fully stated on pages 653-660.

The Nickel and Bronze Coins are without exception identical with the coins described on pages 642 and 643, and their values are the same.

BRUNSWICK, LUNEBURG, WEST-
PHALIA, HANOVER.

GOLD COINS.

1. 10 Thalers of Charles William of Brunswick. Obverse: Crowned shield. Legend: "CAROLUS GUILIELMUS FERDINANDUS."



TEN THALERS OR DOLLARS OF BRUNSWICK.

Reverse: "X THALER" and the date of the year of issue. Legend: "D. G. DVX BRVNSVICENS. ET LVNEBVRG." Weight: 206.221 grains. Fineness: 899.306. Value: \$7.98.6536.

2. 10 Thalers of George IV. of Hanover. Obverse: Laureated Head of George IV. Legend: "GEORGIUS IV D. G. BRIT. HANOV. REX. F. D. (*George IV. by the Grace of God King of Great Britain and Hanover; defender of the faith*)." Reverse: Same as No. 1. Weight: 206.221 grains. Fineness: 902.778. Value: \$8.02.3445.

3. 10 Thalers of Wilhelm of Brunswick. Obverse: Crowned shield, bearing arms of Brunswick, a wild man with large club at each side of shield. Legend: "WILHELM HERZOG."

Reverse: "X THALER" and date of the year of issue.



TEN THALERS OR DOLLARS OF BRUNSWICK.

Weight: 206.221 grains. Fineness: 899.306. Value: \$7.98.6536.

4. 10 Thalers of William IV. Legend: "WILHELM IV KOENIG V. GR. BRITAN. HANOVER" (*William IV. King of Great Britain and Hanover*).



10 THALERS OR DOLLARS OF WILLIAM IV. OF HANOVER.

Reverse: Crowned shield bearing arms of Great Britain and Hanover. Legend and Exergue: "ZEHN THAL." and the date of the year of issue. Weight: 205.404 grains. Fineness: 895.833. Value: \$7.92.3266.



TEN THALERS OR DOLLARS OF ERNST AUGUST.

5. 10 Thalers of Ernst August of Hanover. Obverse:

Head of Ernst August. Legend: "ERNST AUGUST KOENIG VON HANNOVER."

Reverse: Same as No. 4. Weight: 205.404 grains. Fineness: 895.833. Value: \$7.92.3266.

6. 10 Thalers of William of Brunswick. Obverse: Head of William. Legend: "WILHELM HERZOG BRAUNSCHWEIG LUN." Reverse: Shield bearing arms of Brunswick-Luneburg; upon a mantle of ermine, draped from a crown. Legend: "ZEHN THALER." Exergue: Date of the year of issue. Weight: 205.249 grains. Fineness: 895.833. Value: \$7.91.9940.

7. 10 Thalers of George V. Obverse: Bust of George V. Legend: "GEORGE V. KOENIG V. HANNOVER." Reverse: Crowned shield, bearing arms of Great Britain and Hanover, "ZEHN" at the left, and "THALER" at the right. Exergue: Date of the year of issue. Weight: 205.404. Fineness: 895.833. Value: \$7.92.3266.

8. 5 Thalers of Carolus of Brunswick-Luneburg. Obverse: Head of Carolus. Legend: "CAROLUS D. G. DUX BR ET LUN."



5 THALERS OF CAROLUS OF BRUNSWICK-LUNEBURG.

Reverse: Horse galloping. Legend: "NUNQUAM RETRORSUM" (*Never backward*), and the date of year of issue. Weight: 103.118. Fineness: 902.778. Value: \$4.00.

9. 10 Thalers of Hieronymus Napoleon. Obverse: Laureated head of Hieronymus Napoleon, King of Westphalia. Legend: "HIERONYMUS NAPOLEON." Reverse: "10 THALERS," surrounded by laurel branches. Weight: 206.221 grains. Fineness: 902.778. Value: \$8.02.3445.

10. 10 Thalers of Hieronymus, King of Westphalia. Obverse: Coat of arms crowned. Legend: "HIERONYMUS NA-

POLEON." Reverse: Same as No. 8. Weight, Fineness, Value: Same as No. 8.

11. 5 Thalers of Charles William of Brunswick. Obverse: Same as No. 1.



5 THALERS OR DOLLARS OF BRUNSWICK.

Reverse: "V THALER," rest same as No. 1. Weight: 103.118 grains. Fineness: 899.306. Value: \$4.00.

12. 5 Thalers of William IV. of Hanover. Obverse: Same as No. 4.



5 THALERS OR DOLLARS OF WILLIAM IV. OF HANOVER.

Reverse: Same as No. 4. Legend: "FÜNF THAL." Exergue: Date of the year of issue. Weight: 102.625 grains. Fineness: 895.833. Value: \$3.99.3268.

13. 5 Thalers of George IV. of Hanover. Obverse: Same as No. 2. Reverse: "V THALER," rest same as No. 2. Weight: 103.118 grains. Fineness: 902.778. Value: \$4.01.1727.

14. 5 Thalers of Ernst August. Obverse: Same as No. 5. Reverse: Same as No. 5. Legend: "FÜNF THALER." Exergue: Date of the year of issue. Weight: 102.702 grains. Fineness: 895.833. Value: \$3.96.1633.

15. 5 Thalers of George V. of Hanover. Obverse: Head of George V. Legend: GEORGE V. V. G. KOENIG V. HANNOVER" (*George V., by the grace of God, King of Hanover*). Reverse:

Crowned shield, bearing arms of Great Britain and Hanover. Legend: "FÜNF THLR." Exergue: Date of the year of issue. Weight: 102.625 grains. Fineness: 895.833. Value: \$3.96.1633.



5 THALERS OF GEORGE V.

16. Crown of George V. of Hanover. Obverse: Head of George V. Legend: "GEORG V. V. G. G. KOENIG V. HANNOVRE." Reverse: "1 KRONE," and the date of the year of issue, surrounded by a heavy oak wreath. Legend: "VEREINS-MÜNZE." Exergue: "50 EIN PFUND FEIN" (50 Crowns to weigh one pound fine gold). Weight: 171.467 grains. Fineness: 900. Value: \$6.65.0883.

17. Crown of Wilhelm of Brunswick. Obverse: Head of Wilhelm. Legend: "WILHELM HERZOG Z BRAUNSCHWEIG U LU" (*William Duke of Brunswick and Luneburg*). Reverse: Same as No. 16. Weight, Fineness and Value: Same as No. 16.

18. $2\frac{1}{2}$ Thalers of George IV. of Hanover. Obverse: Same as No. 4. Reverse: " $2\frac{1}{2}$ THALER," rest same as No. 4. Weight: 51.555 grains. Fineness: 902.778. Value: \$1.98.7154.

19. $2\frac{1}{2}$ Thalers of Ernst August. Obverse: Same as No. 5. Reverse: Coat of Great Britain and Hanover. Legend: Date of the year of issue. Exergue: " $2\frac{1}{2}$ THALER." Weight, Fineness and Value: Same as No. 18.

20. $2\frac{1}{2}$ Thalers of Wilhelm of Brunswick. Obverse: Same as No. 17. Reverse: " $2\frac{1}{2}$ THALER," beneath, date of the year of issue. Legend: "ZINE MARK 258 GRAN FEIN." Weight: 51.312 grains. Fineness: 895.833. Value: \$1.97.1238.

21. Ten Franc Piece of Hieronymus Napoleon, of West-

phalia. Obverse: Head of Hieronymus Napoleon. Legend: "HIERON. NAPOL."



TEN FRANCS OF HIERONYMUS NAPOLEON

Reverse: "10 FRANK." Legend: "KOENIG V WESTP. FR. PB.," and date of year of issue. Weight: 48.858 grains. Fineness: 900. Value: \$1.93.

SILVER COINS.

1. Double Thaler of Ludovicus Rudolphus of Brunswick and Luneburg, of 1734.



DOUBLE THALER OF LUDOVICUS RUDOLPHUS, 1734.

Intrinsic value: \$1.45.

2. Species Thaler of Charles William Ferdinand. Obverse: Crowned shield, hung with laurel leaves. Legend: "CAROLUS GUIL. FERD. D. G. DUX BRUNSV ET LUN." Meaning: *Charles William Ferdinand by the Grace of God Duke of Brunswick and Luneburg.*

Reverse: "1 SPECIES THALER," and the date of the year of



SPECIES THALER CHARLES WILLIAM FERDINAND.

issue. Legend: "X EINE FEINE MARK CONVENTIONS M." Intrinsic value: \$0.99.800.

3. Florins of Brunswick-Luneburg.



FLORINS OF AUGUSTUS ANTHONY ULRIC, 1619.

Intrinsic value: 45 cents.



FLORIN OF CAROLUS, 1749.

Intrinsic value, 45 cents. Both coins being very rare bring a high premium among numismatists.

4. Convention Thaler of Hieronymus Napoleon of Westphalia, 1813.



CONVENTION THALER OF WESTPHALIA.

Intrinsic value: \$0.95.

5. Marien-Groschen of Brunswick and Westphalia.



24 MARIENGROSCHEN = $52\frac{1}{2}$ cents. 12 MARIENGROSCHEN = $26\frac{1}{2}$ cents.



6 MARIENGROSCHEN = 13 cents. 4 MARIENGROSCHEN = $8\frac{1}{2}$ cents. 2 MARIENGROSCHEN = 4 cents.

6. Florin of George II. of Hanover. Obverse: Royal arms of England, France, and Ireland, occupying the first three quarters of the shield, and the arms of Hanover the fourth.

Legend: "GEORGE II D. G. M. BRIT. F. & H. REX. F. D." (George II., by the Grace of God, King of Great Britain, France, and Ireland. Defender of the Faith).

Reverse: Wild man of the Hartz. Legend: "BR. ET LVN. DUX. S. R. I. A. TH. ET EL." (Duke of Brunswick and Luneburg, Arch Treasurer and Elector of the Holy Roman Empire). Value: 45 cents.

7. Mariengroschen of Hanover.



6 MARIENGROSCHEN=13½ CENTS. 4 MARIENGROSCHEN=9 CENTS.

8. Half Florin of George III. Obverse: Bust of George III. Legend: "GEORGE III. D. G. M. BRIT. REX."



HALF FLORIN GEORGE III. OF HANOVER.

Intrinsic value: 27½ cents.

9. Quarter Florin of George III. Obverse: Same as No. 8.



QUARTER FLORIN OF GEORGE III. OF HANOVER.

Intrinsic value: 13½ cents.

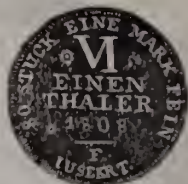
10. 16 Gute Groschen of Brunswick.



16 GOOD GROSCHEN OF 1825.

Intrinsic value: 46 cents.

11. 4 Gute Groschen of Hanover.



4 GOOD GROSCHEN OF 1764 AND 1808.

Intrinsic value: 11 cents.

The above-mentioned silver coins are long ago out of general circulation, and their value that of a numismatist's fancy.

12. Double Thaler of $3\frac{1}{2}$ Gulden or Florin. Obverse: Head of George V. Legend: "GEORG V. G. G. KOENIG V. HANNOVER." Reverse: Crowned coat of arms of Great Britain, Ireland, and Hanover, supported by the lion and unicorn, rampant. Legend: "VEREINSMÜNZE. 2 THALER. $3\frac{1}{2}$ GULDEN VII EINE FEINE MARK" (*Convention money, 2 Thalers or $3\frac{1}{2}$ Gulden, Florin. Seven to weigh one Mark fine*). Exergue: Date of the year of issue. Weight: 572.847 grains. Finess: 900. Value: \$1.45.9950.

13. Double Thaler of $3\frac{1}{2}$ Gulden or Florin. Obverse: Head of Wilhelm of Brunswick. Legend: "WILHELM HERZOG Z. BRAUNSCHWEIG U. LÜN." (*William Duke of Brunswick and Lunenburg*). Reverse: Crowned coat of arms of

Brunswick, upon a mantle of ermine, draped from a crown. Legend: "2 THALER VII EINE FEINE MARK 3½ GULDEN." Exergue: "VEREINSMÜNZE" and the date of the year of issue. Weight, Fineness, and Value same as No. 12.

14. Thaler of Wilhelm of Brunswick. Obverse and Re-



THALER OF WILHELM OF BRUNSWICK.

verse: Same as No. 13. Reverse: Same as No. 13. Legend: "EIN THALER XIV EINE F. M. (*One Thaler or Dollar, fourteen to weigh one Mark fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

15. Thaler of William IV. of Hanover. Obverse: Head of William IV. Legend: "WILHELM IV KOENIG V. GR. BRIT. U. HANNOVER."



THALER OF WILLIAM IV. OF HANOVER.

Reverse: Crowned shield bearing arms of Great Britain, Ireland, and a shield of pretence bearing the arms of Hanover. Legend: "EIN THALER XIV EINE F. M." Exergue: "FEINES

SILBER" (*fine silver*), and the date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

16. Thaler of Ernst August of Hanover. Obverse: Head of Ernst August. Legend: "ERNST AUGUST KOENIG VON HANNOVER."



THALER OF ERNST AUGUST OF HANOVER.

Reverse: Same as No. 15. Legend: "EIN THALER BERGSEGEN DES HARTZES XIV EINE F. M. (*One Thaler or Dollar. Blessing from the Mountains of the Hartz, fourteen to weigh one Mark fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

17. Thaler of George V. of Hanover. Obverse: Head of George V. facing to the left. Legend: Same as No. 12. Reverse: Same as No. 12. Legend: "EIN VEREINSTHALER XXX EIN PFUND FEINE." (*One Convention Thaler, 30 to weigh one pound fine silver*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.5256.

The Billon Silver Coins of Brunswick, Luneburg, Westphalia, and Hanover are:

1. The $\frac{1}{3}$ Thaler of Wilhelm IV. and George V. of Hanover. Value entirely nominal at $11\frac{2}{3}$ cents.

2. The $\frac{1}{2}$ Thaler of George V. Value entirely nominal at $5\frac{1}{3}$ cents. The above coins as well as the Groschen of Hanover and Brunswick are no more a legal tender, and their circulation since 1876 is prohibited.

HANSE TOWNS OR FREE CITIES.

The Hanse Towns or Free Cities of the present day are: Bremen, Hamburg and Lubeck, having a government of their own, which consists of a Senate of somewhat Republican form. Since 1864 Frankfort-on-the-Main has ceased to be one of the Hanse Towns or Free Cities, having been absorbed by Prussia, of which it now forms a province. Bremen, Hamburg and Lubeck have the right to coin gold and silver coins, subject to the Mint-law of July 9, 1873, of the German Empire.

Frankfort-on-the-Main, once an important Hanse Town, has coined a considerable number of different silver coins; and all her coins bear the imprint of "Freie Stadt" (*Free City*), hence we incorporate her issue among the Hanse Towns or Free Cities.

A. Bremen.

In 1776 the principal coin was the piece of 48 Grote, which was coined at 750 fine, and worth 56 cents. After that date, until 1840, there has been but little money coined. From 1840 to 1872, the pieces coined are the 36, 12 and 6 Grote, and the One Groten piece. Many of the two and three Grote Pieces bear the numerals 24 and 36 respectively, which means so many pieces to the Thaler or Dollar of 72 Grote, twenty-four *Three Grote* Pieces making a Thaler, and thirty-six of the former. These figures are usually inclosed in small brackets or circles, and sometimes appear on the eagle's breast.

In 1857 Bremen accepted the Vienna Convention Thaler of 65 Grotes, equal to $71\frac{1}{2}$ cents, United States value. In 1871 the Senate of Bremen again reverted to its former gold Thaler, a silver coinage, of 72 Grotes, equal to \$0.79.1200.

Bremen's gold coinage dates back as far as 1512, and extends from that period down to 1672, after which time no pieces in gold were coined.

SILVER COINAGE OF BREMEN.

1. The Gold Thaler of 1871. Obverse: Crowned shield bearing the arms of the city of Bremen; a key, supported by

two lions. Legend: "FREIE HANSE STADT BREMEN." Exergue: "EIN THALER GOLD" (*One Dollar gold, notwithstanding it being a silver coin*). Reverse: "ZUR ERINNERUNG," in a circular line. "AN DEN GLORREICH ERKAMPFTEN FRIEDEN VOM, 10 MAI, 1871," in six parallel running lines. (*In commemoration of the glorious combated peace of May 10, 1871,*) surrounded by heavy oak branches, crossed and tied; above the circular line the iron cross of Germany. Weight: 276.680 grains. Fineness: 986.111. Value: \$0.79.1200.

2. The 36 Grote Piece. Obverse: Coat of arms of Bremen, a key, supported by two lions. Legend: "FREIE HANSESTADT BREMEN."



36 GROTE PIECE OF BREMEN.

Reverse: "36 GROTE," and the date of the year of issue, surrounded by oval branches, crossed and tied. Weight: 135.340 grains. Fineness: 986 111. Value: \$0.37.7657.

3. The 12 Grote Piece. Obverse: Coat of arms of Bremen, without lions. Legend: Same as No. 2.



12 GROTE PIECE OF BREMEN.

Reverse: "12 GROTE," rest same as No. 2. Weight: 60.155 grains. Fineness: 739.583. Value: \$0.12.6730.

4. The 6 Grote Piece. Obverse and Legend: Same as No. 3.



6 GROTE PIECE OF BREMEN.

Reverse: "6 GROTE," rest same as No. 3. Weight: 30.077 grains. Fineness: 739.583. Value: \$0.06.3365.

BILLON COINS OF BREMEN.

1. The 12 Grote Piece of 1666; coined under Leopold, Emperor of Germany.



12 GROTE PIECE OF BREMEN.

The intrinsic value about 11 cents.

2. The 6 Grote Pieces of 1818 and 1822.



The intrinsic value about 5 cents.

All the afore-described coins have, by act of April 30th, 1872, been deprived of their legal tender value.

Since October 1st, 1872, the German gold and silver Mark Pieces are in general circulation, and are fully described in their proper places.

B. Frankfort-on-the-Main.

This, once a "Free City" of Germany, now only a province of Prussia, has coined no gold coins later than 1796; all of them having been called in at the beginning of this century. The silver coins are varied, and some very handsome; none of them are legal tender any more.

GOLD COINS OF FRANKFORT.

1. Ducat. Obverse: Eagle of Frankfort. Legend: "TURRIS FORTISSIMA NOMEN DOMINI" (*The name of the Lord is the strongest tower*). Reverse: A cross with ornaments. Legend: "DUCATUS REIPUBLICÆ FRANCOFURTENSIS" (*Ducat of the Republic of Frankfort*). Intrinsic value: \$2.28.

2. Ducat of 1796. Obverse: View of the city of Frankfort. Reverse: A wreath of laurel surrounding the words: "AUS DEN GEFAESSEN DER KIRCHEN UND DER BÜRGER DER STADT FRANCKFURT" (*Out of the plate belonging to the churches and that of the citizens of the city of Frankfort*). Intrinsic value: \$2.25.

SILVER COINS OF FRANKFORT.

1. Double Thaler of $3\frac{1}{2}$ Gulden or Florins of 1628. Obverse: View of the city of Frankfort.

Reverse: The eagle of Frankfort, surrounded by olive branches. Intrinsic value: \$1.45; but being out of circulation for more than 100 years, it is highly prized by numismatists.

2. Double Thaler of $3\frac{1}{2}$ Gulden or Florins of 1841-1844. Obverse: View of the river Main, with the city of Frankfort on the left shore, and the bridge across the river; several ves-

sels and small boats are seen in different parts of the harbor; beneath are two horns of plenty, and two Mercury's wands



DOUBLE THALER OF $3\frac{1}{2}$ GULDEN.

crossed. At the left side, beneath the view of the river, appears the name of the engraver, "Zollman."

Reverse: " $3\frac{1}{2}$ GULDEN 2 THALER" and the date of the year of issue; surrounded by heavy oak branches, crossed and tied. Legend: "VEREINSMÜNZE" (*Convention money*). Exergue: "VII EINE FEINE MARK" (*Seven to weigh one Mark fine silver*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

3. Double Thaler of $3\frac{1}{2}$ Gulden of 1845 to 1860. Obverse: Eagle of Frankfort, crowned. Legend: "FREIE STADT" (*Free City*). Exergue: "FRANKFURT." Reverse: Same as No. 2. Weight, fineness, and value same as No. 2.

4. Janauscheck Double Thaler, or $3\frac{1}{2}$ Gulden of 1861. Obverse: Eagle of Frankfort, crowned. Legend: "ZWEI VEREINSTHALER. XV EIN PFUND FEIN." Reverse: Bust of Fanny Janauscheck, laureated. Legend: "FREIE STADT FRANKFURT." Weight, fineness, and value same as No. 2.

5. Two Gulden Piece of the Archduke John, of Austria, as administrator of the German Confederation in 1848. Obverse: "ERZHERZOG JOHANN VON OESTERREICH," inscribed in four lines (*Archduke John of Austria*). Beneath is a palm and laurel branch, crossed. Legend: "ERWAHLT ZUM REICHsver-

WESER ÜBER DEUTSCHLAND DEN 29 JUNI 1848" (*Elected as Administrator of the Empire over Germany, June 29, 1848*).

Reverse: Double-headed eagle of Frankfurt. Legend: "CONSTITUIRENDE VERSAMMLUNG I. D. F. STADT FRANKFURT 18 MAI, 1848" (*Constitutional Assembly in the Free City of Frankfurt, May 18, 1848*). Around the edge: "ZWEI GULDEN" (*Two Florins*). Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

6. Double Gulden of 1848-1852. Obverse and Legend: Same as No. 3. Reverse: "2 GULDEN" and the date of the year of issue; surrounded by heavy oak branches, crossed and tied. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

7. Vereins Thaler of 1½ Gulden, or Florin, of 1859. Obverse: Eagle of Frankfurt. Legend: "EIN VEREINSTHALER. XXX EIN PFUND FEIN" (*One Convention Thaler, thirty to weigh one pound fine silver*). Exergue: "1859." Reverse and Legend: Same as No. 4. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.9978.

8. Gulden of 1848 and since. Obverse and Legend: Same as No. 3.



GULDEN OR FLORIN OF FRANKFORT.

Reverse: "1 GULDEN," beneath date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Weight: 163.675. Fineness: 900. Value: \$0.41.6940.

9. Half Gulden of 1841 and since. Obverse: Same as No. 8.

Reverse: " $\frac{1}{2}$ GULDEN;" rest same as No. 6. Weight: 81.837 grains. Fineness: 900. Value: \$0.20.7838.



HALF GULDEN OR FLORIN OF FRANKFORT.

BILLON COINS OF FRANKFORT.

1. 6 Kreuzer. Obverse, sometimes the Frankfort eagle, other times view of the City of Frankfort. Weight: 40 grains. Fineness: 333.333. Value: \$0.03.8020.

2. 3 Kreuzer. Obverse: Eagle of Frankfort. Weight: 20 grains. Fineness: 333.333. Value: \$0.02.4010.

C. Hamburg.

GOLD COINS OF HAMBURG.

1. Quintuple Ducat of 1828. Obverse: Female seated, holding in her left hand a stalk of wheat, resting her hand upon a beehive.



QUINTUPLE DUCAT OF 1828.

Reverse: "1778," surrounded by a wreath, beneath the same, "1828," surrounded also by a wreath; the whole inclosed in a

circle. Legend: "FÜNFZIG JÄHRIGER BESTAND DER HAMBURGISCHEN VERSORGUNGS ANSTALT." (*Fifty years' existence of the Provident Institution of the City of Hamburg*). Weight: 269.290. Fineness: 979.167. Value: \$11.35.5165.

2. Ducat of 1841 to 1860. Obverse: A Knight in armor, carrying a long sword in his dexter, holding with his sinister an oval shield, upon which is the arms of the City of Hamburg: a city gate with three towers, and the date of the year of issue. Legend: "HAMBURGENSIS NUMVS AVREVS" (*Gold Coin of Hamburg*).



HAMBURG DUCAT.

Reverse: A fancy shield bearing the following: "67 AEQV. POND MARC COL PRETII 23½ KARAT" (*67 pieces equal to weigh one Mark fine of Cologne*). Weight: 53.858 grains. Fineness: 979.167. Value: \$2.27.1033.

In 1860 and up to 1872, a slight change was made upon the Reverse of this Ducat, the line "23½ KARAT" was altered to "979 MILES;" the rest remaining unchanged. Prior to 1841, and from that time back to 1810, the Obverse of the Ducat bears only the city gate with three towers: the arms of Hamburg. Legend: Same as No. 2. Exergue: Date of the year of issue. Weight, fineness, and value: Same as No. 2.

By decree of the German Empire of February 15th, 1873, the former coinage of Hamburg, which was in use since 1619, was abolished and the conversion in Marks and Pfennige ordered. The gold coin of Hamburg of to-day are the 20, 10 and 5 Mark pieces.

3. 20 Mark. Obverse: Shield supported by two lions, upon it a city gate with three towers above it, surmounted by a

helmet, behind which are seen flags, spears, etc. Legend: "FREIE UND HANSESTADT HAMBURG" (*Free and Hanseatic city of Hamburg.*) Reverse: The Imperial Eagle of Germany. Legend: "DEUTSCHES REICH" (*German Empire*). Exergue: "20 MARK." Around the edge "GOTT MIT UNS" (*God with us*). Weight: 122.880. Fineness: 900. Value: \$4.76.

4. 10 Mark. Obverse and Legend: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "10 MARK." Weight: 61.440. Fineness: 900. Value: \$2.38.

5. 5 Mark. Obverse and Legend: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "FÜNF MARK" (*Five Marks*). Weight: 30.720. Fineness: 900. Value: \$1.19. All the new gold coins bear the mint-mark "J."

SILVER COINS OF HAMBURG.

1. Two Mark Courant. Obverse: Double headed eagle. Intrinsic Value: \$0.59.7885.



TWO MARK PIECE OF 1765.



TWO MARK PIECE OF 1780-1800.

2. Two Mark Courant. Obverse: Double headed eagle. Intrinsic Value: \$0.51.

3. Mark of 1731. Obverse: Double headed eagle.



ONE MARK PIECE OF 1731.



TWO MARKS COURANT.

Intrinsic Value: \$0.29.8943.

4. Half and Quarter Mark. Obverse: Same as No. 3.

5. Two Marks Courant of 32 Shillings of 1808-1870.

Obverse: A city gate with three towers above. Reverse: "32 SCHILLINGE HAMBURGER COURANT 1808." Intrinsic Value: \$0.50 $\frac{1}{2}$.

6. One Mark Courant of 16 Shillings. Obverse: Same as No. 5. Reverse: "16," rest same as No. 5. Intrinsic Value: \$0.25 $\frac{1}{2}$.

7. 8 Shillings Courant. Obverse: Same as No. 5. Reverse: "8," rest same as No. 5. Intrinsic Value: \$0.12.



8 SHILLINGS COURANT.



4 SHILLINGS COURANT.

8. 4 Shillings Courant. Obverse: Same as No. 5. Reverse: "4," rest same as No. 5. Intrinsic Value: \$0.06.

All the silver coins aforementioned have since the 15th of

February, 1873, been deprived of their value as legal tender, and being since 1808 only 562 and 375 fine, are almost valueless except to the numismatists.

9. 5 Marks of 1872 and since. Obverse: Coat of arms of city of Hamburg. Legend: "FREIE UND HANSESTADT HAMBURG." Mint-mark "J."



5 MARKS PIECE OF HAMBURG.

Reverse: The Imperial German Eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK." Weight: 476 grains. Fineness: 900. Value: \$1.19.

10. 2 Marks of 1873 and since. Obverse and Legend: Same as No. 9. Reverse and Legend: Same as No. 9. Exergue: "ZWEI MARK." Weight: 190.400 grains. Fineness: 900. Value: \$0.47.600.

11. 1 Mark of 1874 and since. Obverse: The German Imperial Eagle.



ONE MARK OF HAMBURG.

Reverse: "1 MARK" surrounded by oak branches crossed

and tied. Legend: "DEUTSCHES REICH." Exergue: Date of year of issue. Weight: 95.200 grains. Fineness: 900. Value: \$0.23.8.

12. 50 Pfennig. Obverse: Imperial German Eagle.

Reverse: "50." Legend: DEUTSCHES REICH," and the date of the year of issue. Exergue: "PFENNIG." Weight: 47.600 grains. Fineness: 900. Value: \$0.11.90.

13. 20 Pfennig. Obverse: Same as No. 12.

Reverse: "20," rest same as No. 12. Weight: 19.040 grains. Fineness: 900. Value: \$0.04.76.

The Nickel and Bronze coins circulating in Hamburg are those of the German Empire.

D. Lubeck.

The coinage of Lubeck has been limited to silver, of somewhat inferior standard, none above 750 fine and again as low down as 562 fine. (Billon.)

1. Three Mark Piece of 1752 only 750 fine, weighing 421.587 grains.



3 MARKS OR 48 SHILLINGS OF LUBECK OF 1752.

Intrinsic Value: \$0.91.2468; being out of circulation for nearly one hundred years, its value among numismatists is considerable.

2. Mark piece of 16 Shillings. Obverse: Double headed eagle; upon its breast "16" inclosed in a circle.

Reverse: Shield, coat of arms of the city of Lubeck, above "16," surrounded by palm branches. Weight: 141.529 grains. Fineness: 750. Value: \$0.30.4156.

3. Half Mark of 8 Shillings. Obverse: Same as No. 2.



HALF MARK OF 8 SHILLINGS OF LUBECK.

Reverse: Same as No. 2. Weight: 84.908. Fineness: 625. Value: \$0.13 $\frac{3}{4}$.

4. 4 Shillings. Obverse: Same as No. 2. Reverse: Same as No. 2. Weight: 47.176 grains. Fineness: 562.450. Value: \$0.08.1108.

All the afore-described coins have been deprived of their value as legal tender by act of July 1st, 1872. Lubeck as a free city has the right to coin gold and silver money; but must conform to the standard weight, devices and legends of the German Empire.

HESSE.

After various changes and divisions, the Landgraviate of Hesse was divided into three parts, of which Hesse-Cassel's Landgraf was made Elector in 1803; Hesse-Darmstadt a Grand Duchy in 1806, and Hesse-Homburg remained a Landgraviate, each being so distinguished from the name of its capital. The coinages of these three States have been interchangeable, being distinguished only by the titles of the reigning princes.

Since 1872 their respective coinage has been called in, and since 1873 the German Reichs-Mark in gold and silver has taken their place.

The Electorate of Hesse-Cassel and the Landgraviate of

Hesse-Homburg have ceased to issue coins; only the Grand Duchy of Hesse-Darmstadt has the privilege to coin gold and silver Reichs-Marks, and their mint-mark is the letter "H" and their mint at Darmstadt.

GOLD COINS OF HESSE-CASSEL.

1. Double Wilhelm's D'Ors of 10 Thalers of Wilhelm I. Obverse: Head of Wilhelm I. Legend: "WILHELMUS I ELECT HASS LANDGRM D FULD" (*William I. Elector of Hesse, Landgraf and Grand Duke of Fulda*). Reverse: Crowned shield bearing the arms of Hesse. Legend: "ZEHN THALER." Exergue: Date of the year of issue. Weight: 206.221 grains. Fineness: 902.779. Value: \$8.00.9348.

2. Wilhelm's D'Or of 5 Thalers. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Legend: "5 THALER." Weight: 103.110. Fineness: 902.779. Value: \$4.00.4674.

3. Double Wilhelm's D'Or of 10 Thalers of Wilhelm II. Obverse: Bust of Wilhelm II. in uniform. Legend: "WILHELM II. KURF. S. L. V. HESSEN G. H. V. FULDA" (*Wilhelm II. Kurfürst Souverain Landgraf Von Hessen, Gros-Herzog Von Fulda; William II., Elector Sovereign of Hesse, Grand Duke of Fulda*). Reverse and Legend: Same as No. 1. Weight: 206.221 grains. Fineness: 902.779. Value: \$8.00.9348.

4. Wilhelm's D'Or of 5 Thalers of Wilhelm II. Obverse and Legend: Same as No. 3. Reverse and Legend: Same as No. 2. Weight: 103.110. Fineness: 902.779. Value: \$4.00.4674.

5. Double Wilhelm's D'Or of 10 Thalers of Wilhelm II., Elector, and Friedrich Wilhelm, Electoral Prince and Co-Regent. Obverse: Coat of arms of Hesse-Cassel, surmounted by a crown, from which an order chain surrounds the whole. Legend: "WILHELM II. KURF. U. FRIEDR. WILH. KURPR. U. MITREG" (*William II., Elector, and Frederick William, Electoral Prince and Co-Regent*). Reverse: "X THALER," and the date of the year of issue. Legend: "KURFÜRSTENTHIUM HESSEN"

(*Electorate Hesse*). Weight: 206.221 grains. Fineness: 902.778. Value: \$8.00.9348.

6. Wilhelm's D'Or of 5 Thalers of Wilhelm II., and Friedrich Wilhelm. Obverse and Legend: Same as No. 5. Reverse: "V THALER," rest same as No. 5. Weight: 102.825 grains. Fineness: 899.306. Value: \$3.98.0910.

SILVER COINS OF HESSE-CASSEL.

1. Thaler of Wilhelm I. Obverse: Head of Wilhelm I. Legend: "WILHELM I. KURF. SOUV. LANDGRA. Z. HESSEN. GR. II. V. FULDA." Reverse: "EIN THALER," and the date of the year of issue, inclosed in wreath of laurel. Around the edge: "KUR. HESS. LAND-MÜNZE" (*Electorate of Hesse State-Money*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

2. Thaler of Wilhelm II. Obverse: Head of Wilhelm II. Legend: "WILHELM II.," rest same as No. 1. Reverse and Legend: Same as No. 1. Weight, Fineness and Value: Same as No. 1.

3. Thaler of Wilhelm II. and Frederick Wilhelm, Co-Regent. Obverse: Crowned shield, bearing arms of Hesse-Cassel, surrounded by an order chain. Legend: "WILH. II. KURF. U. FRIEDR. WILH. KUR PR. U. MIT REGENT."



THALER OF WILLIAM II. AND FREDERICK WILLIAM,
CO-REGENT.

Reverse: "1 THALER," and the date of the year of issue. Legend: "KURFÜRSTENTHUM HESSEN." Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

4. Double Thaler or $3\frac{1}{2}$ Gulden or Florin of Friederich Wilhelm I. Obverse: Head of Friederich Wilhelm. Legend: "FRIEDR. WILHELM I KURFÜRST V. HESSEN." Reverse: Shield bearing arms of Hesse-Cassel, surrounded by an order chain; upon a mantle of ermine draped from a crown. Legend: "2 THALER VII EINE F. MARK $3\frac{1}{2}$ GULDEN" (*Two Thalers or Dollars, seven to weigh one Mark, fine silver, $3\frac{1}{2}$ Gulden or Florins*). Exergue: "VEREINS-MÜNZE," and the date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

5. Vereins-Thaler of $1\frac{1}{2}$ Gulden or Florins of Friedrich Wilhelm I. Obverse and Legend: Same as No. 4. Reverse: Same as No. 4. Legend: "EIN VEREINS-THALER XXX EIN PFUND FEIN" (*One Convention Thaler or Dollar, 30 to weigh one pound, fine silver*). Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

The Billon-silver money of Hesse-Cassel is the One-third Thaler, marked "3 EINEN THALER" (*three to make one Thaler*). Weight: 137.486 grains. Fineness: 625. Value: \$0.24.



$\frac{1}{3}$ THALER.



$\frac{1}{6}$ THALER.

The One-sixth of a Thaler, marked "6 EINEN THALER" (*six to make one Thaler*). Weight: 82.485 grains. Fineness: 520.333. Value: \$0.12. All the afore-described coins of Hesse-Cassel are no legal tender.

GOLD COINS OF HESSE-DARMSTADT.

1. Carolin of Ernest Ludwig. Obverse: Head of Ernest Louis. Legend: "ERNEST LVD. HASS. LANDG. PR. HESSE" (*Ernest Louis Landgrave of Hesse, Prince of Hirschfeld*).

Reverse: A cross formed by four crowns, and the letters "E. L." four times repeated: in the centre an "X." (10 Gulden)



CAROLIN OF ERNEST LOUIS OF HESSE.

or Florins). Legend: "OCCULTA PATEBUNT" (*Hidden things shall be brought to light*). Intrinsic value: \$4.75; but being out of circulation since 1806, it is highly prized by numismatists.

2. The Half Carolin. Obverse, Reverse and Legend: Same as No. 1, with the exception that in the centre of the letters "E. L." a "V" (5 Gulden or Florin) in place of an "X" appears. Intrinsic value: \$2.37½. (Also very scarce.)

3. The Quarter Carolin. Obverse, Reverse and Legend: Same as No. 1, only "¼" instead of "X."



QUARTER CAROLIN OF ERNEST LOUIS OF HESSE.

Intrinsic value: \$1.68¾; also very scarce.

4. Ducat of Ludwig. Obverse: Head of Ludwig. Legend: "LUDWIG GROSHERZOG VON HESSEN."



DUCAT OF LUDWIG OF HESSE.

Reverse: Crowned shield with the arms of Hesse-Darmstadt.

Weight: 56.652 grains. Fineness: 937.5 grains. Value: \$2.27.

5. 10 Gulden Piece of Ludwig II. Obverse: Head of Ludwig II. Legend: "LUDWIG II GROSHERZOG VON HESSEN." Reverse: Shield bearing coat of arms of Hesse-Darmstadt, surmounted by a *cuirasse*, upon a mantle of ermine, draped from a crown above. Legend: "ZEHN GULDEN" (*Ten Florins*). Exergue: Date of the year of issue. Weight: 104.153 grains. Fineness: 900. Value: \$4.03.7723.

6. 5 Gulden Piece of Ludwig II. Obverse and Legend: Same as No. 5. Reverse: Same as No. 5. Legend: "FÜNF GULDEN." Exergue: Date of the year of issue. Weight: 56.652 grains. Fineness: 937.500. Value: \$2.28.6237.

All the afore-described gold coins are no longer a legal tender in Germany, and are now being exchanged for Reichs-Marks of the German Empire.

7. 20 Marks of Hesse-Darmstadt of 1873 and since. Obverse: Head of Ludwig III. Legend: "LUDWIG III GROSHERZOG VON HESSEN." Exergue: Mint-mark "H" of the mint located in Darmstadt. Reverse: The German Imperial Eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "20 MARK." Weight: 122.880 grains. Fineness: 900. Value: \$4.76.

8. 10 Marks of Hesse-Darmstadt of 1874 and since. Obverse and Legend: Same as No. 7. Reverse: Same as No. 7. Legend: "DEUTSCHES REICH." Exergue: "10 MARKS." Weight: 61.440 grains. Fineness: 900. Value: \$2.38.

9. 5 Marks of Hesse-Darmstadt of 1874 and since. Obverse and Legend: Same as No. 7. Reverse and Legend: Same as No. 7. Exergue: "FÜNF MARK." Weight: 30.720 grains. Fineness: 900. Value: \$1.19.

SILVER COINS OF HESSE-DARMSTADT.

1. The $3\frac{1}{2}$ Gulden or Florin of 2 Thalers of Ludwig II. Obverse: Head of Ludwig II. Legend: "LUDWIG II GROSHERZOG VON HESSEN."

Reverse: "VEREINS" "MÜNZE," and the date of the year of issue, in three parallel lines, the whole surrounded by heavy oak branches, crossed and tied. Legend: "3½ GULDEN," a star, "2 THALER." Exergue: "VII EINE FEINE MARK."



3½ GULDEN OF 2 THALERS OF HESSE-DARMSTADT.

(Seven to weigh one Mark of fine silver). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.9950.

2. The 3½ Gulden or Florins of 2 Thalers of Hesse-Darmstadt. Obverse and Legend: Same as No. 1.

Reverse: Crowned shield, bearing arms of Hesse-Darmstadt, Legend: "3½ GULDEN VII EINE F. MARK 2 THALER." Exergue: "VEREINS MÜNZE," and the date of the year of issue. Weight, fineness, and value: Same as No. 1.

3. Crown Thaler of Ludwig II. of Hesse-Darmstadt. Obverse and Legend: Same as No. 1.

Reverse: Shield bearing arms of Hesse-Darmstadt, above it a Helmet, upon a mantle of ermine, the whole draped from a crown above. Legend: "EIN KRONEN THALER." Exergue: Date of the year of issue. Weight: 455.068 grains. Fineness: 868.056. Value: \$1.01.7823.

4. Vereins Thaler of Ludwig III. Obverse: Head of Ludwig III. Legend: "LUDWIG III. GROSHERZOG VON HESSEN." Reverse: Crowned shield, bearing arms of Hesse-Darmstadt, supported by two crowned lions. Legend: "EIN

VEREINS THALER XXX EIN PFUND FEIN" (*One Convention Thaler or Dollar, thirty to weigh one pound fine silver*). Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.9975.



CROWN THALER OF LUDWIG II.

5. Two Gulden Piece of Ludwig III. Obverse and Legend: Same as No. 4. Reverse: Same as No. 4. Legend: "ZWEI GULDEN" (*Two Florins*). Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

6. Gulden or Florin of Ludwig III. Obverse and Legend: Same as No. 4. Reverse: "1 GULDEN," and the date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.6947.

7. Half Gulden or Florin of Ludwig III. Obverse and Legend: Same as No. 4. Reverse: " $\frac{1}{2}$ GULDEN;" rest same as No. 6. Weight: 81.837 grains. Fineness: 900. Value: \$0.20.8473.

All the afore-described coins have been deprived of their value as legal tender by act of the German Empire, April, 1872.

8. Five Mark Piece of 1873 and since. Obverse: Head of Ludwig III. facing to the right: all the former coins of Hesse-Darmstadt, the effigies of the reigning princes face the left.

Legend: "LUDWIG III GROSHERZOG VON HESSEN." Exergue: "H." Mint-mark of Darmstadt.

Reverse: The German Imperial Eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK. Weight: 476 grains. Fineness: 900. Value: \$1.19.

9. Two Mark Piece of 1874 and since. Obverse and Legend: Same as No. 8. Reverse and Legend: Same as No. 8. Exergue: "ZWEI MARK." Weight: 190.400 grains. Fineness: 900. Value: \$0.47.6.

10. One Mark Piece of 1874 and since. Obverse: The German Imperial Eagle and the Mint-mark "H."

Reverse: "1 MARK," surrounded by oak branches, crossed and tied. Exergue: Date of the year of issue. Weight: 95.200. Fineness: 900. Value: \$0.23.800.

11. 50 Pfennig of 1874 and since. Obverse: Same as No. 10. Reverse: "50." Legend: "DEUTSCHES REICH." Exergue: "PFENNIG." Weight: 47.600 grains. Fineness: 900. Value: \$0.11.900.

12. 20 Pfennig of 1874 and since. Obverse: Same as No. 10. Reverse: "20," rest same as No. 10. Weight: 19.040 grains. Fineness: 900. Value: \$0.04.760.



6 KREUTZERS OF HESSE-DARMSTADT.

The Nickel and Bronze Coins circulating in Hesse-Darmstadt are those of the German Empire

HESSE-HOMBURG.

SILVER COINS OF HESSE-HOMBURG.

1. Vereins-Thaler of Ferdinand of Hesse-Homburg. Ob-

verse: Head of Ferdinand. Legend: "FERDINAND SOUV. LANDGRAF V. HESSEN" (*Ferdinand Sovereign Landgrave of Hessen*). Reverse: Shield bearing the arms of Hesse-Cassel and Hesse-Homburg, upon a shield of pretence bearing the lion rampant of Hesse-Darmstadt, the whole upon a mantle of ermine, draped from a crown from above. Legend: "EIN VEREINS-THALER XXX EIN PFUND FEIN" (*One Convention Thaler or Dollar, thirty to weigh one pound fine silver*). Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

Hesse-Cassel and Hesse-Homburg exist no longer as independent sovereign states, Prussia having annexed the same in 1864; they form now only a province of the German Empire.

LIPPE.

SILVER COINS OF LIPPE.

1. Double Thaler of $3\frac{1}{2}$ Gulden of Lippe. Obverse: Head of Paul Alexander Leopold. Legend: "PAUL ALEXANDER LEOPOLD FÜRST ZUR LIPPE." Reverse: Shield bearing arms of the Principality of Lippe, upon a mantle of ermine, draped from a crown above. Legend: "2 THALER VII EINE F. MARK $3\frac{1}{2}$ GULDEN" (*Two Thaler or Dollars of $3\frac{1}{2}$ Gulden or Florins, seven to weigh one Mark, fine silver*). Exergue: "VEREINS," date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Vereins-Thaler of Paul Alexander Leopold. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Legend: "EIN VEREINS-THALER XXX EIN PFUND FEIN" (*One Convention Thaler or Dollar, thirty to weigh one pound, fine silver*). Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

3. Double Thaler of $3\frac{1}{2}$ Gulden of Lippe. Obverse: Head of Paul Friedrich Emil Leopold. Legend: "PAUL FRIEDRICH EMIL LEOPOLD FÜRST Z LIPPE." Reverse, Legend and Ex-

ergue: Same as No. 1. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

4. Vereins-Thaler of Lippe. Obverse and Legend: Same as No. 3. Reverse, Legend and Exergue: Same as No. 2. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

All the afore-described coins have been deprived of their value as legal tender, by Act of the German Empire, July 1st, 1873.

LIPPE-SCHAUMBURG.

SILVER COINS OF LIPPE-SCHAUMBURG.

1. Double Thaler of 3½ Gulden of Georg Wilhelm. Obverse: Head of Georg Wilhelm. Legend: "GEORG WILHELM FÜRST ZU SCHAUMBURG-LIPPE." Reverse: "NACH FÜNFZIG JÄHRIGER REGIERUNG, 1857" (*After fifty years of reign, 1857*). Legend: "EIN DOPPEL-THALER"—a star—"XV EIN PFUND FEIN" (*One Double Thaler or Dollar, fifteen to weigh one pound, fine silver*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

By Act of Parliament of the German Empire this coin has been deprived of its legal tender value.

MECKLENBURG-SCHWERIN.

GOLD COINS OF MECKLENBURG-SCHWERIN.

1. Double Pistolen Piece of 10 Thalers of Friedrich Franz. Obverse: Head of Frederick Francis. Legend: "FRIEDERICH FRANZ GROSSHERZOG V. MECKLENBURG-SCHWERIN." Reverse: Crowned shield bearing the arms of Mecklenburg-Schwerin, supported by an ox and griffin, *rampant*, upon a mantle of ermine, draped from a crown from above. Legend: "ZEHN THALER." Exergue: Date of the year of issue. Weight: 205.542 grains. Fineness: 895.833. Value: \$7.92.8390.

2. Double Pistolen Piece of 10 Thalers of Paul Friedrich.

Obverse: Head of Paul Fredrick. Legend: "PAUL FRIEDRICH GROSSHERZOG V. MECKLENBURG-SCHWERIN."



DOUBLE PISTOLE OF 10 THALERS.

Reverse: Same as No. 1. Weight: 205.542 grains. Fineness: 895.833. Value: \$7.92.8390.

3. Pistole of 5 Thalers of Friedrich Franz. Obverse and Legend: Same as No. 1. Reverse: Crowned shield bearing the arms of Mecklenburg-Schwerin, upon a mantle of ermine, draped from a crown from above. Legend: "FÜNF THALER." Exergue: Date of the year of issue. Weight: 102.771 grains. Fineness: 895.833. Value: \$3.96.4195.

4. Pistole of 5 Thalers of Paul Friedrich. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 3. Exergue: Date of the year of issue. Weight: 102.771 grains. Fineness: 895.833. Value: \$3.96.4195.

5. Half Pistole of 2½ Thalers of Paul Friedrich. Obverse: Head of Paul Frederick. Legend: "PAUL FRIEDRICH GROSSHERZOG V. MECKLENBURG-SCHWERIN." Reverse: Crowned shield bearing the arms of Mecklenburg-Schwerin, upon a mantle of ermine, draped from a crown from above. Legend: "ZWEI UND EIN HALB THALER." Weight: 51.335 grains. Fineness: 895.833. Value: \$1.98.2048.

The afore-described gold coins are now exchanged in Germany for Reichs-Marks, of the German Empire; having been deprived of their legal tender value for payments of debts, public and private, since July, 1873.

SILVER COINS OF MECKLENBURG-SCHWERIN.

1. Thaler of Friedrich Franz. Obverse: Head of Fred-

erick Francis. Legend: "FRIEDRICH FRANZ GROSSHERZOG V. MECKLENB. SCHW." Reverse: Crowned shield, bearing arms of Meeklenburg-Schwerin, surrounded by a laurel wreath. Legend: "EIN THALER XIV EINE F. M." Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

2. Florin of Paul Friedrich. Obverse: Undraped bust of Paul Frederick. Legend: "PAUL FRIEDR. GROSSHERZOG V. MECKLENBURG-SCHWERIN."



FLORIN OF PAUL FREDERICK.

Reverse: Same as No. 1. Legend: "XVIII STÜCK EINE (date of the year of issue) MARK FEIN SILBER." Weight: 203.320 grains. Fineness: 893.111. Value: \$0.56.6650.

3. Florin of Friedrich Franz. Obverse: Head of Frederick Francis. Legend: Same as No. 1.



FLORIN OF FREDERICK FRANCIS.

Reverse: Same as No. 2. Weight: 203.320 grains. Fineness: 893.111. Value: \$0.56.6650.

4. 32 Shilling Piece of Friederich Franz, 1797. Obverse: Large figure "32" "SCHILLING." "COURANT." "MECKLENBURG." "SCHWERIN." "MÜNZE." "1797," in seven parallel lines. Reverse: Crowned shield, bearing arms of Mecklenburg-Schwerin. Legend: "FRIED FRANZ V. G. G. HERZOG ZU MECKLENBURG-SCHWERIN." Weight: 283.059 grains. Fineness: 750. Value: \$0.59.8171.

The silver coins of Mecklenburg-Schwerin are no longer legal tender, neither are they receivable for taxes since 1874. The silver, nickel and bronze money now in circulation throughout Mecklenburg, are the Reichs-Mark and Pfennige of the German Empire, described on page 642.

NASSAU.

Nassau, up to 1864 an independent Duchy, forms now only a province of Prussia, and therewith part of the German Empire.

SILVER COINS OF NASSAU.

1. Double Thaler of $3\frac{1}{2}$ Gulden or Florins of Adolph from 1840 to 1847. Obverse: Head of Adolph. Legend: "ADOLPH HERZOG ZU NASSAU" (*Adolph Duke of Nassau*).

Reverse: " $3\frac{1}{2}$ GULDEN 2 THALER," and the date of the year of issue; surrounded by heavy oak branches, crossed and tied. Legend: "VEREINS MÜNZE." Exergue: "VII EINE F. MARK" (*Seven to weigh one Mark fine*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Double Thaler of $3\frac{1}{2}$ Gulden or Florins of Adolph of 1847 to 1860. Obverse and Legend: Same as No. 1. Reverse: Crowned shield, bearing arms of Nassau, upon a mantle of ermine, draped from a crown from above. Legend: " $3\frac{1}{2}$ GULDEN. VII EINE F. MARK. 2 THALER." Exergue: "VEREINS MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

3. Vereins-Thaler of $1\frac{1}{3}$ Gulden of Adolph of 1849-1864. Obverse and Legend: Same as No. 1. Reverse: Crowned

shield, upon it a lion rampant; the shield supported by two crowned lions. Legend: "EIN VEREINS-THALER. XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

4. Two Gulden Piece of Adolph of Nassau. Obverse: Head of Adolph facing to the right. Legend: Same as No. 1. Reverse: Same as No. 3. Legend: "ZWEI GULDEN" (*Two Florins*). Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

5. Gulden of Adolph of Nassau. Obverse and Legend: Same as No. 4. Reverse: "1 GULDEN," and the date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

6. Half Gulden of Adolph of Nassau. Obverse: Head of Adolph facing to the right. Legend: "ADOLPH HERZOG ZU NASSAU."



HALF GULDEN OR FLORIN OF NASSAU.

Reverse: " $\frac{1}{2}$ GULDEN," and the date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Weight: 81.652 grains. Fineness: 900. Value: \$0.20.7838. The Billon money of Nassau, the 6 Kreuzer and the 3 Kreuzer Piece weigh 40 and 20 grains respectively, and are of only 333.333 fineness: their value, therefore, $2\frac{3}{4}$ and $1\frac{3}{8}$ cents each.

OLDENBURG.

SILVER COINS OF OLDENBURG.

1. Thaler of Paul Friedrich August of Oldenburg. Ob-

verse: Head of Paul Fredrick August. Legend: "PAUL FRIEDR. AUGUST. GR. H. V. OLDENBURG." Reverse: Crowned shield, bearing arms of the Grand Duke of Oldenburg; surrounded by oak and laurel branches, crossed and tied. Legend: "EIN THALER. XIV EINE F. M" (*One Thaler or Dollar, fourteen to weigh one Mark fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.9975.

2. Vereins-Thaler of Nicolaus Friedrich Peter. Obverse: Head of Nicolas Fredrick Peter. Legend: "NICOLAUS FRIEDR. PETER GR. II. V. OLDENBURG." Reverse: Same as No. 1. Legend: "EIN VEREINS-THALER XXX EIN PFUND FEIN" (*One Convention Thaler or Dollar, thirty to weigh one pound fine silver*). Weight: 285.784 grains. Value: \$0.72.

The Billon money of $2\frac{1}{2}$ Groschen of Oldenburg is only 375 fine, and weighs $49\frac{3}{4}$ grains; its value quite nominal at $5\frac{1}{2}$ cents.

All the afore-described coins of Oldenburg are no longer legal tender, and the coins now circulating are the Reichs-Mark in gold and silver of the German Empire.

PRUSSIA.

About 1320 Prussia was but a small, unimportant duchy, just recovering from a fifty years' religious quarrel and bloodshed between the Teutonic Christian knights and the Borussi, the original inhabitants of that part of Germany. At the accession of Fredrick VI., of Nuremburg, in 1415, it was raised to an Electorate; since then it has been steadily augmenting both in extent and influence, and now ranks among the first powers of Europe. It was raised to the rank of a kingdom during the reign of Frederick III., who, in an assembly of nobles from the different German principalities, put a royal crown upon his own head, and upon the head of his consort, proclaimed himself King of Prussia, dropping the name of Frederick III., and assuming the title of Frederick I., King of Prussia.

From that time, and up to 1871, the sovereigns of Prussia bore the title "King;" but on January 18, 1871, Princee Bismark, in the name of the other German sovereigns, and the German people, at Versailles, France, offered the Imperial Crown of Germany to the now Emperor Wilhelm, who still, as Emperor of Germany, maintains his royal title of Prussia.

The coinage, both gold and silver, of Prussia is very important and varied.

GOLD COINS OF PRUSSIA.

1. Double Frederick D'Or of 1776 of Fredrick II., surnamed Frederick the Great. Obverse: Bust of Frederick the Great. Legend: "FRIDERICUS BORUessorum REX" (*Frederick King of the Borussia or Prussia*). Reverse: An eagle's wings expanded, martial emblems, etc. Legend: Date of the year of issue. Weight: 206 grains. Fineness: 902. Value: \$7.92.

2. Frederick D'Or of Frederick the Great, from 1752 to 1770. Obverse and Legend: Same as No. 1.



FREDERICK D'OR OF FREDERICK THE GREAT.

Reverse: Crowned eagle, wings expanded, flags and standards, *saltiere* wise, the eagle resting on a shield upon which the letter "A," mint-mark of Berlin. Exergue: Date of the year of issue. Weight: 103 grains. Fineness: 902. Value: \$3.96.

3. Frederick D'Or of Frederick the Great, of 1775 to 1786. Obverse and Legend: Same as No. 1.

Reverse: Crowned eagle, wings expanded, flags and martial emblems. Legend: Date of the year of issue. Exergue: Let-

ter "A," mint-mark of Berlin. Weight: 103 grains. Fineness: 902. Value: \$3.96.



FREDERICK D'OR OF FREDERICK THE GREAT.

4. Double Frederick D'Or of Frederick William III. Obverse: Bust of Frederick William III. in military uniform, the hair tied in a *queue*, head facing to the left. Legend: "FRIEDR. WILHELM III. KOENIG VON PREUSSEN."



DOUBLE FREDERICK D'OR OF FREDERICK WILLIAM III.

Reverse: Crowned eagle, wings expanded, perched upon cannon, flags and other martial emblems; in his dexter talon a sceptre, in his sinister the royal globe, surmounted by the Coptic cross. Exergue: Date of the year of issue, and beneath the letter "A," mint-mark of Berlin. Weight: 206.221 grains. Fineness: 902.778. Value: \$7.96.

5. Frederick D'Or of Frederick William III. Obverse and Legend: Same as No. 4. Reverse: Eagle without a crown, perched upon a flag. No Legend. Exergue: "17 A. 98." Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

6. Frederick D'Or of Frederick William III., of 1810. Obverse: Bust of Frederick William III. facing to the right, no

queue. Legend: "FRIEDRICH WILHELM III. KOENIG VON PREUSSEN." Reverse: Same as No. 4. Exergue: "1810." "A." Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

7. Frederick D'Or of Frederick William III., of 1813. Obverse and Legend: Same as No. 4. Reverse: Same as No. 4. Exergue: "1813" "A." Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

8. Frederick D'Or of Frederick William III., of 1813. Obverse: Laureated bust of Frederick William III. facing to the right, no *queue*. Legend: "FRIEDR. WILHELM III. KOENIG V. PREUSSEN." Reverse: Crowned eagle, perched upon flags, *saltiere* wise, a cannon beneath. Legend: "5 THALER." Exergue: "18 A. 15." Edge dotted. Weight: 103.110 grains. Fineness: 900. Value: \$3.98.

9. Frederick D'Or of Frederick William III., of 1818. Obverse: Bust of Frederick William III. in uniform, facing to the left. Legend: "FRIEDR. WILH. III. KOENIG V. PREUSSEN." Reverse: Crowned eagle, perched on martial emblems. No legend. Exergue: "1818," beneath letter "A," mint-mark of Berlin. Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

9. Frederick D'Or of Frederick William III., of 1825 to 1839. Obverse: Bust of Frederick William III. Legend: "FRIEDR. WILH. III. KOENIG V. PREUSSEN."



FREDERICK D'OR OF FREDERICK WILLIAM III.

Reverse: Crowned eagle, flags and martial emblems, *saltiere*. Exergue: Date of the year of issue. Weight: 103.110 grains. Fineness: 900. Value: \$3.98.

10. Half Frederick D'Or of Frederick William III. Obverse: Bust of Frederick William III. in full military uniform, hair in a *queue*, and tied with a ribbon. Legend: "FRIEDR. WILH. III. KOENIG V. PREUSSEN." Reverse: Crowned eagle, in his dexter talon a sceptre, in his sinister a royal globe, surmounted by the Coptic cross. Exergue: "1802"—"1816." Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

11. Half Frederick D'Or of William III. Obverse: Bust of Frederick William III., no *queue*. Legend: "FRIEDR. WILHELM. III. KOENIG V. PREUSSEN." Reverse: Crowned eagle, perched upon flags and martial emblems, the left wing embraces a flag. Exergue: "1817—1832." Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

12. Half Frederick D'Or of Frederick William III. Obverse: Head of Frederick William III. facing to the right. Legend: "FRIEDR. WILH. III. KOENIG V. PREUSSEN." Reverse: A rather high shouldered crowned eagle, perched upon a cannon, flags *salliere* wise, behind. Exergue: "1833 TO 1840." Weight: 51.55 grains. Fineness: 902.778. Value: \$1.99.

13. Double Frederick D'Or of Frederick William IV., from 1841 to 1858. Obverse: Head of Frederick William IV. facing to the right. Legend: "FRIEDR. WILHELM IV. KOENIG V. PREUSSEN." Exergue: The letter "A," Mint-mark of Berlin. Reverse: High shouldered crowned eagle, wings expanded, perched upon a cannon. Exergue: Date of the year of issue. Weight: 206.220 grains. Fineness: 902.778. Value: \$7.96.

14. Frederick D'Or of Frederick William IV. Obverse and Legend: Same as No. 13. Reverse and Exergue: Same as No. 13. Weight: 103.110 grains. Fineness: 902.778. Value: \$3.98.

15. Half Frederick D'Or of Frederick William IV. Obverse and Legend: Same as No. 13. Reverse and Exergue: Same as No. 13. Weight: 51.55 grains. Fineness: 902.778. Value: \$1.99.

16. Krone or Crown of Frederick William IV., of 1859–1860. Obverse: Bust of Frederick William IV. Legend: "FRIEDR. WILHELM IV. KOENIG V. PREUSSEN." Exergue: Letter "A." Reverse: "1 KRONE," and the date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Legend: "VEREINS MÜNZE" (*Convention money*). Exergue: "50 EIN PFUND FEIN" (*Fifty to weigh one pound, fine gold*). Weight: 171.467 grains. Fineness: 900. Value: \$6.64.5810.

17. Half Krone or Crown of Frederick William IV. Obverse and Legend: Same as No. 16. Reverse: " $\frac{1}{2}$ KRONE." Legend: Same as No. 16. Exergue: "100 EIN PFUND FEIN." Weight: 85.733 grains. Fineness: 900. Value: \$3.32.2905.

18. Krone or Crown of William. Obverse: Head of William facing to the right. Legend: "WILHELM KOENIG VON PREUSSEN." Exergue: Letter "A."

Reverse: "1 KRONE," and the date of the year of issue; surrounded by branches of oak, crossed and tied. Legend: "VEREINS MÜNZE" (*Convention money*). Exergue: "50 EIN PFUND FEIN" (*Fifty to weigh one pound of fine gold*). Weight: 171.467 grains. Fineness: 900. Value: \$6.64.5810.

19. Half Krone or Crown of William. Obverse and Legend: Same as No. 18. Reverse: " $\frac{1}{2}$ KRONE." Legend: Same as No. 18. Exergue: "100 EIN PFUND FEIN" (*One hundred to weigh one pound fine gold*).

20. Twenty Mark Gold Piece of 1871 and since. Obverse: Head of William. Legend: "WILHELM DEUTSCHER KAISER



20 MARKS OF WILLIAM OF PRUSSIA.

KÖNIG V. PREUSSEN" (*William, German Emperor, King of Prussia*). Exergue: Either A., B., or C.: if coined at the Ber-

lin mint, the letter "A;" if at Hanover, the letter "B;" and if at Frankfort-on-the-Main, the letter "C."

Reverse: The German Imperial Eagle, "20" at the left of it, and "M" at the right. Legend: "DEUTSCHER REICH" (*German Empire*). Exergue: Date of the year of issue. Weight: 122.880 grains. Fineness: 900. Value: \$4.76.

21. Ten Mark Piece of 1872 and since. Obverse and Legend: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "10 M." at each side of the eagle, and the date of the year of issue. Weight: 61.440 grains. Fineness: 900. Value: \$2.38.

22. Five Mark Piece of 1873 and since. Obverse and Legend: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "5 M." "5 MARK," and the date of the year of issue. Weight: 30.720 grains. Fineness: 900. Value: \$1.19.

SILVER COINS OF PRUSSIA.

1. Florin of Brandenburg. Obverse: Bust of Frederick III., in armor, as Elector of Brandenburg, and the last coin issued by him prior to his self-coronation as King of Prussia, A. D. 1701. Legend: "FRIDER. III D. G. M. B. S. R. I. ARC. &



FLORIN OF FREDERICK III. OF BRANDENBURG.

EL" (*Fridericus III., Dei Gratia Margraviae Brandenburgiae Sancto Romani Archithesaurius et Elector—Frederick III., by the Grace of God Markgrave of Brandenburg, Arch-Treasurer and Elector of the Holy Roman Empire*).

Reverse: Crowned shield, bearing arms of Hohenzollern. Legend: "MONETA NOVA BRANDENB. 1691" (*Money of New Brandenburg*). Intrinsic value: 46 cents, but being out of circulation for more than 150 years, it commands a high premium.

2. Florin of Frederick William I. of Prussia. Obverse: Laureated Bust, in armor. Legend: "FRID. WILH. D. G. REX BORUSSLE."



FLORIN OF FREDERICK WILLIAM I.

Reverse: Crowned shield, bearing arms of Prussia; at the left of it "17" and at the right "18. No Legend, no Exergue. Intrinsic value about 45½ to 46 cents, but being out of circulation for more than a hundred years, it is a favorite coin with numismatists in Europe, and commands a high premium.

3. Florin of Silesia of Frederick William I. Obverse:



FLORIN OF SILESIA OF FREDERICK WILLIAM.

Arms of Prussia. Legend: "FRIEDR. WILH. KOENIG V. PR. M. ZV. BRAND. D. H. R. R. E. KV. KURF." (*Friedrich Wilhelm*,

Koenig Von Preussen, Markgraf Zu Brandenburg, des Heiligen Römischen Reiches Erz-Kammerherr Und Kurfürst—Frederick William, King of Prussia, Marquis of Brandenburg, High Chamberlain and Elector of the Holy Roman Empire).

Reverse: Large " $\frac{2}{3}$." Legend: "18 STÜCK EINE MARK FEIN" (18 pieces to weigh one Mark fine silver). Exergue: "1801." Intrinsic value: 46 cents. (*Commands a high premium.*)

4. Reichs Thaler of Frederick the Great. Obverse: Bust of Frederick the Great, in uniform. Legend: "FREDERICUS BORVSSORVM REX."



REICHS THALER OF FREDERICK THE GREAT.

Reverse: Crowned eagle, perched upon military trophies. Legend: "EIN REICHS THALER." Exergue: "1750" "1764"



REICHS-THALER OF 1764.

and the letter "A," Mint-mark of Berlin. Intrinsic value: 69 cents. (*Commands a high premium.*)

5. Reichs Thaler of Frederick the Great of 1764 to 1786. Obverse and Legend: Same as No. 4.

Reverse and Legend: Same as No. 4. Value: Same as No. 4.



ONE-THIRD OF A RIX DOLLAR.

6. Reichs Thaler of Frederick William II. Obverse: Bust of Frederick William II. Legend: "FRIED. WILHELM KOENIG VON PREUSSEN" (*Frederick William, King of Prussia*).



REICHS THALER OF FREDERICK WILLIAM II.

Reverse: Crowned shield, bearing the Prussian eagle, supported by two wild men, emblematic of the ancient inhabitants of the Hartz Mountains, in the north of Germany, each holding a large elub in his right hand. Exergue: "EIN THALER," and the date of the year of issue. Weight: 341.760 grains. Finesness: 750. Value: \$0.71.200.

7. Thaler of Frederick William III., of 1812. Obverse:

Bust of Frederick William III. Legend: "FRIEDR. WILHELM KOENIG VON PREUSSEN." Reverse: Oval shield, bearing arms of Prussia, surmounted by a crown; surrounded by palm branches, crossed. Legend: "18" "12." Weight: 340 grains. Fineness: 745. Value: \$0.68.300.

8. Reichs Thaler of Frederick William III. Obverse: Bust of Frederick William III., facing to the right. Legend: "FRIEDR. WILHELM III. KOENIG VON PREUSSEN." Exergue: "A."



REICHS THALER OF FREDERICK WILLIAM III.

Reverse: "EIN REICHS THALER," the date of the year of issue and "A," in five parallel lines, surrounded by oak branches, crossed and tied. Legend: "VIERZEHN EINE FEINE MARK" (*Fourteen to weigh one Mark, fine silver*). Weight: 341 grains. Fineness: 748. Value: £0.68.700.



THALER OF FREDERICK WILLIAM III.

9. Thaler of Frederick William III. Obverse and Legend: Same as No. 8.

Reverse: Crowned eagle, perched on martial emblems. Legend: "EIN THALER." Exergue: "1820." Weight: 341 grains. Fineness: 748. Value: \$0.68.700.

10. Thaler of Frederick William III. Obverse and Legend: Same as No. 8.



10. THALER OF FREDERICK WILLIAM III.

Reverse: Crowned shield, bearing arms of Prussia, encircled by a laurel wreath and the Collar of the Black Eagle. Legend: "EIN THALER XIV EINE F. M." (*One Thaler or Dollar, fourteen to weigh one Mark, fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.69.300. This Thaler was coined from 1823 to 1831.

11. Thaler of Frederick William III. Obverse and Legend: Same as No. 8.



11. THALER OF FREDERICK WILLIAM III.

Reverse: "SEGEN DES MANSFELDER BERGBAUES" (*Blessing of the Mansfield mines*), in three distinct lines, occupying the field. Legend: "EIN THALER XIV EINE FEINE MARK." Ex-

ergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.69.300.

12. Double Thaler of $3\frac{1}{2}$ Gulden, Convention money of Frederiek William IV. Obverse: Head of Frederiek William IV. Legend: "FRIEDR. WILHELM IV. KOENIG VON PREUSSEN." Exergue: Letter "A," Mint-mark of Berlin.



DOUBLE THALER OF FREDERICK WILLIAM IV.

Reverse: Shield bearing the arms of Prussia, surrounded by the Collar of the Black Eagle, upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F. MARK $3\frac{1}{2}$ GULDEN" (*Two Thalers, seven to weigh one Mark of fine silver = $3\frac{1}{2}$ Gulden*). Exergue: "VEREINS," the date of the year of issue, "MÜNZE" (*Convention money*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

13. Convention Double Thaler of William of Prussia. Obverse: Head of William IV. Legend: "WILHELM KOENIG VON PREUSSEN." Exergue: Letter "A," Mint-mark of Berlin Mints. Reverse: Crowned Prussian eagle, wings spread, from his neck the chain and order of the Black Eagle are suspended; in his dexter talon a sceptre, in his sinister the royal globe surmounted by a large Coptic cross. Legend: "ZWEI VEREINS THALER XV EIN PFUND FEIN" (*Two Convention Thaler, fifteen to weigh one pound, fine silver*). Exergue: Date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

14. Thaler of Frederick William IV., of 1848. Obverse:

Head of Frederick William IV. Legend: "FRIEDR. WILHELM IV KOENIG V. PREUSSEN." Reverse: Crowned shield, bearing arms of Prussia, surrounded by laurel branches, and encircled by the order chain of the eagle of Prussia. Legend: "EIN THALER XIV EINE F. M." (*One Thaler, fourteen to weigh one Mark, fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.69.300.

15. Convention-Thaler of Frederick William IV. Obverse and Legend: Same as No. 14. Reverse: Crowned eagle, upon its breast a shield of pretence, upon the same the monogram F. W. R. (*Friederich Wilhelmi, Rex, Frederick William, King*), from the neck of the eagle is suspended the order chain of the Black Eagle of Prussia; in his dexter talon a sceptre, in his sinister a royal globe surmounted by a large Coptic cross. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

16. Convention-Thaler of Frederick William IV. Obverse and Legend: Same as No. 14. Reverse: "SEGEN DES MANSFELDER BERGBAUES" (*Blessing from the Mansfeld mines*). Legend: "EIN THALER XXX EIN PFUND FEIN." Exergue: "1859."

17. Coronation Thaler of 1861 of Wilhelm and Augusta. Obverse: Crowned Busts of William and Augusta of Prussia. Legend: "WILHELM KOENIG AUGUSTA KOENIGIN V. PREUSSEN." Obverse: In the middle of the field the Prussian eagle, over his head a crowned "w," beneath the eagle also a crowned "w," at the left and right of the eagle a crowned "A," the whole forming a cross; in the angles of the same, four times the letter "R." Legend: "SUUM CUIQUE" (*Let each have his own*). Exergue: "KROENUNGS THALER 1861" (*Coronation Thaler of 1861*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

18. Convention Thaler of William of 1861. Obverse: Head of William. Legend: "WILHELM KOENIG VON PREUSSEN." Exergue: "A." Reverse and Legend: Same as No.

16. Weight: 285.784 grains. Finessness: 900. Value: \$0.72.

19. Convention Thaler of William of 1861; the third kind struck in the same year, and continued with same devices and legend till 1871 inclusive. Obverse and Legend: Same as No. 18. Reverse: Crowned eagle of Prussia, upon its breast a shield of pretence with the monogram "w. r." upon it (*Wilhelm Rex, William King*). Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Weight: 285.784 grains. Finessness: 900. Value: \$0.72.

All the afore-described silver coins are no longer legal tender and are exchangeable at the Imperial Treasury at the rate of 3 Marks per Thaler.

BILLON COINS OF PRUSSIA.

All the billon coins of Prussia as well as the other subsidiary coins, called "SCHEIDE MÜNZE," are no longer in circulation in Germany.



ONE-THIRD OF A THALER OF PRUSSIA.

Value entirely nominal at 23 and 24 cents.



FOUR GOOD GROSCHEN.

Value entirely nominal at 12 cents.



FIVE SILVER GROSCHENS OF 1822-1827.

Value entirely nominal at 12 cents. Large numbers of the billon coins have been melted up and the silver extracted.

SILVER COINS OF THE GERMAN EMPIRE AND OF PRUSSIA.

1. Five Mark Piece. Obverse: Head of William. Legend: "WILHELM DEUTSCHER KAISER KOENIG V. PREUSSEN" (*William, German Emperor, King of Prussia*). Exergue: The Letters: "A." "B." or "C." mint marks, of Berlin (A.), of Hanover (B.), and of Frankfort (C.)

Reverse: The German Imperial Eagle, a crown above its head. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK." Weight: 476 grains. Fineness: 900. Value: \$1.19.

2. Two Mark Piece. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "ZWEI MARK." Weight: 190.400 grains. Fineness: 900. Value: \$0.47.60.

3. One Mark Piece. Obverse: The German Imperial



ONE MARK OF PRUSSIA. (elec.)

Eagle, a crown above its head. No Legend. Exergue: Same as No. 1.

Reverse: "1 MARK," surrounded by heavy oak branches, crossed and tied. Legend: "DEUTSCHES REICH" (*German Empire*). Exergue: Date of the year of issue. Weight: 95.200 grains. Fineness: 900. Value: \$0.23.80.

4. 50 Pfennig of Prussia. Obverse: German Imperial eagle. No legend. Exergue: Same as No. 1. Reverse: Large figure "50" in the middle of the field. Legend: "DEUTSCHES REICH." Exergue: "PFENNIG." Weight: 47.600 grains. Fineness: 900. Value: \$0.11.90.

5. 20 Pfennig of Prussia. Obverse and Legend: Same as No. 4. Reverse: "20;" rest same as No. 4. Weight: 19.040 grains. Fineness: 900. Value: \$0.05.95.

All the silver coins of the present day, of Prussia, the 5, 2 and 1 Mark Pieces, as well as the 50 and 20 Pfennig, are legal tender only to the amount of 20 Marks, or \$4.76, in payment of debts, public and private, and to any amount in payment of taxes to the Government.

NICKEL COINS OF PRUSSIA.

1. 10 Pfennig of Prussia. Obverse: German Imperial eagle. No legend. Exergue: "A," "B" or "C."



10 PFENNIG OF PRUSSIA.

Reverse: Large figure "10" in the middle of the field. Legend: "DEUTSCHES REICH." Exergue: "PFENNIG." Weight: 61.728 grains. Composition, 25 parts nickel and 75 parts copper. Value: 2½ cents, nominally.

2. 5 Pfennig of Prussia. Obverse and Exergue: Same as No. 1.

Reverse: "5;" rest same as No. 1. Weight: 38.580 grains.
Composition: Same as No. 1. Value: $1\frac{1}{4}$ cents, nominally.



5 PFENNIG OF PRUSSIA.

BRONZE COINS OF PRUSSIA.

1. 2 Pfennig of Prussia. Obverse: German Imperial eagle.
Reverse: "2." Legend: "DEUTSCHES REICH." Exergue:
"PFENNIG." Value: entirely nominal at \$0.00.476.

2. 1 Pfennig of Prussia. Obverse: Same as No. 1. Re-
verse: "1." Legend and Exergue: Same as No. 1. Value:
entirely nominal, at \$0.00.238.

REUSS SENIOR BRANCH.

SILVER COINS.

1. Double Thaler or $3\frac{1}{2}$ Gulden, Convention money, of Henry XX. Obverse: Head of Henry XX. Legend: "HEINRICH XX. V. G. G. AELT. LIN. SOUVERAIN FÜRST REUSS" (*Henry XX, by the grace of God, Senior Branch, Sovereign Prince of Reuss*). Reverse: Shield, quartered, bearing the arms of Reuss, upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F. MARK, $3\frac{1}{2}$ GULDEN" (*Two Thalers, seven to weigh one Mark of fine silver, $3\frac{1}{2}$ Gulden or Florins*). Exergue: "VEREINS," the date of the year of issue, "MÜNZE" (*Convention money*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Vereins Thaler of Henry XX. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

REUSS JUNIOR BRANCH.

1. Double Thaler or $3\frac{1}{2}$ Gulden or Florin of Henry LXII. Obverse: Head of Henry LXII. Legend: "HEINRICH LXII. IÜNG. LIN. UND STAMM ALTEST FÜRST REUSS" (*Heinrich LXII. Junior Line and Prince of oldest branch of Reuss*). Reverse: Shield bearing arms of Reuss, supported by two crowned lions, upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F MARK $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS," date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.
2. Vereins Thaler of Henry LXII. Obverse and Legend: Same as No. 1. Reverse: Arms of Reuss, crowned, supported by two lions, also crowned. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.
3. Double Thaler or $3\frac{1}{2}$ Gulden of Henry LXVII. Obverse: Head of Henry LXVII. Legend: "HEINRICH LXVII. V. G. G. REG FÜRST REUSS I. L." (*Heinrich LXVII., Von Gottes gnaden Regierender Fürst Reuss Iüngere Linie, Henry LXVII., by the grace of God, reigning Prince of Reuss, Junior Branch*). Reverse: Same as No. 1. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.
4. Vereins Thaler of Henry LXVII. Obverse: Same as No. 3. Reverse: Same as No. 2. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.
5. Double Thaler or $3\frac{1}{2}$ Gulden of Henry LXXII. Obverse: Head of Henry LXXII. Legend: "HEINRICH LXXII IÜNG. LIN. FÜRST REUSS." (*Heinrich LXXII., Iüngere Linie Fürst Reuss, Henry LXXII., Prince of Reuss, Junior Branch*). Reverse: Shield bearing arms of Reuss, supported by two crowned lions, upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F MARK $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS," date of the year of issue. "MÜNZE" (*Convention money*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.
6. Vereins Thaler of Henry LXXII. Obverse and Legend:

Same as No. 5. Reverse: Crowned shield, bearing arms of Reuss, surrounded by a ribbon upon which is inscribed "ICH BAU AUF GOTT" (*I trust in God*), the whole supported by two crowned lions. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

All the afore-described coins are now called in, and exchanged for 3 Marks of the German Empire to the Vereins Thaler.

By Act of July 9th, 1873, the Sovereigns of Reuss are privileged to have their effigies and titles struck upon the Obverse of the German Reichs Marks, gold and silver, coined from the metal furnished by them to the Imperial Mint of the German Empire, and described on page 642.

SAXONY.

One of the principal states of Germany was originally a Duchy, but was raised to an Electorate in 1423. In 1806 Saxony, having espoused the cause of Napoleon, was advanced to a kingdom, and made chief of the then newly-created Duchy of Warsaw. Upon Napoleon's downfall in 1814, the Polish territory was restored to Russia, and the Saxon dominions curtailed by cessions to Prussia.

GOLD COINS OF SAXONY.

1. Ten Thalers of Frederick Augustus III. from 1784 to



TEN THALERS, OR DOUBLE AUGUSTUS D'OR OF SAXONY,
1784-1800.

1800. Obverse: Bust of Frederick Augustus III. Legend:

"FRID. AUGUST. D. G. DUX SAX. ELECTOR" (*Frederick Augustus, by the Grace of God, Duke and Elector of Saxony*).

Reverse: Crowned oval shield, bearing the arms of Saxony and Wettin; surrounded by palm branches crossed and tied. No Legend. Exergue: "10 THALER," and the date of the year of issue. Weight: 204.50 grains. Fineness: 896. Value: \$7.89.10.

2. Ten Thalers of Frederick Augustus III., as king, from 1808 to 1817. Obverse: Bust of Frederick Augustus III. Legend: "FRID. AUGUST. REX. SAXONIAE" (*Frederick August, King of Saxony*).



TEN THALERS, OR DOUBLE AUGUSTUS D'OR OF SAXONY,
1808-1817.

Reverse: Crowned oval shield, bearing only the arms of Saxony; surrounded by palm branches, crossed and tied. Legend: The date of the year of issue. Exergue: "ZEHN THALER" (*Ten Thalers or Dollars*). Weight: 204.50 grains. Fineness: 896. Value: \$7.89.10.

3. Ten Thaler of Frederick Augustus III. of 1818 to 1826. Obverse: Bust of Frederick Augustus III., in uniform. Legend: "FRIEDRICH AUGUST KOENIG V. SACHSEN." Reverse: Same as No. 2. Weight: 205 grains. Fineness: 898. Value: \$7.92.80.

4. Five Thalers of Frederick Augustus III. of 1784 to 1800. Obverse and Legend: Same as No. 1.

Reverse: Two oval shields, crowned by one large electoral crown, the left bearing the arms of Wettin, and the right those of Saxony, both surrounded by laurel wreaths. Exergue: "5

THALERS," and the date of the year of issue. Weight: 102.25 grains. Fineness: 896. Value: \$3.94.55.



FIVE THALER, OR AUGUSTUS D'OR OF SAXONY, 1784 TO 1800.

5. Five Thalers of Frederick Augustus III., of 1808-1818. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue: "FÜNF THALER." Weight: 102.25 grains. Fineness: 896. Value: \$3.94.55.

6. Five Thaler of Frederick Augustus III. of 1818-1839. Obverse and Legend: Same as No. 3.



FIVE THALERS, OR AUGUSTUS D'OR OF SAXONY OF 1818-1839.

Reverse: Crowned shield, bearing arms of Saxony; surrounded by laurel branches, crossed and tied. Legend: Date of the year of issue. Exergue: "FÜNF THALER."

9. Double Pistole of Frederick Augustus. Obverse: Head of Frederick Augustus. Legend: "FRIEDR. AUG. V. G. G. KOENIG V. SACHSEN." Reverse: Shield bearing the arms of Saxony, surrounded by an order chain, from which hangs a cross, upon a mantle of ermine, draped from a crown from above. Legend: "ZEHN THLR" (*Ten Thalers*). Exergue: Date of the year of issue. Weight: 205 grains. Fineness: 900. Value: \$7.94.600.

7. Double Pistole, or Anton D'Or of 10 Thalers of Anton, 1830-1836. Obverse: Head of Anton. Legend: "ANTON V.

G. G. KOENIG VON SACHSEN." Reverse: Crowned shield, bearing arms of Saxony, inclosed between two olive branches, crossed and tied. Legend: Date of the year of issue. Exergue: "ZEHN THALER." Weight: 205. Fineness: 900. Value: \$7.94.600.

8. Pistole, or Anton D'Or of 5 Thalers of Anton, 1830-1836. Obverse and Legend: Same as No. 7. Reverse and Legend: Same as No. 7. Exergue: "FÜNF THALER." Weight: 102.500 grains. Fineness: 900. Value: \$3.97.300.

10. Ducat of Frederick Augustus III. of Saxony. Obverse: "AUGUSTUS III. REX POLONIARUM" (*Augustus III., King of Poland*). Reverse: "SAC. ROM. IMP. ARCHIM. ET ELECT" (*Grand Marshal and Elector of the Holy Roman Empire*). In the middle of the field the arms of Saxony, Wettin, and Poland. Exergue: Date of the year of issue. Weight: 53.70 grains. Fineness: 979. Value: \$2.26.400.

11. Pistole of 5 Thaler of Frederick Augustus IV. Obverse: Head of Frederick Augustus IV. Legend: "FRIEDRICH AUGUST IV KOENIG V. SACHSEN" (*Frederick August IV., King of Saxony*).



PISTOLE OF 5 THALERS OF FREDERICK AUGUSTUS IV.

Reverse: Shield, bearing arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "FÜNF THLR." (*Five Thalers*). Exergue: Date of the year of issue. Weight: 103.110. Fineness: 902.778. Value: \$3.99.3200.

12. Krone or Crown of Johann. Obverse: Head of Johann facing to the left. Legend: "JOHANN V. G. G. KOENIG V. SACHSEN" (*Johann Von Gottes Gnaden Koenig Von Sachsen — John, by the Grace of God, King of Saxony*). Reverse: "1

KRONE," and the date of the year of issue; surrounded by heavy branches of oak, crossed and tied. Legend: "VEREINS MÜNZE" (*Convention money*). Exergue: "50 EIN PFUND FEIN" (*50 to weigh one pound fine gold*). Weight: 171.467 grains. Fineness: 900. Value: \$6.64.5815.

13. Half Crown or Krone of Johan. Obverse and Legend: Same as No. 12. Reverse: " $\frac{1}{2}$ KRONE," rest same as No. 12. Weight: 85.742. Fineness: 900. Value: \$3.32.0418.

All the afore-described coins are no longer legal tender, and are exchanged for Reichs Marks at the rate of three Marks to the Thaler.

14. 20 Mark piece of Albert of Saxony. Obverse: Head of Albert facing to the right. Legend: "ALBERT KOENIG VON SACHSEN."

Reverse: The German Imperial Eagle. Legend: "DEUTSCHES REICH" and the date of the year of issue. Exergue: "20 MARK." Weight: 122.880 grains. Fineness: 900. Value: \$4.76.

15. 10 Mark piece of Albert. Obverse and Legend: Same as No. 14. Reverse and Legend: Same as No. 14. Exergue: "10 MARK." Weight: 61.440 grains. Fineness: 900. Value: \$2.38.

16. 5 Mark piece of Albert. Obverse and Legend: Same as No. 14. Reverse and Legend: Same as No. 14. Exergue: "FÜNF MARK." Weight: 30.720 grains. Fineness: 900. Value: \$1.19.

SILVER COINS OF SAXONY.

The silver coins of Saxony are numerous, and have had a large circulation. The "Crown-Thalers," "Florins" and "Specie-Thalers" have been famous in their day, but are now superseded by the money of the German Empire.

1. Thaler of the Sons of Johan George I. Obverse: Bust of Christian, Johan Georg and Augustus, above their heads "1600," the whole surrounded by a circle, above which are a

cross and a globe. Legend: "CHRISTIAN JOHAN GEORG ET AVGVSTVS."

Reverse: Shield bearing arms of Saxony, Wettin, Lithuania, Poland, Lusatiæ, Magdeburg, etc. Legend: "FRAT ET DUCES SAXON" (*Frates Et Duces Saxonie Brothers and*



THALER OF THE SONS OF JOHAN GEORGE I.

Dukes of Saxony). Intrinsic Value about 72½ cents, but at a high premium with collectors of coins.

2. Crown-Thaler of Ernest Augustus, Duke of Saxony, Juliers, Cleves, Berg and Meissen.



CROWN-THALER OF ERNEST AUGUSTUS.

Intrinsic Value: \$0.97. Very scarce.

3. Crown Thaler of Johan Georg, Duke of Saxon, of the Holy Roman Empire Arch Marshal and Elector.



CROWN-THALER OF JOHAN GEORG, 1613.

Intrinsic Value: \$0.97. Scarce.

4. Crown-Thaler of Johan George of 1621. With the shield of Cleves upon it, concentric circles like the hub of a wheel, eight staves radiating like spokes, each marked by projections and terminating in a triangle, supported by men with wings, each holding in his hand a shield, one bearing the arms of Juliers and the other the arms of Monti.



CROWN-THALER OF JOHAN GEORGE, 1621.

Intrinsic Value: \$0.97. Scarce.

5. Crown-Thaler of Johan Georg II. Obverse: Johan George II. on horseback, a sword in his dexter. Legend: "DEO ET PATRIAE, 1657" (*God and Fatherland*). Exergue: Oval shield bearing arms of Wettin and Saxony.

Reverse: Upon the field, in twelve parallel running lines:
By the grace of God, Johan George II., Duke of Saxony, Ju-



CROWN-THALER OF JOHAN GEORGE II.

liers, Cleves and Berg, of the Sacred Roman Empire Archmar-
shal and Elector, Delegate August to the divine Emperor
Ferdinand III., Landgrave of Thuringia, Marquis of Meissen,
Upper and Lower Lorraine, Burggrave of Magdeburg, Mark-
grave of Ravensburg, and of the house of Ravenstein. Intrinsic
value: \$1.05. Very scarce.

6. Crown-Thaler of Johan George IV., Duke of Saxony,
Juliers, Cleves and Berg. An angel supporting the arms of
Wettin and Saxony.



CROWN-THALER OF JOHAN GEORGE IV.

Intrinsic value: \$0.97.

7. Crown-Thaler of Xavier, Regent of Saxony. Frederick III. succeeded to the throne in 1763, at the age of thirteen years; his uncle, Francis Xavier, assumed the regency during the minority of the young prince. The titles and effigy of Frederick III. were, however, placed upon the coinage as a general rule, although some pieces have been struck bearing those of Xavier. Obverse: Bust of Xavier in full uniform and armor. Legend: "XAVIERUS D. G. REG. PR. POL. & LITH. DUX SAX" (*Xavier by the grace of God, Prince Regent of Poland and Lithuania, Duke of Saxony*).



CROWN-THALER OF XAVIER AS REGENT, 1767-1768.

Reverse: Crowned shield, bearing arms of Saxony, Poland, etc.; at the left of it "X EINE," and at the right "MARCK F" (*Ten to weigh one Mark, fine silver*). Intrinsic value: \$1.01½. Very scarce and valuable.



SPECIES-THALER OF FREDERICK AUGUST III.

8. Species-Thaler of Frederick Augustus III., from 1764 to

1806. Obverse: Bust of Frederick August III. Legend: "FRID. AUGUST D. G. DUX SAX ELECTOR" (*Frederick August, by the grace of God, Duke of Saxony and Elector*).

Reverse: Shield bearing the arms of Saxony and Wettin, surmounted by the electoral crown. Legend: "X EINE MARK F." Exergue: Date of the year of issue. Weight: 431 grains. Fineness: 835. Value: \$0.96.90.

9. Florin of Johan George III., of 1686. Obverse: Bust in armor of Johan George III. Legend: "JOH. GEORG III. D. G. D. SAX. I. C. M. A. & W" (*Johan George III., by the grace of God, Duke of Saxony, Juliers, Cleves, Monti, Asconia and Wettin*).



FLORIN OF JOHAN GEORGE III., 1686-1689.

Reverse: Shield bearing arms of Wettin and Saxony, surmounted by an electoral crown. Legend: "SAC. ROM. IMP. ARCHIM. ET ELECT.," and the date of the year of issue (*Sacred Roman Empire, Arch-Marshal and Elector*). Exergue: "2/3." Intrinsic value: \$0.46.

10. Florin of Frederick August as King of Poland. Obverse: Bust of Frederick August in full armor. Legend: "D. G. FRID. AUGUST REX POLONIARUM" (*By the grace of God, Frederick August, King of Poland*).

Reverse: Two shields, one bearing the arms of Poland and Lithuania, and the other the arms of Saxony, inclosed between palm branches, and surmounted by a crown. Legend: "DUX. SAX. I. C. M. A. & W. S. R. I. ARCH & EL., 1707" (*Duke of Saxony, Juliers, Cleves, Monti, Asconia, and Wettin; of the Sacred Ro-*

man Empire, Arch-Marshal and Elector). Intrinsic value: £0.46.



FLORIN OF FREDERICK AVGVST, KING OF POLAND.

In 1697 Frederick was elected King of Poland; but in 1704 he was deposed through the influence of Charles XII. of Sweden, and Stanislaus Szeszczynski was elected, at the Diet of Warsaw, to fill his place. Frederick of Saxony, however, continued to issue coins bearing the title of King of Poland. After the battle of Pultowa, in 1709, Frederick was restored, and continued to reign until his death, in 1733; and, after an interval of eight months, his son, Frederick Augustus II., succeeded him, and reigned until 1763, when he died, and another interregnum of eleven months intervened, at the expiration of which Stanislaus Augustus Poniatowski was elected to succeed.

11. Florin of Frederick August I. Obverse: Bust in armor



FLORIN OF FREDERICK AVGVST I.

of Frederick August I. Legend: "FRID. AVGVST D. G. DUX.

SAX. I. C. M. A. & W." (*Frederick August, by the Grace of God, Duke of Saxony, Juliers, Cleves, Berg, Asconia, and Wettin*).

Reverse: Two swords, saltire-wise, the arms of Wettin, in each angle a crowned shield, the whole forming a cross within a cross; first, shield, top, the arms of Saxony; second, the arms of Berg, at the bottom; third, at left hand, the arms of Juliers; and fourth, at the right, the arms of Cleves; inside of crossed swords the figures 2 and 3 appear one above the other, which signifies $\frac{2}{3}$ of a Thaler and means one Florin. Legend: "SAC. ROM. IMP. ARCHIM & EL."—and the date of the year of issue. Intrinsic Value: \$0.46.

12. Florin of Frederick Augustus I. of 1696. Obverse and Legend: Same as No. 11.



FLORIN OF FREDERICK AUGUSTUS I. OF 1696.

Reverse: Oval shield, bearing the arms of Wettin and Saxony, crowned by an electoral crown, surrounded by palm branches, crossed, and tied. Legend: Same as No. 11. Intrinsic value: \$0.46.

13. Florin of Xavier, as Regent for Frederick III. Obverse: Bust of Xavier, in armor. Legend: "XAVERIUS D. G. REG. PR. POL & LITH. DUX. SAX." (*Xavier, by the Grace of God, Prince Regent of Poland, Lithuania, Duke of Saxony*).

Reverse: Two oval shields, one bearing the arms of Wettin and the other of Saxony; surrounded each by a laurel wreath, surmounted by an electoral crown. Legend: "XX EINE MARCK

F." Exergue: Date of the year of issue. Intrinsic value:
 \$0.48.580.



FLORIN OF XAVIER AS REGENT.

14. Half Florin of Xavier as Regent. Obverse and Legend: Same as No. 13.



HALF FLORIN OF XAVIER AS REGENT.

Reverse and Legend: Same as No. 13. Intrinsic value:
 \$0.24.



HALF SPECIES-THALER OF FREDERICK AUGUSTUS III.

15. Half Species-Thaler of Frederick August III. Obverse: Bust of Frederick August III., in armor. Legend:

"FRID. AUGUST D. G. DUX. SAX. ELECTOR." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing arms of Wettin and Saxony, hung with laurel, and inclosed between two palm branches. Weight: 215.500 grains. Fineness: 835. Value: \$0.48.450.

16. Species-Thaler of Frederick August III. of 1790. Obverse: Bust of Frederick Augustus III. Legend: "FRID. AUG. D. G. DUX. SAX. ELECTOR & VICARIUS IMPERII" (*Frederick Augustus, by the Grace of God, Duke of Saxony, Elector and Delegate of the Empire*). Reverse: The double-headed eagle, bearing upon its breast a crowned shield with the arms of Wettin and Saxony. Legend: "SAC. ROM IMP PROVISO ITERUM." Exergue: "X EINE MARK F." Weight: 431 grains. Fineness: 835. Value: \$0.96.90. (Very scarce.)

In 1790, when Joseph II., Emperor of Germany and Rome, died, Frederick Augustus III., like two of the preceding Saxon Dukes, claimed the succession to the Imperial throne of Germany, and was equally unsuccessful in his efforts to attain that dignity; still he put the double-headed imperial eagle upon his coins of that year (1790).

17. Half Species-Thaler, or Florin of Frederick Augustus III. of 1790. Obverse and Legend: Same as No. 16.



HALF SPECIES-THALER, OR FLORIN OF 1790.

Reverse and Legend: Same as No. 16. Exergue: "XX EINE MARK F;" above it " $\frac{2}{3}$." Weight: 215.500 grains. Fineness: 835. Value: \$0.48.450. (Scarce.)

18. Thaler of Frederick August III. of 1806, and the last

of his coinage as Duke of Saxony. Obverse: Bust of Frederick August. Legend: "FRID. AUGUST D. G. DUX. SAX. ELECTOR." Reverse: Crowned shield, bearing the arms of Wettin and Saxony, hung with laurel, and inclosed between two palm branches. Legend: "X EINE MARK F." In the same year (1806), there was struck a Thaler similar to the afore-described only with the additional Exergue: "DER SEGEN DES BERG-BAUES" (*The blessing of the mines*). These two Thalers are the last which bear the arms of Wettin. (Two swords saltiere-wise.)

The Duke of Saxony having been crowned King of Saxony, in 1807, the arms of Saxony, consisting of a *Barry of ten*, that is, ten divisions formed by bars, with a bend or arched *trèfle*, green, that is, the curving bar is ornamented with trefoils.

This design was suggested by Frederick Barbarossa (Frederick with the red beard), A. D. 1140, when confirming the Dukedom of Saxony to Bernard of Anhalt. The new Duke asked for some device to distinguish his arms from those of his ancestors. Frederick Barbarossa plucked a chaplet of trefoil from the ground and laid it across the field, with its Barry of ten, where it still remains. The national colors of Saxony have ever since remained white and green interwoven.

19. Species-Thaler of Frederick August, King of Saxony. Obverse: Head of Frederick August. Legend: "FRID AU-



SPECIES-THALER OF FREDERICK AUGUST, KING OF SAXONY.

GUST D. G. REX SAXONIE" (*Frederick August, by the Grace of God, King of Saxony*).

Reverse: Crowned oval shield, bearing the arms of Saxony, hung with laurel, and enclosed between two branches of palms. Legend: "ZEHN EINE FEINE MARK" and the date of the year of issue. Weight: 432 grains. Fineness: 835. Value: \$0.97.100.

20. Florin of Frederick Augustus of 1813. Obverse and Legend: Same as No. 19. Reverse: Same as No. 19. Legend: "ZWANZIG EINE FEINE MARK" (*Twenty to weigh one Mark fine silver*). Weight: 214 grains. Fineness: 833. Value: \$0.47.875.

21. Species-Thaler of 1819-1820. Obverse: Bust of Frederick Augustus. Legend: "FRIEDRICH AUGUST KOENIG V. SACHSEN." Reverse and Legend: Same as No. 19. Around the edge: "GOTT SEGNE SACHSEN" (*God bless Saxony*). With the issue of the Species-Thalers of 1819 this inscription appears first upon the edge of the coins of Saxony, and has been continued upon all the larger pieces up to 1872 inclusive.

22. Species-Thaler of 1821, 1823. Obverse and Legend: Same as No. 21. Reverse same as No. 21. Legend: "DER SEGEN DES BERGBAUES." Exergue: "ZEHN EINE FEINE MARK," and the date of the year of issue. Weight: 432 grains. Fineness: 835. Value: \$0.97.100.

23. Species-Thaler of 1824. Obverse and Legend: Same as No. 21. Reverse: Crowned shield, which has heretofore been



SPECIES-THALER OF FREDERICK AUGUSTUS, 1826.

of an oval shape, underwent a change and appears nearly square, with the sides and top made *concave*; while the base is arched

or made convex. Legend: "ZEHN EINE FEINE MARK."
Weight: 430 grains. Fineness: 834. Value: \$0.96.600.

24. Species-Thaler of 1826 and the last issue of Frederick Augustus. Obverse: Bust of Frederick Augustus in uniform and facing to the left. Legend: "FRIEDR. AUGUST KOENIG V. SACHSEN."

Reverse: Crowned shield, bearing arms of Saxony. Legend: "ZEHN EINE FEINE MARK." Exergue: "1826."
Weight: 430 grains. Fineness: 834. Value: \$0.96.600.

25. Florin of Anton. Obverse: Head of Anton. Legend: "ANTON V. G. G. KOENIG VON SACHSEN."



FLORIN OF ANTON OF 1827.

Reverse: Crowned shield of Saxony, surrounded by branches of laurel. Legend: "ZWANZIG EINE FEINE MARK." Exergue: Date of the year of issue and $\frac{2}{3}$ between the date.
Weight: 214 grains. Fineness: 834. Value: \$0.46.600.

26. Species-Thaler of Anton King of Saxony. Obverse and Legend: Same as No. 25.



SPECIES-THALER OF ANTON KING OF SAXONY.

Reverse: Crowned shield of Saxony, surrounded by laurel

branches. Legend: "ZEHN EINE FEINE MARK." Exergue: Date of the year of issue. Weight: 432 grains. Fineness: 834. Value: \$0.97.

27. Species-Thaler of Anton King and Frederick August Co-Regent. Obverse: Heads of Anton and Frederick August, facing to the right. Legend: "ANTON KOENIG UND FRIEDRICH AUGUST MIT REGENT." Exergue: "VON SACHSEN" (*Anton King and Friedrich August Co-Regent of Saxony*).



SPECIES-THALER OF ANTON AND FREDERICK AUGUSTUS.

Reverse: Crowned shield, bearing arms of Saxony, encircled by laurel branches. Legend: "SEGEN DES BERGBAUS" (*Blessing of the mines*). Exergue: "X EINE," date of the year of issue, "F. MARK." Weight: 433.078. Fineness: 833.333. Value: \$0.97.

This was the last of the Species-Thalers of Saxony. This Species-Thaler is equal to $1\frac{1}{2}$ Thaler of Saxony, also $1\frac{1}{2}$ Convention-Thaler of Germany and Austria.

28. Double-Thaler or $3\frac{1}{2}$ Gulden of Frederick August. Obverse: Head of Frederick August. Legend: "FRIEDERICH AUGUST V. G. G. KOENIG V. SACHSEN." Reverse: Shield bearing arms of Saxony, in place of the usual olive branches the ribbon and order of the White Eagle encompasses the same; the whole upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F. MARK. $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS," date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

29. Thaler of Frederick August. Obverse and Legend: Same as No. 28. Reverse: Same as No. 28. Legend: "EIN THALER XIV EIN F. M." Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.



THALER OF FREDERICK AUGUST.

30. Convention-Thaler of Frederick August, struck in memory of his death August 9th, 1854, and issued as late as 1858, for general circulation. Obverse: Head of Frederick August. Legend: "FRIEDERICH AUGUST II" (a star) "KOENIG VON SACHSEN."

This King is known as Frederick August II. as *King* of Saxony, also Frederick August IV. as *Duke* of Saxony. Exergue: A cross, "D. 9 AUG. 1854" (*Died 9th of August, 1854*). Reverse: Crowned shield, bearing arms of Saxony, encircled by the ribbon and order of the White Eagle; the whole upon a mantle of ermine, draped from a crown, from above. This is one of the few Thalers of Saxony, with two crowns one above the other, upon the reverse. Legend: "SEGEN DES BERGBAUS." Exergue: "XXX EIN," date of the year of issue, "PFUND F."

31. Double-Thaler or 3½ Gulden of Johann. Obverse: Head of Johann, facing to the left. Legend: "JOHANN V. G. G. KOENIG VON SACHSEN." Reverse: Same as No. 30; with the double crown. Legend: "ZWEI VEREINS THALER XV EIN PFUND FEIN." Exergue: Date of the year of issue, 1857 to 1860. Weight: 571.568 grains. Fineness: 900. Value: \$1.45.490.

From 1857 to 1870, Saxony coined the Double Thaler of 571.568 grains, instead of 572.847 grains, as agreed upon in Convention of 1855; preserving the fineness of 900 fine.

32. Double Thaler of Johann of 1861. Obverse and Legend: Same as No. 31. Reverse, a complete change, two lions supporting crowned shield bearing the arms of Saxony, beneath a scroll with: "PROVIDENTIE MEMOR." inscribed upon; the whole surrounded by a raised double circle, inside of which the Legend: "ZWEI VEREINS THALER" (a fancy arabesque), "XV EIN PFUND FEIN," and the date of the year of issue, as Exergue, between two stars. Weight: 571.568 grains. Fineness: 900. Value: \$1.45.490.

33. Thaler of Johann of 1855. Obverse: Head of Johann. Legend: "JOHANN V. G. G. KOENIG V. SACHSEN. Reverse: Two female figures seated, the left one representing justice, with sword in hand, and the right one representing respectful devotion or love with a branch and flower in her hand, between them and higher in the field, the shield with arms of Saxony; the whole surrounded by a double circle, upon which as Legend: "ER SEETE GERECHTIGKEIT UND ERNTETE LIEBE" (*He sowed justice and reaped devoted love*). "HOSEA X. 12." This motto has allusion to Frederick August, deceased August, 1854, father of Johann, and is the only coin of Saxony, having a quotation from the Bible. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

34. Vereins Thaler of Johann. Obverse and Legend: Same as No. 33. Reverse: Crowned shield of Saxony supported by two miners in their working dress. Legend: "SEGEN DES BERGBAUS." Exergue: "EIN THALER," and the year of issue, 1870-1871, "XXX. EIN. PF. F." Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

35. Friedens Thaler of 1871, struck in commemoration of the peace of that year. Obverse: Same as No. 33. Reverse: The Herald of Peace on horseback, in his right hand a flag, with a laurel wreath upon the staff, and the German Imperial Eagle upon the flag itself; in his left a laurel and olive branch

entwined. Legend: "EIN THALER XXX EIN PF. F." Exergue: 1871, behind the same martial emblems, saltier-wise. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.



ONE-THIRD OF A THALER OF SAXONY.

All the above silver coins of Saxony are no longer legal tender, but are still exchanged for the Imperial Reichs-Marks at the rate of three Marks to the Thaler. The Billon coins and the *Scheide-münze*, subsidiary money of Saxony, are no longer admitted of circulation, and of no value since July, 1873.

36. Five Mark Piece of Albert, King of Saxony. Obverse: Head of Albert, facing to the right. Legend: "ALBERT KOENIG VON SACHSEN." Exergue: "E." mint-mark of the Dresden Mint. Reverse: The Imperial German Eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK." Weight: 476 grains. Fineness: 900. Value: \$1.19.

37. Two Mark Piece of Albert. Obverse, Legend and Exergue: Same as No. 36. Reverse and Legend: Same as No. 36. Exergue: "ZWEI MARK." Weight: 190.400. Fineness: 900. Value: \$0.47.60.



5 NEU GROSCHEN OF SAXONY.

38. One Mark Piece of Albert. Obverse: Imperial German

Eagle. No Legend. Exergue: "E" mint-mark of Dresden. Reverse: "1 MARK," enclosed by heavy oak branches. Exergue: Date of the year of issue.

39. 50 Pfennig of Saxony. Obverse and Exergue: Same as No. 38. Reverse: "50" in the middle of the field. Legend: "DEUTSCHES REICH." Exergue: "PFENNIG." Weight: 47.600 grains. Fineness: 900. Value: \$0.11.90.

40. 20 Pfennig of Saxony. Legend and Exergue: Same as No. 39. Reverse: "20" in the middle of the field, rest same as No. 39. Weight: 19.040 grains. Fineness: 900. Value: \$0.04.76.

The Nickel coins of 10 and 5 Pfennig, and the Bronze coins of 2 and 1 Pfennig, circulating in Saxony, are the coins of the German Empire, described on pages 642, 643.

INDEPENDENT DUKEDOMS OF SAXONY.

West of the Kingdom of Saxony, having no connection whatever therewith, are several small so-called "Dukedoms of Saxony," consisting of: 1. Saxe-Altenburg; 2. Saxe-Coburg-Gotha; 3. Saxe-Meiningen, and 4. Saxe-Weimar-Eisenach. As a general rule, in olden times, they depended on Prussia and Saxony, proper, for their circulating gold and silver currency. Of late years they have coined the "Double and Single Vereins, or Convention Thaler;" but by act of the Imperial German Parliament, July 9, 1873, they were enjoined from that prerogative. By the same act they are privileged to affix their effigies and respective titles upon the Obverse of the 20, 10, and 5 Mark gold pieces, also upon the 5 and 2 Mark silver pieces, to be coined for them under the general rules and regulations of the mint act of 1873, from the metals furnished by them to the coiners of the different Imperial German Mints. Said Reichsmarks, gold and silver, as well as the subsidiary coins now circulating in their dominions, and the German Empire in general, are fully described in proper place.

1. Saxe-Altenburg.

SILVER COINS.

1. Double Thaler, or $3\frac{1}{2}$ Gulden of Joseph of Saxe-Altenburg. Obverse: Head of Joseph. Legend: "JOSEPH HERZOG ZU SACHSEN-ALTENBURG" (*Joseph, Duke of Saxe-Altenburg*). Reverse: Shield, bearing arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F. MARK. $3\frac{1}{2}$ GULDEN." Exergue: Date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Thaler of Joseph of Saxe-Altenburg. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Legend: "EIN THALER XIV EINE F. M." (*One Thaler, fourteen to weigh one Mark, fine silver*). Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 750. Value: \$0.72.

3. Convention Thaler of Ernst of Saxe-Altenburg. Obverse: Head of Ernst. Legend: "ERNST HERZOG VON SACHSEN ALTENBURG." Reverse: Shield, bearing the arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN" (*One Convention Thaler, thirty-one pound fine*). Exergue: Date of the year of issue.

All the afore-described coins are no longer legal tender in Germany, and are exchanged for Imperial Reichs-Marks at the rate of three Marks for one Thaler.

2. Saxe-Coburg-Gotha.

SILVER COINS.

1. Double Thaler or $3\frac{1}{2}$ Gulden of Ernst I. of Saxe-Coburg-Gotha. Obverse: Head of Ernst facing to the left. Legend: "ERNST HERZOG ZU SACHSEN-COBURG-GOTHA" (*Ernst Duke of Saxe-Coburg-Gotha*). Reverse: A shield bearing the arms of Coburg, Gotha, Hanover, Brunswick, etc., upon it a shield of pretence bearing the arms of Saxony; the whole upon a mantle

of ermine, draped from a crown from above. Legend: "2 THALER VII EINE F. MARK $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS," and the date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Double Thaler or $3\frac{1}{2}$ Gulden of Ernst II. Obverse and Legend: Same as No. 1. Reverse, Legend and Exergue: Same as No. 1. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

3. Thaler of Ernst of Saxe-Coburg-Gotha. Obverse and Legend: Same as No. 1. Reverse: Shield, bearing arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "EIN THALER XIV EINE F. M." Exergue: Date of the year of issue. Weight: 343.72 grains. Fineness: 900. Value: \$0.72.

4. Thaler of Ernst II. Obverse: Head of Ernst II. Legend: Same as No. 3. Reverse and Legend: Same as No. 3. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

The afore-described coins are no longer legal tender in Germany, and are only exchangeable at the Imperial treasuries at the rate of three Marks to the Thaler.

3. Saxe-Meiningen.

SILVER COINS.

1. Double Thaler or $3\frac{1}{2}$ Gulden of Bernhard of Saxe-Meiningen. Obverse: Head of Bernhard facing to the left. Legend: "BERNHARD HERZOG ZU SACHSEN-MEININGEN." Reverse: Shield, bearing the arms of Saxe-Meiningen, upon it a shield of pretence, bearing the crowned arms of Saxony, proper, the whole upon a mantle of ermine. Legend: " $3\frac{1}{2}$ GULDEN VII EINE F MARK, 2 THALER." Exergue: "VEREINS," date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Two Gulden or Florin Piece of Bernhard. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Legend: "ZWEI GULDEN." Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3894.

3. Vereins Thaler of 1½ Gulden or Florin of Bernhard. Obverse and Legend: Same as No. 2. Reverse: Shield, bearing the arms of Saxony, proper, upon a mantle of ermine, draped from a crown from above. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN" (*One Convention Thaler, thirty to weigh one pound, fine silver*). Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

4. Gulden of Bernhard. Obverse and Legend: Same as No. 2. Reverse: "1 GULDEN," and the date of the year of issue upon the middle of the field, surrounded by heavy branches of oak, crossed and tied; no legend; no exergue. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

5. Half Gulden of Bernhard. Obverse and Legend: Same as No. 2. Reverse: Same as No. 4. Weight: 81.837 grains. Fineness: 900. Value: \$0.20.7838.

6. Double Thaler of George of Saxe-Meiningen. Obverse: Head of George. Legend: "GEORG HERZOG ZU SACHSEN-MEININGEN." Reverse: Shield, bearing arms of Saxony and Saxe-Meiningen, upon a mantle of ermine, draped from a crown from above. Legend: "3½ GULDEN VII EINE F. MARK, 2 THALER." Exergue: "VEREINS. MÜNZE," and the date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

7. Convention Thaler of George. Obverse and Legend: Same as No. 6. Reverse: Shield, bearing arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

All the afore-described coins are only exchangeable at the different treasuries of the German Empire, at the rate of three Marks per Thaler.

4. Saxe-Weimar-Eisenach.

SILVER COINS.

1. Thaler of 1815. Obverse: Pointed shield, crowned. Legend: "GROSHERZOGTHUM SACHSEN" (*Grand Duchy of Sax-*

ony). Exergue: "10 EINE FEINE MARK" (*Ten to weigh one Mark, fine silver*). Reverse: "DEM VATERLANDE, 1815," occupying the middle of the field, inclosed in a wreath, formed of two oak branches, crossed and tied. Weight: 341 grains. Fineness: 748. Value: \$0.68.700.

2. Thaler of Carl Friederich. Obverse: Bust of Carl Friederich. Legend: "CARL FRIEDERICH GROSSHERZOG Z. SACHSEN W. E." (*Charles Frederick, Grand Duke of Saxe-Weimar-Eisenach*). Reverse: Crowned shield, bedecked with the collar and badge of the order of the "White Eagle;" a shield of pretence surmounted by a crown, and bearing the arms of Saxony, proper. Legend: "EIN THALER XIV EINE F. M." Exergue: Date of the year of issue.

3. Double Thaler or $3\frac{1}{2}$ Gulden of Carl Friederich. Legend: "CARL FRIEDERICH GROSSHERZOG ZU SACHSEN WEIM. EIS."



DOUBLE THALER OF CARL FRIEDRICH.

Reverse: Crowned shield, bearing the arms of Weimar, Eisenach, etc., upon it, a shield of pretence, with the arms of Saxony, proper, surmounted by a small crown; the whole upon a mantle of ermine, draped from a larger crown from above. Legend: "2 THALER VII EINE F. MARK, $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS MÜNZE," and the date of the year of issue. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

4. Vereins Thaler of Carl Friederich. Obverse: Head of Carl Friederich. Legend: Same as No. 3. Reverse: Crowned

shield, bearing the arms of Saxony, upon a mantle of ermine, draped from a crown from above. Legend: "EIN THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

SCHWARZBURG-RUDOLSTADT.

SILVER COINS.

1. Species Thaler of Frederick Gunther. Obverse: Undraped bust of Frederick Gunther. Legend: "FRIEDERICH GUNTHER FURST ZU SCHWARZBURG RUDOLSTADT." Reverse: "EIN SPECIES THALER, 1812," upon the middle of the field, inclosed in a wreath composed of two branches crossed and tied. Legend: "X EINE FEINE MARK CONVENTIONS MÜNZE." Intrinsic value: \$1.02½. Very scarce.

2. Double Thaler or 3½ Gulden of Frederick Gunther. Obverse: Undraped bust of Frederick Gunther. Legend: "FRIEDR GUNTHER FÜRST ZU SCHWARZBURG." Reverse: Shield, surmounted by six helmets, and supported by a *wild man* and a *wild woman* of the Hartz, each holding a lance. Legend: "2 THALER VII EINE F MARK, 3½ GULDEN." Exergue: "VEREINS," date of the year of issue, "MÜNZE." Around the outer edge: "GOTT MIT UNS" (*God with us*). Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

3. Vereins Thaler of Friedrich Gunther. Obverse: Bust of Frederick Gunther. Legend: "FRIEDR GÜNTHER FÜRST ZU SCHWARZBURG." Reverse: Crowned double headed eagle, a shield of pretence upon its breast, bearing a royal crown. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

4. Gulden or Florin of Frederick Gunther. Obverse and Legend: Same as No. 3. Reverse: "1 GULDEN," and the date of the year of issue, the whole inclosed by wreath of oak branches, crossed and tied. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

5. Double Thaler of George. Obverse: Bust of George. Legend: "GEORG FÜRST ZU SCHWARZBURG." Reverse: Same as No. 2. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

6. Vereins Thaler of George. Obverse and Legend: Same as No. 5. Reverse and Legend: Same as No. 3. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

All the afore-described coins are no longer legal tender, and are only exchangeable for the Reichs-Marks at the rate of three Marks to the Thaler.

SCHWARZBURG-SONDERSHAUSEN.

SILVER COINS.

1. Double Thaler or $3\frac{1}{2}$ Gulden of Günther Friederich Carl. Obverse: Bust of Günther Friederich Carl. Legend: "GÜNTIL. FRIEDR. CARL FÜRST ZU SCHWARZB. SONDERSH." (*Gunther Frederick Charles, Prince of Schwarzburg-Sondershausen*). Reverse: Shield, surmounted by six helmets, and supported by a *wild man* and a *wild woman* of the Hartz, each holding a lance. Legend: "2 THALER VII EINE F. MARK. $3\frac{1}{2}$ GULDEN." Exergue: "VEREINS," the date of the year of issue, "MÜNZE." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

2. Vereins Thaler of Günther Friedrich Carl. Obverse and Legend: Same as No. 1. Reverse: Double headed eagle crowned, with a shield of pretence upon its breast. Legend: "EIN VEREINS THALER XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

The afore-described coins are only exchangeable for the Reichs-Marks, at the rate of three Marks per Thaler.

WALDECK.

GOLD COINS OF WALDECK.

1. Ducat of Charles. Obverse: Head of Charles. Legend: "CAROLUS D. G. PR. WALDECCIAE" (*Charles, by the Grace of*

God, Prince of Waldeck). Reverse: Crowned shield, bearing a star. Legend: "ARUA AD. GLORIAM VIA." Exergue: Date of the year of issue. Value: \$2.24.

2. Half Ducat and Quarter Ducat of Charles, bear the same devices and legends, and are only distinguishable by their size and weight, their Value: \$1.12 and \$0.56 respectively.

SILVER COINS OF WALDECK.

1. Thaler of Frederick. Obverse: Crowned shield, bearing the arms of Waldeck and Pyrmont, inclosed between two branches of laurel, crossed. Legend: "FRIDERICUS PR. WALDECCIAE COM PYR." Reverse: "X EINE FEINE MARK," and the date of the year of issue. Weight: 432 grains. Fineness: 835. Value: \$0.97.100.

2. Thaler of George Henry. Obverse: "EIN KRONEN THALER," and the date of the year of issue, occupying the middle of the field, and inscribed in four lines, between two branches of palm, crossed and tied, surmounted by a crown. Legend: "GEORG HEINR FÜRST Z. WALDECK U. PYRMONT." Reverse: A palm tree with its top depressed; against its trunk a shield, bearing the arms of Waldeck and Pyrmont. Legend: "PALMA LUB. PONDERE CRESCIT." Weight: 432 grains. Fineness: 835. Value: \$0.97.100.

3. Double Thaler, or 3½ Gulden, Convention-money of George Henry. Obverse: Shield, bearing the arms of Waldeck and Pyrmont, upon a mantle of ermine, draped from a crown from above. Legend: "GEORGE HEINRICH FÜRST ZU WALDECK U. PYRMONT." Reverse: "2 THALER 3½ GULDEN," and the date of the year of issue, occupying the field, inscribed in five lines; the whole surrounded by heavy branches of oak, crossed and tied. Legend: "VEREINS MÜNZE." Exergue: "VII EINE F. MARK." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

4. Vereins Thaler of George Henry. Obverse and Legend: Same as No. 3. Reverse: "VEREINS-THALER," and the date of the year of issue, occupying the field, surrounded by branches

of oak, crossed and tied. Legend: "XXX EIN PFUND FEIN." Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

The afore-described coins are no longer current in Germany, and only exchangeable for the new coinage of the Empire at the rate of 3 Marks to the Thaler.

WURTEMBERG.

Upon the decline of the Roman Empire Wurtemberg was erected into a dukedom, but near the end of the eleventh century the dukedom was again dissolved, and apportioned out to a number of counts, who declared themselves independent. At the end of the fifteenth century Wurtemberg was again united into a single duchy. During the reign of Frederick William, who succeeded his father as Duke of Wurtemberg, in 1797, the duchy became the theatre of war, and was overrun by the French armies. William, however, afterward gained the favor of the Emperor Napoleon I., together with a large accession of territory, and, in 1803, was raised by him to the rank of an elector, and, in 1806, was still further honored by the title of King. Upon the final arrangement of the German States by the Congress of Vienna, the territorial accessions were confirmed, and the kingly title finally recognized. Since 1871 Wurtemberg forms part of the German Empire.

GOLD COINS OF WURTEMBERG.

1. Carolin of Eberhard Louis. Obverse: Bust of Eberhard Louis in armor. Legend: "EBER. LUD. D. G. DUX WURT. & T." (*Eberhard Louis, Duke of Wurt or Wirtemberg, and Teccensis or Teck*). Reverse: Shield, bearing arms of Wurt and Teck, surmounted by an electoral crown, and encircled with the order and chain of the order of the "Golden Eagle." Legend: "CUM DEI ET DIE" (*With God and Time*). Exergue: 1732 to 1751. Intrinsic value: \$4.80.

2. The Half and Quarter Carolin of Eberhard Louis, bear the same devices and legends, and differ only in size and weight.

The half carolin's intrinsic value $\$2.37\frac{1}{2}$, and the quarter, about $\$1.18$.

3. The Carolin of Charles Alexander of 1790 to 1800. Obverse: Bust in armor of Charles. Legend: "CAROL ALEXAND. D. G. DUX WUR & T." (*Charles Alexander, Duke of Wurtemberg and Teck*).



CAROLIN OF CHARLES ALEXANDER.

Reverse: Shield, bearing the arms of Wurtemberg and Teck, surmounted by an electoral crown, beneath, palm and laurel branches, crossed. Legend: "PER ARDUA VIRTUS" (*Valor through difficulty*). Some of these Carolins have as Legend: "PROVIDE ET CONSTANTER" (*Providently and Constantly*). Exergue: Date of the year of issue. Intrinsic value: $\$4.80$.

4. Half and Quarter Carolin of Charles Alexander, bear the same devices and legends, and are only distinguishable by their size and weight. Intrinsic value: $\$2.37\frac{1}{2}$ and $\$1.18$.

5. Ducat of Frederick William as Duke and Elector. Obverse: Bust of Frederick William. Legend: "FRED. WIL. D. G. DUX ET EL WURT. & T." Reverse: Shield, bearing arms of Wurtemberg and Teck, surmounted by an electoral crown, enclosed between palm and olive branches, crossed. Legend: "PROVIDE ET CONSTANTER" (*Providently and Constantly*). Exergue: Date of the year of issue. Weight: 53.858 grains. Fineness: 980. Value: $\$2.23.700$.

6. Half Ducat of Frederick William, bears the same devices and legends as the Ducat. Weight: 26.929 grains. Fineness: 980. Value: $\$1.11.850$.

7. Ducat of Frederick William as King of Wurtemberg.

Obverse: Head of Frederick William. Legend: "FRIEDRICH I KOENIG VON WURTEMBERG" (*Frederick I., King of Wurtemberg*). Reverse: Shield, surmounted by the royal crown, and supported by a stag and a lion, each carrying a flag. Exergue: Date of the year of issue. Weight: 53.858 grains. Fineness: 980. Value: \$2.23.700.

8. Half Ducat of Frederick I. as King, bears the same devices and legends as the Ducat, and is only distinguishable by its size and weight. Weight: 26.929 grains. Fineness: 980. Value: \$1.11.850.

9. Ducat of William, son of Frederick I. Obverse: Undraped bust. Legend: "WILHELM KOENIG VON WÜRTEMBERG."



DUCAT OF WILLIAM.

Reverse: Crowned shield, supported by a lion and a stag. Exergue: Date of the year of issue. Weight: 53.858 grains. Fineness: 980. Value: \$2.23.700.

10. Half Ducat of William. Obverse and Reverse: Same as No. 9. Weight: 26.929 grains. Fineness: 980. Value: \$1.11.850.

11. 5 Gulden Piece of William. Obverse: Head of William facing to the right. Legend: "WILHELM KOENIG V. WÜRTEMBERG." Reverse: Pointed shield, bearing arms of Wurtemberg and Teck, surmounted by a royal crown, surrounded by laurel branches, crossed and tied. Exergue: Date of the year of issue. Weight: 51.559 grains. Fineness: 895.833. Value: \$1.98-.4620.

12. Ducat of William II. Obverse: Head of William II. Legend: "WILHELM KOENIG V. WÜRTEMBERG."

Reverse: Oval shield, bearing arms of Wurtemberg, sur-

mounted by a helmet and a crown, supported by a lion and a stag, with their hind feet resting upon a scroll, which bears the



DUCAT OF WILHELM II.

motto: "FURCHTLOS UND TREU" (*Fearless and true*). Legend: "1. DUCATEN 67 EINE M. Z. 23 $\frac{2}{3}$ K." (1 *Ducat, sixty-seven to weigh one Mark, fine gold, of 23 $\frac{2}{3}$ Carats*). Exergue: Date of the year of issue. Weight: 53.853 grains. Fineness: 986.111. Value: \$2.28.6242.



5 GULDEN OF WURTEMBERG.

The afore-described coins are no longer legal tender, since July, 1873, and are exchanged for Reichs-Marks in gold, at the rate of 1 $\frac{1}{2}$ Mark to the Gulden or Florin.

13. Twenty Mark Piece of Karl, of 1872 and since. Obverse: Head of Charles facing to the right. Legend: "KARL KOENIG VON WURTEMBERG." Exergue: "F," the Mint-mark of the Stuttgart Mint. Reverse: Imperial German eagle, "20" at the left of it, and "M" at the right (20 *Marks*). Legend: "DEUTSCHES REICH." Exergue: Date of the year of issue. Weight: 122.880 grains. Fineness: 900. Value: \$4.76.

14. Ten Mark Piece of Karl, of 1873 and since. Obverse and Legend: Same as No. 13. Reverse: Same as No. 13. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "10 MARK." Weight: 61.440 grains. Fineness: 900. Value: \$2.38.

15. Five Mark Piece of Karl, of 1874 and since. Obverse and Legend: Same as No. 13. Reverse: Same as No. 13. Legend: Same as No. 13. Exergue: "5 MARK." Weight: 30.720 grains. Fineness: 900. Value: \$1.19.

SILVER COINS OF WURTEMBERG.

1. Convention Thaler of 1770 to 1776. Obverse: Bust of Charles Eugene. Legend: "CAROLUS D. G. DUX WURT. & T." Reverse: Shield, surmounted by the electoral crown, and inclosed between branches of palm and laurel, crossed. Legend: "PROVIDE ET CONSTANTER." Weight: 428 grains. Fineness: 836. Value: \$0.96.400.

2. Convention Thaler of 1777 to 1790. Obverse and Legend: Same as No. 1. Reverse: Oval shield, surmounted by the electoral crown, and draped with the band and star of the order of the "Golden Eagles," inclosed between branches of palm and laurel, crossed. Legend: "PROVIDE ET CONSTANTER." Weight: 429 grains. Fineness: 836. Value: \$0.96.400.

3. Convention Thaler of Frederick William, from 1797 to 1806. Obverse: Head of Frederick. Legend: "FRED. WIL. D. G. DUX WURT & T. ET. EL" (*Frederick William, by the grace of God, Duke of Wurtemberg and Teck, and Elector*). Reverse: Shield, bearing arms of Wurtemberg and Teck, surmounted by an electoral crown. Legend: "PROVIDE ET CONSTANTER." Exergue: "X EINE FEINE MARK." Weight: 434.750 grains. Fineness: 875. Value: \$1.01.8975.

4. Kronen or Crown Thaler of Frederick I., as King of Wurtemberg. Obverse: Head of Frederick I. Legend: "FRIDERICH I KOENIG. VON WURTEMBERG." Reverse: Shield, surmounted by the royal crown, and supported by a lion and stag, each carrying a flag. Exergue: Date of the year of issue. Around the edge: "KRONEN THALER," a star at each end, "KOENIGL. WURTEMB." (*Crown Thaler of the Kingdom of Wurtemberg*). Weight: 454.340 grains. Fineness: 875. Value: \$1.06.9950.

5. Crown Thaler of William. Obverse: Undraped bust of William. Legend: "WILHELM KOENIG VON WÜRTTEMBERG."



CROWN THALER OF WILLIAM.

Reverse: "EIN KRONEN THALER" and the date of year of issue, in four lines, surmounted by a royal crown; the whole inclosed in a wreath formed of a single branch of laurel, tied with a ribbon. Weight: 454.340 grains. Fineness: 875. Value: \$1.06.9950.



GULDEN OR FLORIN OF WILLIAM.

6. Gulden of William. Obverse and Legend: Same as No. 5.

Reverse: Circular shield, surmounted by a crown and inclosed in a wreath of oak. Legend: "KÖN. WÜRTEMBERG EIN GOLDEN ST." (*Königlich Württembergith Ein Gulden Stück, Royal Württemberger one florin piece*). Around the edge: "FURCHTLOS UND TREU" (*Fearless and true*). Exergue: "1821." Weight: 195.300 grains. Fineness: 750. Value: \$0.39.400.

7. Double Gulden of 1824 of William. Obverse and Legend: Same as No. 6. Reverse: Crowned shield bearing arms of Wurtemberg. Legend: "ZWEI GULDEN." Exergue: "1824." Weight: 392.600 grains. Fineness: 750. Value: \$0.79.200.

8. Kronen or Crown Thaler of William of 1831-1837. Obverse: Head of William, facing to the right. Legend: "WILHELM KOENIG VON WÜRTTEMBERG."



CROWN THALER OF WILLIAM.

Reverse: Pointed shield, bearing arms of Wurt and Teck, surmounted by a royal crown; surrounded by a branch of oak and laurel, crossed and tied. Legend: "KRONEN THALER." Exergue: Date of the year of issue. Weight: 455.068 grains. Fineness: 868.056. Value: \$1.01.5289.

9. Kronen-Thaler of 1833, known as the "ZOLLVEREIN" Thaler of Wilhelm (*Customs-League-Thaler*). Obverse and Legend: Same as No. 8. Reverse: Aquarius; Goddess of Trade; and a horn of plenty. Aquarius in a reclining posture, leaning upon his water-jug, from which the water flows, while the goddess of trade carries a Mercury wand in her left hand, and a sealed packet, extended, in the other; the horn of plenty appearing to the right of the field. Legend: "HANDELS FREIHEIT DURCH EINTRACHT" (*Trade free under this union*). Exergue: "1833." This Thaler was coined throughout 1833 in commemoration of the treaty with the rest of Germany, so far as

the duties on customs were concerned, known as the "Customs League;" by which freedom of trade is permitted between the different States of the League, no duties being charged upon merchandise transported from one State to another, after it has passed the frontiers of the first State, and having paid a duty there. The significance of the device being that, Trade will prosper under the auspices of that treaty—the treaty being the document which the goddess holds in her right hand. Weight 455.068 grains. Fineness: 868.056. Value: \$1.01-.5289. As this Thaler was coined during a few months only, it has become already scarce and is much sought after by collectors of coins.

10. $3\frac{1}{2}$ Gulden or 2 Thaler piece of William II. Obverse: Head of William II., facing to the left. Legend: "WILHELM KÖNIG V. WÜRTTEMBERG."

Reverse: " $3\frac{1}{2}$ GULDEN. 2 THALER," and the date of the



DOUBLE GULDEN OF WILLIAM II.

year of issue; inscribed upon the field in five lines, surrounded by a heavy wreath of oak branches, crossed and tied. Legend: "VEREINS MÜNZE" (*Convention money*). Exergue: "VII EINE F. MARK." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

A. Double Gulden of William II. Obverse: Head of William II. Legend: "WILHELM KÖNIG V. WÜRTTEMBERG."

Reverse: Oval shield, bearing arms of Wurt and Teck, surmounted by a helmet, above which a royal crown, supported by

a crowned lion and a stag, their hind feet resting upon a scroll upon which the motto: "FURCHTLOS UND TREU" (*Fearless and true*). Legend: "ZWEY GULDEN." Exergue: Date of the year of issue. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3900.

B. Vereins or Convention Thaler of William II. Obverse: Head of William II. Legend: "WILHELM KÖNIG V. WÜRTTEMBERG." Reverse: Arms of Wurt and Teck, supported by a stag and a crowned lion. Legend: "VEREINS THALER," a star, "XXX EIN PFUND FEIN." Exergue: Date of the year of issue. Weight: 285.784 grains. Fineness: 900. Value: \$0.72.

C. Gulden of William. Obverse: Head of William. Legend: "WILHELM KÖNIG V. WÜRTTEMBERG."

Reverse: "1 GULDEN," and the date of the year of issue; surrounded by a heavy wreath of oak branches, crossed and tied. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.



GULDEN OF THE 25TH ANNIVERSARY OF THE REIGN OF WILLIAM.

D. Florin of William of 1841; issued during that year in celebration of the 25th year of the reign of King William. Obverse: Laureated head of William, facing to the left. Legend: "WILHELM KÖNIG V. WÜRTTEMBERG."

Reverse: A female seated, a staff in her right hand, her left supporting a shield, upon which are the arms of Wurt and Teck, at the left side a boy holding a horn of plenty, and at the right of her another boy holding *fasces* in his hands. Legend:

"ZUR FEYER 25 JÄHRIGER REGIERUNG" (*At the celebration of the 25th year of the reign*). Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

E. Double Thaler of Karl. Obverse: Head of Charles facing to the right. Legend: "KARL. KOENIG VON WUERTEMBERG" (*Charles, King of Wurtemberg*).



DOUBLE THALER OF CHARLES OF 1869.

Reverse: The Cathedral of Ulm in Wurtemberg. Legend: "ZUR ERINNERUNG AN D. WIEDEBHERSTELLUNG D. MÜNSTERS IN ULM 1869" (*In commemoration of the reconstruction of the Cathedral in Ulm, 1869*). Exergue: "ZWEI THALER." Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

F. Double Thaler or $3\frac{1}{2}$ Gulden of Karl. Obverse and Legend: Same as No. E. Reverse and Legend: Same as No. A. Weight: 10. Weight: 572.847 grains. Fineness: 900. Value: \$1.45.995.

G. Double Gulden of Karl. Obverse and Legend: Same as No. E. Reverse and Legend: Same as No. A. Weight: 327.335 grains. Fineness: 900. Value: \$0.83.3900.

H. Gulden of Karl. Obverse and Legend: Same as No. E. Reverse and Legend: Same as No. C. Weight: 163.675 grains. Fineness: 900. Value: \$0.41.5677.

I. Half Gulden of Karl. Obverse and Legend: Same as No. E. Reverse: " $\frac{1}{2}$ GULDEN," and the date of the year of

issue. Weight: 81.652 grains. Fineness: 900. Value: \$0.20.7708.

All the above-described coins are no longer legal tender, and are only exchangeable at the different Imperial treasuries at the rate of $1\frac{1}{2}$ Mark to the Gulden, and 3 Marks per Thaler.

J. 5 Mark Piece of Karl of 1873 and since. Obverse: Head of Charles. Legend: "KARL KOENIG VON WUERTEMBERG." Exergue: "F." mint-mark of the Stuttgart Mint.



FIVE MARKS OF CHARLES OF WURTEMBERG.

Reverse: The German Imperial Eagle. Legend: "DEUTSCHES REICH," and the date of the year of issue. Exergue: "FÜNF MARK." Weight: 476 grains. Fineness: 900. Value: \$1.19.

K. Two Mark piece of Charles of 1874 and since. Obverse and Legend: Same as No. J. Reverse and Legend: Same as No. J. Exergue: "ZWEI MARK." Weight: 190.400 grains. Fineness: 900. Value: \$0.47.600.

L. Mark Piece of Charles of 1874 and since. Obverse: The German Imperial Eagle. No Legend. Reverse: "1 MARK," surrounded by heavy branches of oak. Legend: "DEUTSCHES REICH." Exergue: Date of the year of issue. Weight: 95.200 grains. Fineness: 900. Value: \$0.23.800.

M. 50 Pfennig of Charles of 1874 and since. Obverse: Same as No. L. Reverse: "50," in the middle of the field.

Legend: "DEUTSCHES REICH." Exergue: "PFENNIG."
 Weight: 47.600 grains. Fineness: 900. Value: \$0.11.900.

N. 20 Pfennig of Charles of 1874 and since. Obverse:
 Same as No. L. Reverse: "20," in the middle of the field.
 Legend and Exergue: Same as No. M. Weight: 19.040 grains.
 Fineness: 900. Value: \$0.04.760.

The Nickel coins of 10 and 5 Pfennige, and the Bronze coins
 of 2 and 1 Pfennig are the subsidiary money of the German
 Empire.

GREAT BRITAIN AND POSSESIONS.

GOLD COINS.

The first allusion to Britain on a Roman coin occurs in the
 reign of Claudius, A. D. 46. It was struck in commemoration
 of the erection of the triumphal arch decreed to him by the
 Senate on the conquest of Britain, but minted four years after
 that event. Upon the Obverse: Laureated head of the Emperor
 Claudius. Legend: "TI CLAVD. CAESAR. AVG. P. M. TR. P.
 VIII. IMP. XVI" (*Tiberius Claudius Caesar Augustus, Pontifex
 Maximus, Tribunitia Potestate nonum Imperator decimum sextum,*
*which means: Tiberius Claudius Caesar Augustus, holding office
 of Pontifex Maximus, or High Pontiff for the ninth time, and
 Imperator or Emperor for the sixteenth time).* "Emperor for
 the sixteenth time" refers to the historical fact that the first
 Roman emperors were not declared imperators for life, but only
 for a certain period, after the manner of the ancient dictator-
 ship; such declarations being, however, renewed by the Senate
 at the expiration of each period. These renewals are thus re-
 corded on the coinage till the title became hereditary.

The Reverse of this coin bears a triumphal arch, surmounted
 by an equestrian statue between trophies, a representation of
 the one decreed by the Roman Senate. Upon the arch is in-
 scribed "DE BRITANA."

The first gold coin of England was issued A. D. 1257 by Henry III. In the archives of the city of London appears the following passage: "It may, perhaps, appear strange that Henry III., in the height of his distress for want of money, should be the first prince that ever struck gold coins in England.

"The piece he caused to be struck was of pure gold, and weighed two sterlings; it was to pass in the usual proportion of gold to silver at that time for twenty sterlings or pennies in silver."

Displeased with gold as a medium for money, in less than three months after its issue, on Sunday, November 4th, 1257, the citizens of London made a clamorous representation against it. King Henry III. was so willing to oblige them that he published a proclamation, declaring that nobody was obliged to take it, and whoever did might bring it to his exchange, and receive there the value at which it had been made current, a half-penny only being deducted for the coinage. Henry, in his straits for money, was forced, twelve years later (21st July, 1269), to issue another proclamation, giving this coin a forced circulation of 24 instead of the original 20 pennies.

The Obverse exhibits the King, Henry III., on a chair or throne, in his royal robes, crowned, having in his right hand a very neat sceptre, which passes under his arm, and is formed of six pearls or pellets; in his left hand, outstretched, he holds a royal globe, surmounted, but not touched, by a Coptic cross, composed of four pearls or pellets, and a sort of mosaic work appears at, behind, and under his feet. Legend: "HENRICUS REX III." (*Henry III., King*). The Reverse has a long cross extending to the edge of the piece, in order to prevent filling or clipping; dividing the lettered circle, in the interstices of the cross, are four very neat roses between three small pellets. Legend: "WILLEM ON LUND." The minter name and London, the city where minted. Weight: 45 grains. Fineness: 995. Value: \$1.92.825. As this gold penny weighed 2 silver pennies, and was current for 20 of silver, had they been of as fine

silver as that was of fine gold, the proportion would have been as 1 to 10; but, as the silver penny contained no more than 37 parts in 40 of fine silver, therefore it was of no more than 1 to 9 $\frac{1}{4}$. Finally, when the gold penny was raised from 20 pennies to 2 shillings, the proportion raised as 1 to 11 $\frac{1}{6}$.

The next gold coinage occurs in the eighteenth year of the reign of Edward III., 1344, and was called the "Florin," which had upon the field of the Obverse two leopards, and the Half Florin, which had but one, while the Quarter Florin, a royal helmet with a lion *guardant-passant* at the top, the whole upon a mantle strewn with lilies of France. Legend: "EDWR. R. ANGL. Z. FRANC. D. HIBER" (*Edwardus Rex Angliæ, Franciæ Dominus Hiberniæ, Edward, King of England and France, Master of Ireland*). Reverse: A cross composed of treble lines of pearls or pellets, with a small rose in the centre. Legend: "EXALTABITUR IN GLORIA" (*He shall be exalted in glory*). Weight of the Florin: 108 grains; Half Florin: 54 grains; and the Quarter: 27 grains troy. Fineness: 995. Value: \$4.62.780 the Florin; \$2.31.390 the Half; and \$1.15.695 the Quarter.

This Florin was current for six soldz or shillings; the Half for three shillings; and the Quarter Florin for eighteen deniers or pence. It was soon found that this gold coinage was rated too high, and was therefore recalled; consequently specimens are very rare. Another gold coinage was then determined upon, the famous one of the "Nobles."

These coins were not named after a place of mintage, such as the Florin, after Florence, but after the *noble* metal of which they were composed, and their purity, 995 fine; therefore, superior to any gold coins of the period in Europe.

Obverse: A ship; the King, Edward III., clad in armor, sword erect in his right, and a shield, quartered with the arms of France and England, in his left hand, standing upright in the middle of the ship. Legend: "EDWAR. D. GRA. REX. ANGL. Z. FRANC. DNS HYB." (*Edwardus Dei Gratia Rex Angliæ Et Franciæ Dominus Hiberniæ, Edward, by the grace of*

God, King of England and France, Master of Ireland). *Dei Gratiae* was then used for the first time on the coins of England.

The device of the ship was adopted in commemoration of the great naval victory of Midsummer Eve, 1340, when two French admirals, and thirty thousand men were slain, and two hundred and thirty of their large ships taken, with small loss on the part of the English.

The Reverse has a cross formed of three lines, two of which are dotted, and terminated with a sort of a flourished ornament and a lily of France, having on its centre a small rose or compartment of four leaves or arches, and four angles, whose points terminate in three pellets in the void spaces made by the cross, which have also in each of those spaces a lion, with a crown over it, all contained within a compartment of eight arches dotted like a cross. In the centre the letter "E" (which stands for Edward). Legend: "IHS AUTEM TRANSIENS P. MEDIUM ILLORUM IBAT." (*Jesus autem transiens per medium illorum ibat*, which means: *Jesus passing through the midst of them* [alluding to the Pharisees, who intended to stone Him] *went away*).

There are several opinions concerning the meaning of this text (*John* viii., v. 59); the first is, that of the alchemists, who say it alludes to the secret manner in which gold was made, being as invisible to vulgar eyes as Jesus' passage through the midst of the Pharisees was to them. The second, these words, as found in *Luke* iv., v. 30, have been used as a talisman of preservation in battle, and also against thieves, if so the wonderful preservation of the King, as if by the invisible hand of Providence he passed unhurt through the midst of his enemies, in that extraordinary sea fight, which the type of this coin was intended to commemorate, it was most appropriate; but if the other superstition did hold sway, it was decidedly the most serviceable, if not the most elegant inscription that could be put upon coins, but gold especially.

The Half Nobles bear the same Obverse and Reverse, only in some the Legend on the Reverse was changed to "DOMINE NE IN FVRORE TUO ARGVAS ME," *Psalm* VI. and XXXVIII.,

part of verse 1 (*O Lord, rebuke me not in Thy wrath*). On one of the Half Nobles in the collection of coins in the British Museum, the sense of the motto is entirely changed by the accidental omission of the word "NE," reading "Domine in furore tuo arguas me."

The Quarter Nobles bear the same Obverse and Reverse as the Noble, only on some the Legend on the Reverse was changed to "EXALTABITUR IN GLORIA" (*He shall be exalted in glory*). Supposed to be an allusion to Edward's claim to the crown of France.

The "Noble" was made current to the amount of the then well-known sum of half a Mark, or six shillings and eight pence; the half or "Maile Noble" for three shillings and four pence; and the quarter or "Ferling Noble" for twenty pence.

Weight of the Noble: 136.700 grains. Fineness: 995. Value: \$5.85.7595. The half or "Maile Noble," Weight: 68.350 grains. Fineness: 995. Value: \$2.97.8798; and the quarter or "Ferling Noble," Weight: 34.175 grains. Fineness: 995. Value: \$1.48.9399. The proportion of gold to silver, at that period, was as 1 to 11; at the present day it is as 1 to 16.

Some of the Nobles have also the title of "DUKE OF AQUITAINE," and others with a flag at the stern of the ship, bearing St. George's cross; others, struck after the Treaty of Bretigny, in 1360, when Edward renounced his claim to France, omitting "FRANCIAE" in the titles.

The first grand coinage of Nobles proved so valuable that they were secretly exported for profit, and a lighter coinage was made, causing, however, some unreasonable discontent.

Still the fine gold coinage of Edward III. was rapidly finding its way to France; to obviate which, he established the complicated system of *Staple* towns, where only British merchandise could be sold to the foreign merchant in the presence of a government commissioner, who compelled the foreigner, on the sale of his own merchandise, to spend whatever moneys he might have received in the purchase of British products, then principally wool.

The coins struck in France by Edward III. are the Guiennois, the Leopard, the Ecu, and the Mouton. The Guiennois, coined in Guienne, bears upon the Obverse the standing full figure of Edward III., in complete armor, except his head which is crowned; he holds in his right hand a sword and a pointed shield, with the quartered arms of France and England in his left, and seems to stand on two lions, at the sides and over his head a grand Gothic portico. Legend: "ED D. GRA. REX ALIE DO AQUITANIE" (*Edwardus Dei Gratiae Rex Angliae Dominus Aquitaniae*, which means: *Edward, by the Grace of God, King of England, Master of Aquitaine*). Upon the Reverse: An ornamented cross within a compartment similar to that on the afore-described "Nobles." Legend: "GLIA IN EXELSIS DEO ET IN TERRA PAX HOIBUS" (*Gloria in Excelsis Deo Et in Terra Pax Hominibus*, which means: *Glory be to God on high, and on earth peace to men*). Weight: 60 grains. Fineness: 995. Value: \$2.57.100.

The Leopard has on the Obverse a lion *passant-guardant*, crowned and within a compartment of arabesques. Legend: "EDVWARDUS DEI GRA ANGLI FRANCIE REX." Reverse: A cross, whose ends terminate in acorns with leaves, within a rose or compartment of four arches and four angles. Legend "XPC. VINCIT. XPC. REGNAT. XPC. IMPERAT" (*Christus vincit, Christus regnat, Christus Imperat*, which means: *Christ conquers, Christ reigns, Christ commands*). Weight: 54 grains. Fineness: 995. Value: \$2.31.390.

The Ecu bears upon the Obverse: King Edward III., seated on an ornamented throne, with his sword erect in his right hand, and a shield, with the lilies of France upon it, in his left. Legend: "EDVWARDUS DEI GRA. ANGLI FRANCIE REX." Reverse: An ornamented cross within a rose of four leaves, whose ornamented angular points terminate in the quarters, and the same leaves issue also from the legendary circle into the angles. Legend: Same as the Leopard. Weight: 66 and 70 grains. Fineness: 995. Value: \$2.82.810 and \$2.99.950 respectively.

The Mouton has on the Obverse, within a compartment, the

“holy lamb,” under which is the king’s name, “EDVARD.” Legend: “AGN. DEI. QUITOLLI PECCA MVNDI. MIS. NOS” (*Agnus Dei qui tollis peccata mundi miserere nobis*, which means: *Lamb of God, Thou who takest away the sins of the world, have mercy upon us*). Reverse: An ornamented cross with the lilies of France in the angles. Legend: “XPC VINCIT. XPC. REGNAT. XPC IMPERAT” (*Christ conquers, Christ reigns, Christ commands*). Weight: 71 grains. Fineness: 995. Value: \$3.04.235.

Edward, Prince of Wales, called more frequently the *Black Prince*, was declared Prince of Aquitaine by his father, Edward III., in 1362, which he held for ten years, when he again resigned it into his father’s hands, and died about four years after in 1376. In this capacity of sovereign prince he issued five different gold coins, two similar to those of his father, namely: the Guiennois and the Leopard.

The third is the “Chaise,” upon the Obverse he appears sitting on a Gothic chair or throne. Legend: “ED. PO. GNS. REGIS ANGLIE PNS AQUITANIE” (*Edvardus Primo Genitus Regis Angliae Princeps Aquitaniae*, which means: *Edward first born to the King of England Prince of Aquitaniae*). On the Reverse is a cross within a compartment of four roses and four angles, it has also two lions and two lilies of France in the quarters. Legend: “DEUS JUDEX JUSTUS FORTIS PACIENS” (*God the just, powerful, and patient Judge*). Weight: 54 grains. Fineness: 995. Value: \$2.31.390.

The fourth coin is known as the gold “Hardy.” Obverse: Bust of Edward in his robes, with his sword in his right hand, with a compartment. Legend: Same as the “Chaise.” Reverse: A cross with the lions and lilies. Legend: “AUXILIUM MEUM A DOMINO.” Weight: 60 and 61 grains. Fineness: 995. Value: \$2.57.100 and \$2.61.385.

The fifth and last coin of the Black Prince is the “Pavilion;” upon the Obverse of which he is represented standing in his robes under a spacious pavilion, with his sword erect, and has two ostrich feathers on each side of him. Legend: Same as

the "Chaise." Reverse: A cross formed of leaved acorns, inclosed within a sort of curved square, out of the middle of the four sides of which issue the four angles of a square. Legend: "DNS AIVTO. PTECO. ME. IPO. SPAVIT COR MEUM" (*Dominus adjuto protector meus in eo speravit cor meum*, which means: *Lord, my protector and help, I have prostrated my heart to Thee*). Weight of this coin differs more than any of Aquitanian gold coins. The Pavilion in possession of the Queen of England and that of the Duke of Devonshire weighs 69 grains, that in Paris 73 grains, others have been found to weigh 83 grains; their fineness, nevertheless, 995 fine, known as the *old gold standard* of England from Edward III. until the eighteenth year of Henry VIII., A. D. 1527, about 180 years. Value, therefore, as from \$2.95.665 to \$3.55.655.

This coin is interesting on account of the detached ostrich feathers in the field—so placed in commemoration of the Black Prince having displumed the helmet of John King of Bohemia at the battle of Cressy. The crest of that king, who was killed in that battle, was: three ostrich feathers, with the motto "ICI DIEN" (*I serve*); and in memory of that victory, August 26th, 1346, it has since been adopted by the heirs to the crown of England.

The gold coins of Richard II., 1377–1399, upon the Obverse in no way differ from those of his grandfather's Edward III., with the exception of the Legend "Ricard" instead of "Edward," and upon the reverse the initial "R" replaces the "E." His Nobles were reduced to 120 grains, fineness: 995. Value: \$5.14.200. The half Nobles to 60 grains. Value: \$2.57.100, and the quarter in the same proportion.

The gold coins of the three Henries, who now succeeded each other, are very difficult to distinguish. These kings issued in England money of precisely the same types, without any marks of distinction.

In February, 1423, Henry VI. ordered the coinage of the "Salute" in France. Obverse: Salutation of the Virgin by the angel Gabriel; the hands of the angel are lifted up, and

those of the Virgin folded over her breast. The word "AVE" (*Hail*) is in a scroll over a crowned shield, with the arms of France and England quartered together, which stands between them. Legend: "HENRICUS REX ANGLIE ET FRAN." The reverse has a long cross between a lion and a lily of France, within a compartment. Legend: "XPC VINCIT. XPC REGNAT. XPC IMPERAT." Weight: 60 grains. Fineness: 995. Value: \$2.57.100.

In the same year, 1423, September 6th, a change was made in the device of the "Salute;" the principal difference of which, in its type, from the other, is, that the scroll with "AVE" is held by the angel, the Virgin has her hands elevated instead of folded, and there are two shields, neither of them crowned; one at the feet of the Virgin, with the arms of France alone, and the other contains France and England quartered. The Reverse is the same as the preceding one, only an "H" is added beneath the cross. The Legends remained the same; but the weight was reduced from 60 to 54 grains. Fineness: 995. Value: \$2.31.390.

Henry VI. likewise afterwards caused another coin, the "Gold Franc," to be struck. On the Obverse the King on horseback, in full armor *cap-a-pie*, a crown upon his helmet, his sword drawn, his armor and that of his horse is strewn with lilies of France and lions of England. Legend: "HENRICUS D. G. FRANC. ANGLIE REX." Reverse: An ornamented cross within a compartment of four arches. Legend: "XPS. VINCIT. XPS. REGNAT. XPS. IMPERAT." Weight from 48 to 60 grains. Fineness: 995. Value: \$2.05.68 to \$2.57.100.

Edward IV., 1461-1483, changed the obverse of the Noble and half Noble, and they differ from those of all his predecessors, first in having constantly a square flag on the stern of the ship, with the letter "E" of his name on it, which before always appeared on the centre of the reverse, and secondly there is always a large rose on the side of the ship, which none of them before ever had. The rose or compartment likewise on the quarter Noble consists of but four leaves instead of eight, as

all the former ones had; an "E" appears on the top of the shield, a rose on one side and a sun on the other, with a lily of France at the bottom. Legend: "EDVVARD DI. GRA. REX ANGL. Z. FRANC. DNS. HYB." On the half Noble the words "DNS. HYB." are wanting; and on the quarter Noble the words "DNS. HYB." and "FRANC" are omitted. The type of the Reverse is also changed, the cross with its small central compartment is now taken away, and in its stead appears a sun, with a full blown rose in the centre, the points or rays touching the flourished ornamented ends of the cross, and also the lions and lilies, which were still left and enclosed within the same compartment of eight leaves. The legends still remained as on the afore-described "Nobles."

This gold coin "Noble" having continued for 120 years at its original value of 6s. 8d. had given its name to that sum in accounts, but being in 1461 made current for half as much more, or ten shillings, it had the name of "RYAL" given to it, which the French had given to some of the first gold coins they struck, and was thus called from the figure of the king in his royal robes.

This coin is sometimes also called by the name of "ROSE RYAL," but more frequently by that of "ROSE NOBLE," which seemed to be most proper from the rose which it carried both on its Obverse and Reverse. The weight, fineness and intrinsic value, notwithstanding their advance from 6s. 8d. to 10s., remained. Edward IV., in his fifth year, 1465, began to mint a new kind of money called the "ANGEL," on which appears the archangel St. Michael, having one foot on the dragon, which lays on its back, and piercing him at the mouth with a spear, whose end terminates in a cross crosslet. Legend: "EDWARD DI. GRA. REX. ANGL. Z. FRAN.;" but on the half Angel, called the "ANGELET," the words "Z. FRANC." are omitted from the Legend. Upon the Reverse appears a ship, with a large mast in the middle of it, the top of which is formed into a cross, the royal shield, with the arms of France and England fixed on this mast, having on the right side the letter "E" (*Edward*), and

on the left a rose. Legend on the Angel: "PER CRUCE TUA SALVA NOS XPE REDEMPT." (*By Thy cross save us, O Christ, our Redeemer*). Around the "Angelet" the Legend reads: "O CRUX AVE SPES UNICA." (*Hail, Oh cross, our only hope*). Weight of the Angel: 80 grains. Fineness: 995. *Intrinsic value of to-day*: \$3.42.80. The weight of the Angelet is 40 grains. Fineness: 995, and the *intrinsic value of to-day*: \$1.71.40.

During the reign of Henry VII., 1485-1509, a considerable change in gold coinage took place.

The Obverse of the Noble represents the King as usual, in armor, standing in a ship, with his sword in his right hand, and a shield in his left, which differs from that which appears on those of his predecessors, both in form and position, covering but little of his body; a square flag with a semi-dragon appears at the stern of the ship, and another, for the first time, at the head, on which is an "H." (*Henry*). The side of the ship is ornamented with roses, and the King is crowned with an imperial arched crown, whereas on the former ones it is always open. The Reverse differs still more from the former Nobles; the ornamented ends of the cross, the lily of France, the lions and crowns all disappeared; the whole area is filled with a large double rose within a compartment of ten arches; in the centre of the rose is a shield with arms of France alone, without those of England, which are not to be found thus on any other piece. The Legends, Weights and Fineness, as afore-described. But the great feature of Henry VII's reign was the issue of the Double Ryal or "Sovereign," as also the "Double Sovereign." The Obverse of both represent the King, Henry VII., sitting in a chair of state, with a sceptre in his right, and the royal orb in his left hand. Legend: "HENRICUS. DEI. GRACIA. ANGLIE. FRANCIE. IBAR. HIBNE." Upon the Reverse a double full blown rose, in its centre the royal shield, with the arms of France and England quartered; above it a large imperial crown. Legend: "IHESUS AUTE TRANCIENS PER MEDIU ILLORU IBAT" (*Jesus, passing through the midst of them, went away*). The

Double Sovereign weighs: 480 grains. Fineness: 995. Value: \$20.56.800. The Sovereign: 240 grains. Value: \$10.28.400. The Double Sovereign was current for 40 shillings, and the Sovereign for 20 shillings, or one pound sterling; the value of silver to gold as 1 to $11\frac{1}{3}\frac{1}{3}$.

The Ryal of Henry VII. was worth 10 shillings; the Angel 6 shillings 8 pence; and the Halves and Quarters in proportion.

The avarice of Henry VII. having caused much light money to be made, and many pieces also being clipped, great complaints arose, which were silenced in a rather summary manner; it was therefore enacted that no person should refuse the King's coin, if good gold and silver, on account of thinness, on pain of imprisonment or death.

During the reign of Henry VIII., 1509–1547, another gap occurs in the coinage of Ryals or Nobles. The Sovereign, up to the thirty-fourth year of his reign, like that of his father, exhibits the King seated in a chair of state, with his sceptre and globe, at his feet the *portcullis*, which is not on any of the others. The Reverse nearly as that of his father, with slight changes in the compartments about the rose. In 1544 the type of the Reverse was completely changed, exhibiting the royal shield with the quartered arms of France and England crowned and supported, on the right by a lion, and on the left by a dragon; at the bottom of the shield "H. R." In the thirty-sixth and thirty-seventh year of Henry VIII., the Sovereigns differ but little from the foregoing, the King appearing fuller faced and with a beard; a rose at his feet instead of the *portcullis*. These Sovereigns are smaller in size and lighter in color; their weight being reduced from 240 to 200 grains, and their fineness from 995 to 958, the Half Sovereign in proportion. This reduction brought its intrinsic value of to-day down to \$8.25.150.

In the thirty-seventh year of his reign the fineness was further reduced to 834 fine, and its intrinsic value of to-day down to \$6.91.

Henry VIII. in his eighteenth year of reign coined the gold "George Noble" for the first time; it represents upon the Ob-

verse: St. George on horseback, piercing the dragon under his horse with a spear, but upon the following mintage he has a sword in hand, lifted ready to strike the dragon. Legend: "TALI DICAIT, SIG. MES. FLUCTUARE NEQI." (*Tali dicat signo mens fluctuare nequit*, which means, referring to the device of St. George: *Devoted to such an emblem the mind cannot waver*). Reverse: A ship, the mast a cross, a large rose at the foot of it; the letters "H and R" at each side of the cross. The next mintage of this Reverse a change was made: the ship has three masts or crosses, and the letters "H and R" are removed. Legend: "HENRICUS D. G. REX ANG. Z. FRANC. DNS HYB." This is the first instance where the King's name and titles are put on the Reverse, and the sentence usually chosen for the Reverse is put on the Obverse. Weight: 71.112 grains. Fineness: 995. Intrinsic value of to-day: \$3.04.639.

Henry VIII. also introduced the "Gold Crown" into the English series of coinage. Upon its Obverse a double rose, crowned between the letters "H. R." (*Henry Rex*). "H. A." (*Henry and Anne*). "H. J." (*Henry and Jane*). "H. K." (*Henry and Katherine*). Some of the gold "Crowns" have a rose fixed on the centre of a cross *fleury*, with the letters "H. R." crowned in two of the quarters, and two lions in the other two. Legend: "HENRIC. VIII. RUTILANS ROSA SINE SPIA." (*Henricus VIII., Rutilans rosa sine spina*, which means: *Henry VIII., the shining rose without a thorn*). The Reverse of all of them have the royal shield, with the arms of France and England crowned. Some have not any letters on the sides, but others have "H. R.," "H. A.," "H. J." and "H. K.," as on the Obverse.

Edward VI., 1547-1553. This prince was little more than nine years of age when he ascended the throne; but in the journal which he kept, in his own writing, and which is still preserved in the British Museum, he made several entries respecting the coinage, which shows that he had been taught to appreciate the subject. It was determined that the bare state in which Henry VIII. had left it should be remedied, but an

honest way of going about the work does not appear to have occurred to the youthful King or his ministers. The Sovereign of this King weighed from 169 to 178.720 grains; the Half, Quarter, Third and Eighth in proportion.

The coinage of Mary, and Mary and Philip, 1553-1558, exhibits no improvement. The Sovereigns issued were made current for 30 shillings, the Angel for 10 shillings, the fractions in proportion.

Elizabeth, 1558-1602. The complete restoration of the integrity of the currency is justly ascribed to Elizabeth. The Legend of Henry VIII., the shining rose without a thorn, gives place to "E. D. G. ROSA SINE SPINA" (*Elizabeth, by the grace of God, the rose without a thorn*). One consolation is left to posterity that Henry VIII. and Elizabeth had at least a very good opinion of themselves.

The fine Sovereign of Elizabeth weighs 240 grains troy; the Ryal 120 grains; the Angel, before the forty-third year of her reign, weighs 80 grains; the Angelet 40 grains; and the Quarter Angel 20 grains; and after her forty-third year they weigh 78.650 grains. The fine Sovereign, Ryal and Angel were all of 995 fine. The fine Sovereign was current for 30 shillings; the Ryal for 15 shillings; the Angel for 10 shillings; and the fractions in proportion. The pound Sovereign of 20 shillings, before her forty-third year, weighs only 174.720 grains; but after that year was reduced to 171.890 grains; the fractions in proportion. The pound Sovereign was only 916 fine.

Before describing the coinage of James I. of England, and VI. of Scotland, it will be necessary to take a hasty review of the origin and progress of the Scottish coinage.

The earliest coins attributed to Scotland were those of William the Lion, 1165. It is probable, however, that a regular coinage was known in Scotland at least two centuries earlier, for the southern portion of what is now termed Scotland was included in the Saxon Kingdom of Northumberland, and the Northumbrian coin circulated there while a great portion of the North was possessed by the Kings of Norway, who coined

money, certainly, in the tenth century. It is not, therefore, that coins were unknown to the people of Scotland till the twelfth century, but that they did not assume a distinctive and national character before that period. Coins attributed to Malcolm IV. are doubtful. Those issued by William I., surnamed "The Lion," are, however, undoubted, and are very numerous. The coins bear the names of various moneyers and places of mintage, after the manner of the English coinage of the period.

The coins of Alexander II. and III. are very difficult to distinguish, and, like those of William I., are very rude in execution. Those of John Baliol, however, and Robert Bruce, which are at once recognizable, are in some respects superior to the English coinage of that period. The first gold coinage of Scotland took place in the last year of the reign of David II., 1371, when fine gold pieces were issued, evidently in imitation of the "Nobles" of Edward III., from which they differ in no respect except in the substitution of the arms of Scotland for those of England on the shield, and of the name and titles of the Scottish king in the Legend.

In the reign of Robert II., 1371-1390, coins of gold were issued of a national character, having the arms of Scotland on the Obverse, and St. Andrew on his cross on the Reverse, from which this coin received its popular name "St. Andrew." This piece passed for five shillings. It was called a "Gold Penny," the half being called a "Maille." The Maille has only the cross and not the figure of St. Andrew on the Reverse. It was, however, popularly called "the Lion," from the lion on the shield of the Obverse, to distinguish it from St. Andrew.

The gold coinage of Robert III., James I. and II., from 1390 to 1460, is similar to those of Robert II. In the reign of James III. the demi or lozenge lions of gold of James I. and II. were ordered to pass for twelve shillings each, showing the great increase in the value of the old gold coin.

During the reign of James III., 1460-1487, a new gold coin, the "Unicorn," was struck. It bears upon its Obverse a Unicorn from which it derives its name.

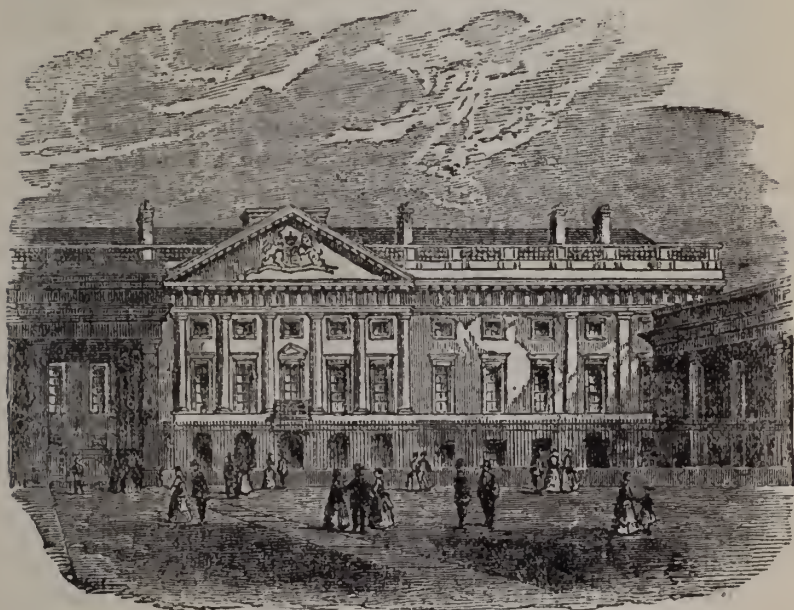
James IV., 1488-1514, issued also a new coin called the "Rider:" the king armed on a galloping horse, of two or three sizes so as to correspond with the unicorn series.

In the reign of James V., 1514-1542, "Unicorns" from the old dies were issued, and also new gold coins which have the numeral "v" after his name. In his reign, also, "Crowns" of gold were also issued to pass for twenty shillings; and, likewise, gold pennies of several kinds; but the finest coin of his reign is the gold "Bonnet" piece, so called from the cap or beret, termed in Scotland a *bonnet*, which the king wears in his portrait on this coin. There were two-thirds and one-third of this piece issued at the same time.

The gold coins issued in the reign of Mary, 1542-1587, though not numerous, were of a great variety of type. They had generally the arms on the Obverse, and "Maria Regina," in a crowned monogram, on the Reverse. The "Royal" is one of the best-wrought coins of this reign, having a well-executed portrait of the Queen on the Obverse. During her marriage with Francis II. no gold was struck, but previous to her second marriage the gold "Crown" was issued, having the arms of France half effaced by those of Scotland on the Obverse, and four crowned M's, arranged as a cross, on the Reverse. No gold was issued during her union with Darnley. James VI., previous to his accession to the throne of England, coined the "Sceptre," a fine large coin of the size of an English double Sovereign. In his reign the Scottish coins were declared current in England, as one to twelve, and the English in Scotland in the same proportion—that is, the Rose Royal, thirty shillings English, was to pass for eighteen pounds Scotch: the Angel of ten shillings for six pounds Scotch, etc.

James I. of England, 1602-1625, issued first the Sovereign, having upon the Obverse the King in armor, holding the orb and sceptre. The Reverse has the arms of England and France, with Scotland and Ireland quartered, and the Legend: "EXURGAT DEUS DISSI PENTUR INIMICI" (*Let God arise, let His enemies be scattered*). After the coining of the "Units"—

coins of similar value—these pieces were sometimes called “Sceptre Units:” the late sovereigns of the above type had the more appropriate motto: “*FACIAM EOS IN GENTEM UNAM*” (*I will make them one people*). The “Double Crown” of ten shillings is like the half sovereign, but has on the Reverse: “*HENRICUS ROSAS REGNA JACOBUS.*” The British “Crown” of five shillings was similar. The “Thistle-Crown” of four shillings



MINT OF GREAT BRITAIN.

has the rose of England on one side, and the thistle of Scotland on the other, both crowned, the titles round the rose with “*TUEATUR UNITA DEUS*” (*God upholds the United*), round the thistle. The pieces coined in Scotland only differed in the arms of Scotland occupying the first place. The “Rose Ryal” of thirty shillings is similar to those of the preceding reigns, except that the King appears in his regular parliamentary robes. The Legend on “Rose Ryal” and “Spur Rial” is: “*A DOMINO*

FACTUM EST ISTUD ET EST MIRABILE IN OCULIS NOSTRIS" (*It is the work of the Lord, and wonderful in our eyes*). English gold coins being above the standard of those of the Continent, their value was raised by proclamation: the Sovereign, from twenty to twenty-two shillings; the Double Crown, from ten to eleven shillings, and so in proportion. It being found that the irregular sums at which the gold coins were rated were extremely convenient, a new gold coinage was determined on. These coins are of the highest standard, termed angel gold. First, a thirty-shilling piece having the King in his parliament robes, the figure finely executed in a new style, but the mottoes the same; and, on the Reverse, the type of the old Rose Ryal being abandoned for the royal arms. Second, a fifteen-shilling piece of new device, having a lion holding a shield, with the numerals "xv." and the titles; and on the Reverse the old device of the "Noble," with the sun of Edward IV. Third, a ten-shilling piece, or Angel, with the old devices of the angel and ship, greatly improved, and having the royal arms on the sail, and another pattern having the ship scooped out to receive a large shield with the arms. Of crown gold, new "Units" were made, having the King's head laureated in the Roman style—the first time it had been adopted on modern English coins—and for the Reverse the royal arms, crowned, and the mottoes as on the first "Units." These pieces were soon after called "Laurels."

There is not so great a variety of the gold money of Charles I., 1625–1649. His coins are those of his predecessors, and the only piece of different pattern was the "Siege Piece," which was struck at Pontefract, 1648, octagonal in shape, and of the value of 20 shillings.

The gold money of the "Commonwealth" has upon the Obverse the antique shield, with the cross of St. George encircled with a laurel and palm branch. Legend: "THE COMMONWEALTH OF ENGLAND." The Reverse has two antique shields joined together, containing St. George's cross and the Irish harp, with the respective values over them. Legend: "GOD

WITH vs," and the date ; which is from 1649 to 1660 inclusive. Weight, Fineness and Value as those of Charles the First.

There is also a twenty and a ten shilling piece of Cromwell as Protector. Obverse: Bust of Cromwell: on the reverse a plain square shield, crowned, with the cross of St. George in its first and fourth quarters for England, that of St. Andrew in the second for Scotland, the Irish harp in the third for Ireland and in the centre a shield of pretence, a lion *rampant*. Legend: "PAX QUÆRITUR BELLO" (*Peace is sought by war*). The first money coined by Charles II., after his restoration, 1660-1685, was struck with the hammer, with and without the value upon them, but neither of them have an inner circle. He also coined for the first time the "Guinea," called so because of the great quantity of them that were coined out of gold brought from that coast by the Royal African Company, and distinguished from the other coins by an elephant and castle, beneath the bust of the king. Under Charles II's reign were also coined the half, two and five "Guinea" pieces; the latter had around the rim: "DECUS ET TUTAMEN" (*ornamental and useful*). The Guinea weighs 129.840 grains, the halves, twos and fives in proportion, their Fineness 916.660; and they were made current for 10, 20, and 40 shillings and 5 pounds.

The gold money of James II., 1685-1689, presents his profile bust laureated, and looking to the right, the contrary way to his brother; a lock of hair also flows over his shoulder. Weight and Fineness same as the gold coins of Charles II.

The coins of William and Mary; William III. and Mary II., 1689-1702; are of the same style as those of Charles II. and James II. Upon the Obverse the profile busts of the king and queen appear together; that of the king is laureated, but the queen has only her flowing hair. Weight and Fineness same as those of Charles II.

About the famous era of the Revolution, 1688, the Guinea by common consent was paid and received at 21s. 6d.

Queen Anne, 1702-1714, is exhibited on her gold money with a profile bust turned to the right, her hair tied up with a

fillet; upon the Reverse: Two sceptres *saltier-wise*; in the angles the shields of England, Scotland, Ireland and France. Weight, Fineness and Value as the preceding ones.

The gold coins of George I., 1714–1727, bear on the Obverse, the King's bust in profile, facing to the left, and crowned with laurel. The Reverse has four crowned shields in cross, at the top the shields of England and Scotland combined, at the right hand those of Brunswick, Lunenburg and Westphalia, at the left side is the shield of France and at the bottom that of Ireland. This king, besides the usual gold coins, coined also the quarter Guinea. The Guinea had continued to be current for 21s. 6d., from 1688 to 1717, in which year there was a remarkable scarcity of silver, which by Sir Isaac Newton, at that time master of the mint, in a memorial dated 21st of September, was partly imputed to the over-valuing of gold; and therefore, by a proclamation of December 20th, 1717, the proportion was lowered; that is, the "Guinea" was reduced to 21 shillings, as it has continued ever since.

During the reign of George II., no change was made in the coinage; only those coined of the gold, sent to the mint by the East India Company, have "E. I. C." under the bust of the king. Weight, Fineness and Value same as of the preceding reign.

The gold coinage of George III., 1760–1820, differs but little from his predecessors.

1. The Guinea. Obverse: Head of George III., facing to the right. Legend: "GEORGIUS III DEI GRATIA."



GUINEAS OF GEORGE III.

Reverse: Quartered shields of England, Scotland, France,

Ireland, Brunswick and Luneburg. Legend: "M. B. F. ET H. REX F. D. B. ET. L. D. S. R. I. A. T. ET. E." (*Magnae Britanniae Franciae et Hiberniae Rex, Fides Defensor; Brunswigae et Lunenburgae Dux Sacri Romani Imperii Archi Thesaurarius et Elector*; which means: *of Great Britain, France and Ireland King, Defender of the Faith, Duke of Brunswick and Luneburg, of the Sacred Roman Empire, Arch-Treasurer and Elector*). Weight: 129.4382 grains. Fineness: 916.660. Value: \$5.10.9825.

2. Half Guinea of George III. Obverse and Legend: Same as No. 1.



HALF GUINEAS OF GEORGE III.

Reverse and Legend: Same as No. 1. Weight: 64.7191 grains. Fineness: 916.660. Value: \$2.55.4912.

3. One-Third of Guinea, or Seven Shilling Piece. Obverse: Head of George III. Legend: "GEORGIUS III. DEI GRATIA."



ONE-THIRD OF A GUINEA OF GEORGE III.

Reverse: The royal crown in the middle of the field; beneath the same, the date of the year of issue. Legend: "BRITANNIARUM REX FIDEI DEFENSOR." Weight: 43.146 grains. Fineness: 916.660. Value: \$1.70.3208.

4. Quarter Guinea of George III. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 32.3595 grains. Fineness: 916.660. Value: \$1.27.7456.

5. Five Sovereign Piece of George III. Obverse: Head of George III. laureated, facing to the right. Legend: "GEORGIUS III. D. G. BRITANNIAR. REX F. D." Exergue: Date of the year of issue. Reverse: St. George and the dragon, occupying the whole field; no Legend. Weight: 616.372 grains. Fineness: 916.660. Value: \$24.33.250.

6. Double Sovereign of George III. Obverse and Legend: Same as No. 5.



DOUBLE SOVEREIGN OF GEORGE III.

Reverse: St. George and the dragon; no Legend. Exergue: Date of the year of issue. Weight: 246.548 grains. Fineness: 916.660. Value: \$9.73.300.

7. Sovereign of George III. Obverse and Legend: Same as No. 5.



SOVEREIGN OF GEORGE III.

Reverse: Same as No. 6. Weight: 123.274 grains. Fineness: 916.660. Value: \$4.86.650.

8. Half Sovereign of George III. Obverse: Laureated head of George III. facing to the right. Legend: "GEORGIUS III DEI GRATIA." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing arms of Great Britain, Scotland and Ireland, with the arms of Hanover on a shield of

pretence, also crowned. Legend: "BRITANNIARUM REX FID: DEF:" Weight: 61.6372 grains. Fineness: 916.660. Value: \$2.43.325.



HALF SOVEREIGN OF GEORGE III.

9. Five Sovereign Piece of George IV. Obverse: Head of George IV. facing to the left. Legend: "GEORGIUS IV DEI GRATIA." Exergue: Date of the year of issue from 1826. Reverse: A shield, bearing arms of Great Britain, with the electoral arms upon a shield of pretence, displayed upon a mantle of ermine, draped from a crown. Legend: "BRITANNIARUM REX FID DEF." Upon the edge is inscribed "DECUS ET TUTAMEN. ANNO REGNI SEPTIMUS" (*Ornamental and useful. Seventh year of the reign.*) Weight: 616.372 grains. Fineness: 916.660. Value: \$24.33½.

10. Double Sovereign of George IV. Obverse: Head of George IV. Legend: "GEORGIUS IIII. D. G. BRITANNIARUM REX F. D." Reverse: St. George on horseback, in the act of striking the dragon. No Legend. Exergue: Date of the year of issue from 1820-1830. Weight: 246.548 grains. Fineness: 916.66. Value: \$9.73.300.

11. Sovereign of George IV. Obverse: Laureated head of George IV. Legend: "GEORGIUS IIII. D. G. BRITANNIARUM REX. F. D." Reverse: Same as No. 10. Weight: 123.274 grains. Fineness: 916.660. Value: \$4.86.650.

12. Half Sovereign of George IV. Obverse: Same as No. 11. Reverse: Shield, bearing arms of Great Britain, Ireland and Scotland, surmounted by a crown; arms of Hanover on a crowned shield of pretence. Legend: "ANNO," "1824." Exergue: Laurel branches, at end of the left a thistle, and at the end of the right a shamrock; the branches are crossed and tied

with a rose. Weight: 61.6372 grains. Fineness: 916.660. Value: \$2.43.375.

13. Sovereign of George IV. of 1828-1830. Obverse: Head of George IV. Legend: "GEORGIUS IV DEI GRATIA." Exergue: Date of the year of issue from 1828-1830.



SOVEREIGN OF GEORGE IV.

Reverse: Crowned shield, bearing arms of Great Britain, Ireland and Scotland, with crowned shield of pretence with arms of Hanover; at the left of shield the thistle, and at the right the shamrock. Legend: "BRITANNIARUM REX. FID. DEF." Weight: 61.6372 grains. Fineness: 916.660. Value: \$4.86.650.

14. Half Sovereign of George IV. Obverse: Same as No. 13. Reverse: Same as No. 13. Weight: 61.6372 grains. Fineness: 916.660. Value: \$2.43.375.

15. Double Sovereign of William IV. Obverse: Head of William IV. facing to the right. Legend: "GULIELMUS IIII. D. G. BRITANNIARUM REX F. D."

Reverse: Crowned shield, bearing arms of Great Britain, Ireland and Scotland, with a crowned shield of pretence bearing arms of Hanover, the whole upon a mantle of ermine, draped from a crown from above; from beneath the shield the chain and order of St. George protrudes. No Legend. Exergue: "ANNO," and the date of the year of issue from 1830-1837. Weight: 246.548 grains. Fineness: 916.660. Value: \$9.73.30.

16. Sovereign of William IV. Obverse and Legend: Same as No. 15.

Reverse: Crowned shield, bearing arms of Great Britain,

Ireland and Scotland, with a crowned shield of pretence bearing arms of Hanover. No Legend. Exergue: Same as No. 15.



SOVEREIGN OF WILLIAM IV.

Weight: 123.274 grains. Fineness: 916.660. Value: \$4-.86.650.

17. Half Sovereign of William IV. Obverse and Legend: Same as No. 16.



HALF SOVEREIGN OF WILLIAM IV.

Reverse: Same as No. 16. No Legend. Exergue: "ANNO" and the date of the year of issue. Weight: 61.6372 grains. Fineness: 916.660. Value: \$2.43.375.

18. Five Sovereign Piece of Queen Victoria. Obverse: Bust of Queen Victoria facing to the left. Legend: "VICTORIA D. G. BRITANNIARUM REGINA F. D."



QUINTUPLE SOVEREIGN OF QUEEN VICTORIA.

Reverse: Una and the lion. Legend: "DIRIGIT DEUS GRESSUS MEOS" (*God guides my steps*). Exergue: Date of the year of issue in Roman numerals. Weight: 616.372 grains. Fineness: 916.660. Value: \$24.33½.

19. Sovereign of Queen Victoria. Obverse: Head of Queen Victoria facing to the left. Legend: "VICTORIA DEI GRATIA." Exergue: Date of the year of issue.



SOVEREIGNS OF QUEEN VICTORIA.

Reverse: Crowned quartered shield, bearing the arms of Great Britain, Ireland and Scotland, surrounded by two laurel branches, crossed and tied. Legend: "BRITANNIARUM REGINA FID. DEF." Exergue: Rose, thistle and shamrock entwined. Weight: 123.274 grains. Fineness: 916.660. Value: \$4.86.650.

20. Half Sovereign of Queen Victoria. Obverse and Legend: Same as No. 19.



HALF SOVEREIGN OF QUEEN VICTORIA.

Reverse: Crowned shield, bearing arms of Great Britain, Ireland and Scotland. Legend: "BRITANNIARUM REGINA FID. DEF." Weight: 61.6372 grains. Fineness: 916.660. Value: \$2.43.375.

SILVER COINS OF GREAT BRITAIN.

The earliest silver coins of the Saxons are called "Skeattae," a term derived from a Saxon word meaning a portion, and therefore justly supposed that these coins were a portion of

some merely nominal sum by which large amounts were calculated. They remained in partial use long after the general adoption of the Saxon silver penny. The Skcattae vary from twelve to twenty grains, and it is difficult, therefore, to ascertain their intrinsic value; many are without inscription, others unintelligible; some without Christian emblems, others with; some have a profile surrounded by a pretty interlaced band; some have the dove and cross; others have Romulus and Remus suckled by the wolf.

The earliest "Silver Pennies" are those of Eadbert, A. D. 794. The origin of the "Penny," variously spelt *peneg* and *peninc* is supposed to be derived from the Latin word *pendo*, to weigh; for it was intended that a Tower pound should make 240 pennies, giving 24 grains each.

The first silver penny struck bears King "EADBERT'S" name, and the title "Rex" in three lines, and on the Reverse the moneyer's name, with an ornament. The first "Silver Groats" were coined during the reign of Edward I., 1273-1307. The Obverse bears the King's bust, crowned, with the perfect form of the fleur-de-luce crown, the draperies at the neck fastened with a rosette; the whole bust is enclosed in a *quatre foil* compartment, surrounded by the Legend: "EDWARDUS DI. GRA REX. ANGL." (*Edward, by the grace of God, King of England*). The Reverse bears an ornamented cross with three pellets in the angles, extending to the edge of the coin; immediately round the pellets are the words: "LONDONIA CIVI" (*City of London*), and the Legend: "DNS HIBNE. DUX AQUI." (*Dominus Hiberniae, Dux Aquitaniae*, which means: *Lord of Ireland, and Duke of Aquitaine*). Up to the reign of Edward I. the half pennies and farthings were formed by cutting the pennies into two or four, an operation performed at the Mint, the cross upon the Reverse being the guide, dividing the penny in four equal parts, coins so cut having been found in quantities, that had evidently never been circulated.

During the reign of Edward II. (1307-1327) the silver coinage remained of the same standard as under the previous

King. There is no record of a coinage of Groats, but the Penny, its half, and the farthing have been freely coined. The silver coinage of Edward III. (1327-1377) includes again the groats, half groats, pennies, half pennies, and farthings, and the title of King of France is assumed on the groats of this King. The weight of the silver coinage was first seriously reduced in this reign: first, from the previous general average of about twenty-two grains in the silver penny to twenty and a quarter, then to twenty, and eventually to eighteen grains.

The silver coins of Richard II. (1377-1399) are precisely similar to those of his grandfather, Edward III. The coins of the three Henries (1399-1461), who now succeeded each other, are very difficult to distinguish. These princes issued money of precisely the same types, without any marks of distinction. There is, however, a tolerably secure guide for determining the pennies of Henry IV. In the early part of his reign they were of the weight of those of his two predecessors—namely, eighteen grains; but in the thirteenth year of his reign they were reduced to fifteen, and the other silver coins in proportion. The early groats may be distinguished in a similar manner. Of the thirty-eighth year of reign of Henry VI. there is a document relating to the Irish coinage, in which it is ordered that a groat of 45 grains be struck similar to the English, but with “CIVITAS DUBLINIAE,” or “CIVITAS WATERFORD,” in the inner circle of the Reverse.

The silver coins of Edward IV. (1461-1483) are exactly like those of the several preceding reigns. The weight of the penny was reduced, after his fourteenth year, to twelve grains.

The changes effected in the Irish coinage in this reign are somewhat remarkable. In the beginning of the reign it was enacted that a *Maile* and *Quadrant* of silver should be made in the castle of Dublin of the same type as the new *Denier*: these were continental terms, more frequently applied to the Irish coinage than to the English. The terms *Maile* and *Quadrant* refer to the silver half-pence and farthings of the types of the penny or denier. In the third year of this reign groats were

struck of the same type as those of Henry VI., with the crown without Legend. These coins have a tressure of seven arches instead of twelve, as in those of Henry VI.

There are also Irish groats of this reign very similar to the English groat, only having the title: "DOMINUS HIBERNIE" on the Obverse in addition to the name, and on the Reverse: "CIVITAS DUBLINIAE" in the inner circle. The most remarkable coinage of Irish groats was one with a new type, having a cross on one side and a sun on the other, and with which were issued pennies with a rose on one side and a cross on the other.

Another new coinage of Edward IV. consists of groats, half groats, and pence, having the head in the style of the English groats on one side, and the radiated sun, the favorite device of this prince, for the Reverse.

There were also several Irish coinages in this reign of entirely new device, and of a national character, having on the Reverse the arms of Ireland, "three crowns," in a cross, *in pale*, and on the Obverse the arms of England and France, quarterly, on a shield, separated by a similar cross, extending to the edge of the coin. On the Obverse is the Legend: "REX ANGLIE. FRANCIE" (*King of England and France*), without the King's name; and on the Reverse: "DOMINUS HIBERNIE" (*Lord of Ireland*), also without the King's name.

A second variety of this type, differing in having the addition of the King's name, and the name of the city of Dublin, and an interesting variety bearing the arms of the earls of Kildare on each side of the arms of England and France, were also coined during the reign of Edward IV. The Irish coinage became lighter than the English during this reign, and continued so to a greater extent in the subsequent reigns.

Of Edward V. (1483-1483) no silver coins are known to exist. In the two years of Richard III's (1483-1485) brief but energetic reign, he contrived to issue considerable coinage. Their type is precisely similar to those of his predecessors, and the proportion of twelve grains to the penny was the standard of weight. The Obverse of the groat have "RICARD. DI. GRA.

ANGL. Z. FRANC.," with his crest, the boar's head. The Legend upon the Reverse: "POSVI DEVM. ADIVTOREM-MEVM" (*I have made God my helper*). He issued groats, half groats, pennies, and halfpence; but no farthings.

The groats, pennies, etc., of Henry VII. (1485-1509) continued at first the same as in the previous one, and have often been confounded with those of Henry VI.; by referring carefully to the episcopal mint-marks, this doubt is soon solved. The greatest doubt has always been expressed as to the York pennies of Henry VII., especially those of Thomas Rotherham, archbishop, who did not possess the see of York till 1480, while Henry VI. died in 1461, the mark "T." on one side of the neck and a key on the other, stamp those pennies; therefore, indubitably, as those of Henry VII.

In the second style of coinage of Henry VII. the design of the crown is changed from the open crown of *fleur de lis*, of his own previous coins, and of those of so many of his predecessors, to an arched crown, sometimes called an imperial crown. The eighteenth year of Henry VIIth's reign was marked by an entirely new coinage, in which the silver coins, for the first time, received some attention as to their artistic execution: a positive portrait profile being attempted, and in fact very fairly executed. The shield with the royal arms was now first adopted for the Reverse; and, in short, the model, of which the types of the English coinages of the present day have been but modifications, was then first accepted.

The most remarkable feature in the then new silver coinage was the issue of the "Shilling." The Obverse bears the head of Henry VII. The Legends are inscribed in three different manners, as: "HENRIC DI GRA REX ANGLIE Z FR.;" "HENRIC VII. DI. GRA. REX ANG. Z FR.;" "HENRIC. SEPTIM. DI. GRA. REX ANGL Z FR." The type of the Reverse, which up to this time bore on all the silver coins the three pellets, was taken away, and with them the lettered circle, that immediately enclosed it, and in their stead the royal shield, with the quartered arms of England and France, was put on the cross. The

“Shilling” weighed 144 grains, and was 924.985 fine. The “Groat” weighed 48 grains, the “half” 24 grains, and the “Penny” 12 grains, the “half” and Farthing in proportion; they were all 924.985 fine.

The Irish silver coins of Henry VII. have been few, and only the Groat, its half and the Penny were only coined; some have upon the Obverse the head of Henry VII., wearing the old or flat crown, and some with the arched crown. Upon the Reverse “CIVITAS DUBLINIE” appears. In weight they are lighter than the English coinage of the same denomination. The Groats issued by the pretender, Perkin Warbeck, were struck for him by the Duchess of Burgundy; they have the arms of England on a crowned shield for Obverse, with the Legend: “DOMINE SALVUM FAC REGEM” (*God save the King*). On the Reverse the curiously selected Legend: “MANI TECHEL PHARES” and the date, 1494.

The silver coinage of Henry VIII. (1509–1547) may be divided into five classes; the first resembles the third coinage of his father, even the head being the same, the numerals alone being altered from “VII.” to VIII.” The farthings of this coinage are very rare.

The second coinage has a likeness of the King in profile, which may easily be distinguished, as he appears both younger and fatter than his father; the Reverse remaining the same. The Half Groats are similar, but those of York have Cardinal Wolsey’s initials, and the Cardinal’s hat on the Reverse. The Pennies have the King on the throne, with the Legend: “ROSA SINE SPINA” (*Rose without a thorn*). The Half-Pennies have still the old cross and pellets; and the Farthings, like those of his first coinage, have the *portecullis*, which appears for the first time on the coins in this reign.

In the third coinage of this reign the weight of the Penny was reduced to 10 grains, and that of the other silver coins in proportion, a great increase of alloy—two ounces in twelve—being used. The execution of this coinage, which consisted of Shillings, Pence, Half-Pence, Groats and Half Groats, was bold

and striking; the Obverse had a portrait of the King, being a front or three-quarter face, an excellent likeness, especially on the Shillings or Testoons, as they were called. The Testoon was so named after a French coin of similar value, which, on first receiving the impression of a portrait *head*, was called a *Teste-on* (*Head-on*). The present French word, *Tete*, three hundred years ago was called *Teste*. The Reverse: A large rose and a crown, a very handsome device, with the old Legend: "POSVI DEVM ADITOREVM MEVM" (*I have made God my helper*). The Groats and smaller pieces have the old Reverses, the Half Pennies still exhibiting the ancient type of the cross and pellets.

These types continued the same on the fourth coinage, but a marked degree of debasement took place. These base coins having the full face of the King soon began to show the inferior metal—copper—at the end of the nose, the most prominent part, and hence his sobriquet: "*Old Copper Nose*."

The Pennies being of the same weight: 10 grains; but the alloy was increased to the amount of half alloy to half silver.

The fifth coinage was still more debased, and the Legend on the Groats was changed to "REDDE CUIQUE QUOD SUUM EST" (*Render unto him that which is his own*), seeming like a satirical joke upon the fraud thus committed on the public, but probably not so intended.

During Henry VIII's temporary conquests in France, he coined money at Tournay. The first of the Tournay Groats are more in the French taste than either of them, having on its Obverse: A crowned shield, with the arms of France and England quartered, between a fleur-de-lis and a lion, and round it the Legend: "HENRICUS 8 DI. GRA. FRANCIE ET ANGLIE REX." On the Reverse: An open cross formed of double lines, with an "H" in the centre, two fleur-de-lis, and two lions in the spaces. Legend: "CIVITAT TORNACENSIS, 1513" (*City of Tournay*).

The most remarkable Irish coins of this reign are the series of Groats, with the arms of England, crowned, on the Obverse, and the Irish harp, crowned, on the Reverse, with the

"R. II." on each side of the harp; and on later issues, in succession, the letters "H. A.," for Henry and Anna, during his marriage with Anna Boleyn; "H. J.," for Henry and Jane Seymour; "H. K.," for Henry and Catherine Howard. Half Groats of these types are also known, but are very rare. In this reign the title of "King of Ireland," was adopted on the coins, instead of the old style, "Lord or Dominus."

In the thirty-sixth year of this reign pieces of Six-Pence, Three-Pence, Three Half-Pence, and Three-Farthing were first struck in Ireland, similar to the coinage issue in England at the same time. They have a three-quarter face of the King on the Obverse, and the arms of England, traversed by a long cross, on the Reverse. The Legends were, on the larger pieces: "HENRIC. 8 D. G. A. G. I. F. R. A. Z. HIB. REX." (*Henricus 8, Dei Gratiae Angliae Franciae Et Hiberniae Rex*, meaning: *Henry VIII., by the grace of God, King of England, France and Ireland*). On the Reverse: "CIVITAS DUBLINIE." (*Place of Mintage, Dublin*). The Three-Half-Penny pieces have the Legend: "H. D. G. ROSA. SINE. SPINA." Reverse: "CIVITAS DUBLINIE." These Three-Half-Penny and Three-Farthing pieces are of the greatest rarity. Several forgeries, with rude and blundered Legends, were put into circulation during this reign. The Irish coinage being greatly debased in the English royal Mint, was probably the principal incentive to the numerous forgeries.

During the reign of Edward VI., (1547-1553,) it was determined that the base state in which Henry VIII. had left it should be remedied, but an honest way of going about the work does not appear to have occurred either to the youthful King or his ministers.

The first silver coinage he issued was of the same low standard as the last of the previous reign, viz.: 4 ounces of silver to 8 ounces of alloy; and the Penny was of 10 grains. Of this issue there were also Testoons (Shillings), Groats, Pennies, their halves and farthings. They have a well executed profile of the King upon the Obverse, and the arms traversed by a cross.

The Penny has the Legend: "E. D. G. ROSA SINE SPINA," variously abbreviated. In the third year of the reign there was an attempt made to improve the coinage by issuing shillings of 5 to 6 ounces alloy instead of 8. They have the King's profile, crowned, not very different from the previous groats, but have in the Legend the Roman numerals VI. instead of the Arabic 6, as in the groats; and the Reverses have, for the first time, an oval shield without a cross, decorated in a style of ornament which then began to supersede the Gothic manner, a further modification of which has since been termed "Elizabethan." The Legend is: "TIMOR DOMINI FON'S VITAE MDXLIV." (*The fear of the Lord is the fountain of life*). Upon others the Reverse sometimes bears the name and titles round the head, and also "INIMICOS EJUS INDUAM CONFUSIONE" (*His enemies will I clothe with shame*). The date of the year of issue upon the English coins was then introduced for the first time.

This last issue seems rather to have added to the confusion: Testoon or Shillings were soon cried down to ninepence, and other coins in proportion, robbing the public to the amount of one-fourth of the original value of the silver coinage. Subsequently the shillings were cried down to sixpence, and eventually, in the reign of Elizabeth, these base shillings were marked with a particular mint-mark—a porteuillis in some cases—and ordered to pass for fourpence half-penny.

The confusion in the value of the precious metals at that time appears to have been extreme: silver being rated at 12 shillings the ounce, and gold at only 60 shillings, so that gold was only made five times more valuable than silver; and in the third year of Edward VIth's reign, when gold was rated at 48 shillings, it was only made four times the value of pure silver. There could, it would appear, have been no freedom of exchanges, or the value of gold must have been as 11 to 1.

It seems scarcely credible that after crying down of the shilling to ninepence—and those, in fact, only worth fourpence, half-penny—that a still baser coinage was issued, namely: 9 ounces of alloy to 3 ounces of silver. These coins bear the

same type as the preceding ones, and in the reign of Elizabeth they were stamped with a greyhound, and ordered to pass for twopenne, farthing.

In 1551 Crowns and half Crowns were issued for the first time; upon the Obverse they bear the King, crowned, on horseback, wearing the armor of the period: the horse, the housings, and the figure of the King better executed than the devices of any previous British coins. Legend: "EDWARD. VI. D. G. AGL. FRANC. Z. HIBER. REX." Reverse: The arms of England and France traversed by the cross. Legend: "POSVI DEVM. ADIVTOR MEVM." Weight: 480 and 240 grains respectively. Their intrinsic value, owing to the variety of the silver standard, uncertain, although they were current for five shillings.

Mary (1553-1558), on her accession, declared her intention of restoring the old standard in the silver coinage, namely, 11 ounces, 2 dwt. fine, and 18 dwt. alloy; but, instead of that, the new coinage fell 1 dwt. lower than the last of Edward VI.

On her first coinage she is represented in profile, crowned, upon the Obverse and the Legend: "MARIA D. G. ANG. FRA. Z. HIB. REGI." Reverse: Arms of England and France, quartered by the cross. Legend: "VERITAS TEMPORIS FILIA" (*Truth is the daughter of Time*). In allusion to the restoration of the Roman Catholic faith after its suppression during two previous reigns.

On her first coins, subsequent to her marriage with Philip of Spain, the Queen's head appears crowned as before with the Legend: "PHILIP Z. MARIA D. G. REX. ET REGINA."

These coins were struck from the treasure brought over by Philip, and have given rise to the sobriquet:

"Still amorous, fond, and billing,
Like Philip and Mary upon a shilling."

After Philip became King of Spain, by the abdication of his father, 1556, the title of "Prince of Spain" became inconsistent, and all allusion to the foreign dominion was omitted, the Legend standing: "PHILIP ET MARIA D. G. REX ET REGINA ANG.,"

for although Philip had now become King of Spain, he never assumed that title on the English coinage. The Legend: "POSUI," etc., on the Reverse remained the same, and the Spanish arms were impaled by the side of the English and French.



SHILLINGS OF MARY AND PHILIP, 1554-1557.

In the year 1553 shillings, groats, half groats, and pennies were struck in Ireland, having a good profile of the Queen on the Obverse, equal to that on the English coinage, and on the Reverse the Irish harp, crowned between the letters "M. R." also surmounted by small crowns; the Legend on the shilling and groats is: "MARIA D. G. ANG. FRA. Z. HIB. REGINA"—more abbreviated on the half groats. The Legend on all the Reverses is: "VERITAS TEMPORIS FILIA." Exergue: The dates 1553 and 1554.

After her marriage Irish coins were struck with the portrait of the King and Queen facing each other, and the Legend: "PHILIP ET MARIA D. G. REX. ET REGINA ANG.," with the date

1555; the Reverse was the same as on the previous issues, with the exception that the crowned initials were "P. M.," and the Legend: "POSUIMUS DEUM ADJUTOREM NOSTRUM" (*We have made God our helper*). In Mary and Philip's reign the circulation of the English Rose Pennies of Henry VIII. and Edward VI. was restricted to Ireland; and in this and future reigns the name of the Dublin mint was omitted on the Irish coinage, and mint-marks used as on the English money. The complete restoration of the integrity of the currency is justly ascribed to the reign of Elizabeth, (1558-1602).

The coinage of her first three years consisted of shillings, groats, half groats and pennies, which were of the same fineness as the last of the preceding reign; but inconvenience being felt for want of small money, she soon after issued a coinage of sixpences, threepences, three half pences, and three farthings of the full old English standard of 11 oz. 2 dwts. fine silver to 18 dwt. alloy.

In the year 1582 these three-farthing and three-half penny pieces were discontinued. On some of the coins of Elizabeth the arms of Zealand are found stamped, others have "H" for Holland: both of which are supposed to have been so marked for subsidies to be taken to the Low Countries by Leicester.



CROWN OF ELIZABETH OF 1601-1602.

The Crown of Elizabeth bears upon the Obverse, the crowned bust of Elizabeth facing to the left, a sceptre in her dexter, and

in her sinister hand the royal globe, only a part of which is visible. Legend: "ELIZABETH D. G. ANG. FRA. ET. HIBER. REGINA: 1."

Reverse: Quartered shield, bearing the arms of England and France, traversed by a cross. Legend: "POSVI: DEVM: ADIVTOREM: MEVM: 1." Weight: 480 grains. Fineness: 925. Value: \$1.19.590.

The half Crowns bear the same devices and Legends as the Crown.

Shilling of Elizabeth bears upon the Obverse: Crowned bust of Elizabeth. Legend: Same as upon the crown and half.



SHILLING OF ELIZABETH, 1582-1583.

Reverse and Legend: Same as upon the crown and half. Weight: 96 grains. Fineness: 925. Value: \$0.23.918.

The Six-Pence of Elizabeth bears the same devices and Legends as the shilling.



SIX-PENCE OF ELIZABETH, 1572.

Weight: 48 grains. Fineness: 925. Value: \$0.11.959.

The first money coined in Ireland during Elizabeth's reign

was that shameful recoinage in Dublin of the base metal then current in England, only 3 oz. fine to the pound troy. This base issue has the same types, with the exception of the portrait, name, and crowned initials, as the shilling of Mary.

Between 1598 and 1601, another Irish coinage took place, equally base, consisting of shillings, six-pences and three-pences. The type of the Reverse of these coins was varied by having three harps upon the shield instead of the single crowned harp; on either side of which is the date, instead of the crowned initials. There was also another issue of shillings, six-pences, and three-pences, the types of which were the arms of England on the Obverse, and the Irish harp, crowned, on the Reverse, with no initials or date.

The mint-marks are upon all the pieces of Elizabeth, from the halfpenny to the crown. We find more mint-marks upon the money of this Queen, than upon any of her predecessors; we therefore give the full list, so as to enable the numismatist to classify properly the coins in his collection.

1558. Martlet.	1570. Castle.
1559. Cross Crosslet.	1571. Castle.
1560. Fleur-de-lis.	1572. Ermine Spot.
1561. Pheon.	1573. Ermine Spot.
1562. Pheon.	1573. Acorn.
1563. Pheon.	1574. Acorn.
1564. Pheon.	1574. Cinquefoil.
1565. Pheon.	1575. Cinquefoil.
1565. Rose.	1576. Cinquefoil.
1566. Portcullis.	1577. Cross.
1566. Lion.	1578. Cross.
1567. Lion.	1579. Cross.
1567. Coronet.	1580. Cross.
1568. Coronet.	1581. Cross.
1569. Coronet.	1582. Sword.
1569. Castle.	1582. Bell.
1570. Coronet.	1582. A.

1583. Bell.	1592. Ton.
1583. A.	1593. Ton.
1584. A.	1594. Ton.
1584. Shell.	1595. Ton.
1585. Shell.	1595. Woolpaek.
1586. Shell.	1596. Woolpaek.
1587. Crescent.	1597. Anchor.
1588. Crescent.	1598. Anchor.
1589. Crescent.	1599. Anchor.
1590. Hand.	1600. Amulet.
1591. Hand.	1601. 1.
1592. Hand.	1602. 1.

1602. 2.

The milled money does not vary in its type, from that of the hammered, the only difference being in the superior neatness, and in the letters being squarer and better made; the pieces are also rounded, and more uniform; and have the edges grained, the inner circle is also taken away.

James VI., of Scotland, succeeded Elizabeth as James I. of England (1603–1625). Before describing his coinage, it will be necessary to take a glance at the silver coinage of Scotland.

Alexander I. (1107–1124), was the son of Malcolm III., called Cammoir, and of Margaret grand-daughter to Edmund, King of England. His silver coins bear a rude profile head, regarding to the left, having a sceptre before him; there is also a sort of circle formed of dots around it. Legend: "ALEXANDER REX." Upon the Reverse: A short cross.

David I. (1124–1153), also called the Saint, on account of his liberal donations to the church. His coins bear upon the Obverse, a profile head turned to the left, with the sceptre before him; the head is bare, and the work rude and barbarous. Legend: "D T. II I D. R . . . m." Reverse: A short cross, formed of single lines.

Malcolm IV. (1153–1162), was the grandson of David I. whom he succeeded, he was called the Maiden, because he would

never marry. Although he reigned 12 years, yet no coin of his was ever discovered.

William I. (1165–1214), called the Lion, succeeded his brother Malcolm IV. The coins of this King have his head always in profile; some are ornamented with a sort of circle of dots, others have four other dots or pearls, in form of a cross, all of them have an erect sceptre before them, surmounted with four dots in the cross. Legend: "WILELMUS RX.," and some have "LE REI WILA" or "WILAM." Reverse: A short cross, confined within the legendary circle.

Alexander II., (1214–1249.) Obverse: Profile head looking to the right, on some it is adorned with a circle of pearls, others have the open crown *fleurie*. Reverse: A cross, extended quite through the circle of the letters on the edge of the piece. Legend: "ALEXANDER REX."

Alexander III., (1249–1285,) he was killed by a fall with his horse from a precipice, leaving only a grand-daughter, who died unmarried. His coins have usually his head in profile, to the right, as those of his father and grandfather, and like them also, there is a sceptre before it; but it will be observed that it is contained within the letter circle, and does not run through it as formerly; the head is always crowned *fleurie*. The cross upon the Reverse is quite different from the ancient ones, being close and broad, and continued quite to the edge, which was followed with little alteration till the time of James V., and with respect to the head, till Robert II. Legend: "ALEXANDER DEI GRA;" others have "ALEXSANDER;" and upon the Reverse: "REX SCOTORUM."

Alexander III., dying without issue, the period of confusion that followed the King's death ended in the placing by Edward I., of England, of John Baliol on the Scottish throne. He resigned his kingdom to Edward I., in his fourth year, when a second interregnum followed of nine years. Little difference is to be found between the types of the coins of this King and the last, they having the profile head crowned, with the sceptre on one side, and the cross between four mullets on the Reverse.

Legend: "JOHANNES DEI GRA." Reverse, Legend: "REX SCOTORUM," with the name of the town only, namely: "CIVITAS SANDRE" (*St. Andrews*).

Robert Bruce, (1306-1329.) No alterations in the type from the two former kings, only the Legends: "ROBERTUS DEI GRA" and "REX SCOTORUM." David Bruce (David II.) succeeded his father in 1329, when an infant, and was forced to fly to France, being driven out of his kingdom by Edward Baliol, son of the late King, John Baliol, assisted by Edward III., of England, who held it about four years; returning from France he was afterwards taken prisoner, and carried into England, where he remained about eleven years, and was released on agreeing to pay 100,000 Marks of silver for his ransom. He died in the forty-first year of a very troublesome reign.

The types of the Penny, Half-Penny and Farthing, are the same as before; those of the groats and half-groats, which were now first struck, have the head circumscribed within a sort of rose, or compartment; and the Reverse, instead of one has two literary circles. From the Mullet or Spur in the quarters of the cross of this and the two following kings, they were afterwards called "Spurred Groats." Legends: "DAVID DEI GRACIA;" "REX SCOTORUM;" "DNS PROTECTOR MEVS;" "DNS PTECT MS. Z. LIBATOR MS." (*Dominus Protector Meus et Liberator Meus*).

Robert II., (1371-1390.) The last King, David II., dying without issue, Robert Steward, son of Walter Steward and Marjerie Bruce, sister of Robert I., succeeded, and reigned about nineteen years. The devices of this King's coins are the same as the last, and those of the half-penny and penny not to be distinguished from those of Robert Bruce.

Robert III., (1390-1405.) This prince succeeded his father, and was called "*Farne Zeir*," which means: "John of another year." He having been baptized John, and not changed his name to Robert III. till his coronation.

We now meet with a considerable change in the type of the Scotch coins, that is, from the profile face to a full one; and on

the Reverse the single mullet in each quarter is altered to three pellets. Legends: "ROBERTVS REX S^c and SCOTORUM;" "ROBERTVS DEI GRA;" "DNS PTECTOR MS Z LIBERATOR."

James I., 1405, succeeded his father, being then a prisoner in England, where he continued for eighteen years, or till 1424, in which year he was set at liberty. He was killed by a conspiracy at Perth, in his eleventh year of reign, 1435, after he returned from his captivity. The first coins assigned to this King were coined in his minority, whilst he was a prisoner; they exhibit him full face, with a sceptre on the right side. On his return we find the sceptre at his left side, and during the last year of his reign it was omitted, nor does it appear any more afterwards. On some of his coins his breast is naked, on others there is *fleur-de-lis*, or a cross, and frequently both, only two of the interstices between the cross on the Reverse have three pellets in them, the other two have a *fleur-de-lis* in each; from thence, in the following reigns, they were called "*fleur-de-lis Groats*." Legends: "IACOBVS DEI GRACIA REX SCO."

James II., (1437-1460,) succeeded his father when very young. He was killed in the twenty-fourth year of his reign, by the bursting of a cannon at the siege of Roxborough. No change was made in the coinage of his reign.

James III., (1460-1489.) This prince succeeded to the crown on the death of his father; he reigned nearly twenty-nine years, and was murdered in his flight after the loss of the Bannock-burn. The Groat struck in 1467 is called the "Borage Groat," said to have derived this appellation from the Borage or Borax used in the smelting of the ore. James III. coins have upon the Obverse the head full-faced, within a rose or compartment of five leaves; and on the Reverse a cross, running to the edge of the piece, in the spaces of which, inclosed within the inner circle, two of them are filled with three pellets, as in all the James', and in another, instead of *fleurs-de-lis* and crowns, as on the former, there are mullets of five and sometimes six points. Legends: "IACOBVS DEI GRA. REX SCOTORUM;" "DNS PTECTOR MS. Z. LIBATOR OR LIBERAT." On

others "SALVVM FAC. PPVLVM TVVM DNE." (*Salvum Vae Populum Tuum Domine*, meaning: *Save Thy people, O Lord*).

In his second coinage, 1483, he appears three-quarters face to the left, with bushy hair, and is for the first time crowned with an imperial arched crown, instead of an open one as formerly. The Reverse remained unchanged.

James IV., (1488-1514.) No change in the coinage of this King from that of his father's.

James V., (1514-1543.) Upon the Obverse of his coins we notice the King's face three-quarters, facing to the left, wearing again an open crown, inclosed with rose or five-leaved compartment. Upon the Reverse: A cross *bottony* terminated with leaves, having in two of the spaces a mullet of six points, and in the other two a thistle. The outer circle is also removed.

During the last four years of his reign the coins bear the head profile, and facing to the right, crowned with an imperial or arched crown; the compartment is also taken away. Upon the Reverse the old cross is continued, but it has the arms of Scotland on the centre.

After this reign no more groats were coined, which had been the largest piece of silver coined in Scotland from the time of David Bruce, or near two centuries; at its first introduction it was of the same intrinsic and nominal value as in England, that is, four pennies; at this time it was reduced to about three-fifths of the old weight, yet passed for between four and five times its first value, as was the manner in France, Germany, and Italy, where the *Gross*, *Groschen*, or *Grosso* were continually raised in their *nominal* value, whereas, in England, notwithstanding the groat has been diminished in its *intrinsic* value, yet the *nominal* has always been fourpence.

The afore-described coin having the thistle upon the Reverse of James' coin, it is as well to give here the origin of this Scotch national emblem. When the Danes invaded Scotland it was deemed unwarlike to attack an enemy in the darkness of night, instead of a pitched battle by day. But on one occasion the invaders resolved to avail themselves of this stratagem;

and, in order to prevent their tramp from being heard, they marched bare-footed. They had thus neared the Scottish force unobserved, when a Dane unluckily stepped upon a superbly-prieked thistle, and instinctively uttered a cry of pain, which discovered the assailants to the Scots, who ran to their arms and defeated the foe with great slaughter. The thistle was immediately adopted as the insignia of Scotland.

Mary Stuart (1544-1561). This unhappy princess came to the crown upon the death of her father, being but a few days old; was married in her sixteenth year to Francis, then Dauphin, afterwards King of France; her second husband was Henry, Lord Darnley: she was deposed in 1567, and beheaded in Fotheringay Castle, in February, 1587, where she had been imprisoned nearly eighteen years.

The first coin of Mary Stuart was struck in her tenth year, which has her head crowned, facing to the right. The Reverse has the royal shield of Scotland, crowned, between two stars of five points. Legends: "MARIA DEI GRA. R. SCOTORUM" and "DA PACEM DOMINE 1553." Her next coinage has upon the Obverse the letter "M," crowned, between two crowned thistles, and upon the Reverse the royal shield of Scotland, crowned. Legends: "MARIA DEI G. SCOTORUM REGINA." "DELICIE DNI. COR. IIVMILE." Her third coinage has the "M" crowned, between two crowned thistles, with the addition of the date of the year of issue. The Reverse has the royal arms of Scotland, but not crowned, fixed on a cross potent, extending through the literary circle; the Legends remained the same.

The fourth coinage has upon the Obverse the royal shield of Scotland, crowned, between "M." and "R.," within a circle. On the Reverse a cross potent, with four small ones in the interstices of it. Legends: "MARIA DEI. G. R. SCOTORUM." and "IN VIRTUTA TVA LIBERA ME."

Her fifth coinage bears upon the Obverse a cross potent; upon it a shield, partly *per pale* on the dexter side, the arms of the Dauphin in chief, and of Scotland in base: the sinister is filled with that of Scotland. Legend: "FRAN ET MA. DEI G. R. R.

SCOTOR. D. D. VIEM" (*Francis and Mary, by the Grace of God, King and Queen of Scotland, Dauphin and Dauphine of Valois*). Upon the Reverse: "F. M.," entwined in a monogram, between two double-barred crosses. Legend: "FECIT UTRAQUE UNUM," and the date of the year of issue.

Her sixth coinage bears upon the Obverse the portrait of the Dauphin and the Queen, face to face, with a crown over them. Legend: "FRAN. ET. MA. D. G. R. R. SCOTOR. DELPHIN. VIEN." Reverse: Royal shield, crowned, with the arms of the Dauphin impaled with those of Scotland, between "F. M.," crowned. Legend: "FECIT UTRAQUE UNUM."

Her seventh coinage has upon the Obverse a shield, with the royal arms of France impaled with those of Scotland, crowned with an imperial crown, having on the dexter side a cross, and on the sinister side a *saltier*. Legend: "FRAN. ET. MA. D. G. R. R. FRANCO. SCOTOR." Upon the Reverse: "F. M.," crowned between a *fleur de lis* and a thistle, both crowned. Legend: "VICIT LEO DE TRIBU JUDA" and the year of issue. (*The lion of the tribe of Judah has conquered*).

Her eighth coinage has upon the Obverse head of the Queen, facing to the left. Legend: "MARIA DEI GRA. SCOTORVM REGINA." Exergue: Date of the year of issue, in a scroll. Upon the Reverse: A shield, bearing royal arms of France, half effaced on the dexter side by those of Scotland on the sinister, having on each side an "M.," crowned. Legend: "SALVVM FAC POPVLVM TVVM DOMINE" (*Save Thy people, O Lord*).

Upon the marriage of Mary with Henry, 1565, the following piece was struck. Obverse: Heads of Mary and Henry, face to face, beneath "1565." Legend: "HENRICUS V. MARIA. D: GRA: R: U: R: SCOTORVM" and a thistle. Reverse: Crowned shield, with arms of Scotland between two-leaved thistles. Legend: "QUOS DEVS CONIUNXIT NEMO SEPARET" (*Whom God has united, no one shall separate*). Of this piece only a few thousand coins were struck: it was current for 30 Shillings Scotch. It has now become very scarce and brings a high premium.

Her tenth coinage bears upon the Obverse the royal arms of Scotland, crowned, between two-leaved thistles. Legend: "MARIA & HENRIC DEI. GRA. R. & R. SCOTORV." Reverse: A Yew tree, which has been put on these pieces in allusion to a famous one of this sort, that formerly grew in the park of the Earl of Lenox, which gave occasion to the thought; the tree being crowned, denotes the advancement of the Lenox family by Lord Darnley's marriage with the Queen, and the inscription on the scroll: "DAT GLORIA VIRES," confirms this conjecture. At the side of tree the dates of the years of issue: 1565, 1566, and 1567. Legend: "EXVRGAT. DEVS. U. DISSIPENTR INIMICIE" and a thistle. (*Let God arise, let his enemies be scattered*). Of this coinage 30, 20, and 10 Shillings Scotch were coined.

Her eleventh and last coinage being struck after the death of Darnley, his name is omitted, otherwise no change was made. These 30, 20, and 10 Shillings weighed $472\frac{1}{2}$, 315, and $157\frac{1}{2}$ grains, or one ounce, two-thirds, and one-third of an ounce of Scotland. Their fineness: 917.

James VI. of Scotland (1567-1625). His first coinage bears upon the Obverse: Royal shield of Scotland, at the sides of the shield, "J. R.," crowned. Legend: "IACOBUS 6. DEI GRATIA REX SCOTORVM." Reverse: A sword, erect in pale, crowned, having on the dexter side a finger or index pointing to the value: XXX, XX, X; on the sinister side, a little lower, the dates: 1567, 1568, 1569, 1570 and 1571. Legend: "PRO. ME. SI. MEREOR. IN. ME."

His second coinage being the Noble and Half-Noble, having upon the Obverse: Royal shield of Scotland crowned, with the value: 3-4 and 6-8 on the sides, meaning 3s. 4d. and 6s. 8d. Legend: same as the first coinage. Reverse: A cross formed of eight letter "I's," the initial of the King's name, ornamented at the ends and surmounted sometimes with a coronet; the spaces of the cross are filled with arched crowns and thistles. Legend: "SALVVM FAC POPVLVM TVVM DOMINE," and the dates: 1572, 1573, 1574, 1575 and 1576, respectively (*Save thy people, O Lord*).

Third coinage bears upon the Obverse: Royal shield of Scotland crowned. Legend: Same as before. Reverse: A leaved large thistle between the letters "I. R." sometimes crowned. Legend: "NEMO ME IMPVNE LACESSET;" and the date of the year of issue (*No one has touched me with impunity*).

His fourth coinage bears upon the Obverse: The portrait of the young king standing erect. Legend: Same as before. Reverse: Royal arms of Scotland between the letters "I. R.," and the value of x. s., xx. s., xxx. s. and xl. s. Legend: "HONOR. IVDICIUM. DILIGIT.," and the date of the year of issue. Their weight: 472½ grs., 315 grs., 157½ grs. and 78¾ grs. Fineness: 917.

The fifth and last Scotch coinage bears upon the Obverse the same device and Legend as the preceding coinage, the Reverse is only changed to a sword and balance. Legend: "HIS. DIFFERT. REGE. TYRANNVS" (*In these the tyrant differs from the King*). These coins are known as the Silver Mark. Weight: 72 grains. Fineness: 917. They were current for 6 s. 8d. Scotch value.

In 1603 James VI., of Scotland, became King of England, and assumed the title, James I. of Great Britain, France and Ireland.

The first silver coins issued by this King, soon after his accession, were Crowns, Shillings and Pennies, and their respective halves.



HALF CROWN OF JAMES I., 1604.

Legends: "IACOBVS D. G. AUG. SCO. FRAN. ET. HIB. REX.,"

and "EXVRGAT. DEVS. DISSIPENTVR. INIMICI." (*Let God arise, let his enemies be scattered*). Weight: 232.240 grains. Fineness: 925. Value: 67½ cents.



HALF CROWN OF JAMES I., 1613.

Legends: "IACOBVS. D. G. MAG. BRI. FRA. ET. HIB. REX.," and "QVÆ DEVS CONIYVNXIT. NEMO. SEPARAT" (*Whom God has united, no one shall separate*). Weight, Fineness and Value same as before described.

Legends: Same as upon the half Crown. Weight: 92.840 grains. Fineness: 925. Value: 24¾ cents.



SHILLING OF JAMES I., 1603.

The Crown of James I. has upon the Obverse the King on horseback; and upon the Reverse the garnished and quartered shield with the arms of France and England in the first and fourth, Scotland in the second, and Ireland in the third quarter, but without the customary cross, which had been constantly upon all the English coins since the Conquest. Weight of the

Crown 464,480 grains; the Shilling 92.840 grains; the Groat 30.450 grains, and the respective halves of afore-named in exact proportion. Fineness: 925.



SHILLING OF JAMES I., 1607.

Legends: Same as upon the half Crown. Weight: 92.840 grains. Fineness: 925. Value: 24 $\frac{3}{4}$ cents.

The mint-marks of James I. are as follows:

1603. Thistle.	1614. Cinquefoil.
1604. Fleur-de-lis.	1615. Book.
1605. Rose.	1617. Half moon.
1606. Shell.	1618. Plain Cross.
1607. Grapes.	1619. Saltiere Cross.
1608. Coronet.	1619. Spur.
1609. Key.	1620. Rose.
1610. Bell.	1621. Thistle.
1611. Mollet.	1623. Fleur-de-lis.
1612. Tower.	1624. Trefoil.
1613. Trefoil.	

Charles I. (1625-1649). The first silver coins of this reign were of the same value and denomination as those of James. The Crowns, Shillings and their halves have upon the Obverse the well-executed bust of the King, and upon the Reverse the royal arms. Legends: "CAROLUS D. G. MAG. BRIT. FRA. ET HIB. REX.," also "CHRISTO AUSPICE, REGNO" (*I reign under the auspices of Christ*).

The Pennies and half Pennies are like those of James, except

that they had the rose on both sides, with the Legend: "C. D. G. ROSA SINE SPINA" (*Carolus Dei Gratia Rosa Sine Spina*; meaning: *Charles by the grace of God the Rose without a thorn*); and upon the Reverse: "IUS. THRONUM FIRMAT." (*Iustitia thronum firmat*; meaning: *Justice strengthens a throne*).

These Pennies and half Pennies were soon followed by others having the King's bust, and the numerals "I." and "II.;" and on the Reverse the oval shield, with: "IUSTITIA THRONUM FIRMAT." for Legend. The oval shield, somewhat ornamented, was soon after adopted for the larger pieces also, with sometimes "C. R." on either side. The Shillings and Six Pencees represent the King in the dress of the day, and three changes of fashion may be traced in them. He is first seen in the stiff ruff, much like that of the reign of Elizabeth: then in a limber or falling one; and, lastly, in a simple falling collar, edged with lace. On some of the pieces of his early coinages he appears in his parliamentary robes, but eventually both these styles disappeared and he was constantly represented in armor, but with the falling lace collar. The Crowns and half Crowns have the King constantly on horseback in armor.



OXFORD TWENTY SHILLINGS OF CHARLES I., 1644.

Legend upon the Obverse: "CAROLVS. D: G. MAG. BRIT. FRA. ET. HIBER: REX." Upon the Reverse, in the field: "RE-

LIGIOSUS PROTECTOR LEGES ANGLIÆ LIBERTATIS PARLIAMENTI" (*The religious protector of the laws of England and the liberty of the Parliament*), and the Legend: "EXVRGAT-DEVS-DISSIPENTVR-INIMICI" (*Let God arise, let his enemies be scattered*).



OXFORD CROWN OF CHARLES I., 1644.

Legends: Same as upon the 20 shillings piece.



OXFORD SHILLING OF CHARLES I., 1644.

Legends: Same as upon the 20 shillings piece.



OXFORD PENNY OF CHARLES I., 1644

Legends: Same as upon the 20 shillings piece.

This King's reign was the first and only one which has produced any siege pieces.

The Newark siege pieces have a crown, with the initial letters "C. R." on the sides of it, and under it the respective values, as "VI., IX., XII. and XXX.," for so many pence.



30 PENCE SIEGE PIECE OF CHARLES I., NEWARK, 1645-1646.

Reverse: "OBS" "NEWARK" "1645 & 1646," in three lines, occupying the field. (*Obsidional* or siege money of Newark.) They are all in the form of a lozenge. The Carlisle siege money has upon the Obverse a crown, with the initials "C. R." beneath; and under them the value: "III." and XII." Reverse: "OBS. CARL., 1645" (*Obsidional Carolus*). They are round in form. The Pontefract pieces are of octangular shape, and were coined in 1648, with the castle of Pontefract flag flying occupying the field.



SHILLING SIEGE PIECE OF CHARLES I., 1648.

This place, Pontefract, was still defended by Colonel John Morris, seven weeks after the execution of the King, Charles I., and after that mournful event this staunch royalist struck

the coins he issued in the name of Charles II. The shillings so struck were of the same shape and device, with "CARLOS SECUNDUS, 1648," round the figure of the castle, and the Reverse had for Legend: "POST MORTEM PATRIS PRO FILIO" (*After the death of the father, the son*).

The Scarborough siege pieces are of thin plates of silver, with the value punched on them, of II s. VI d. and V s., the former has upon the back of it "OBS. SCARBOROUGH, 1645," engraved on it; some are of the lozenge shape, and others octangular, both kinds are very scarce and rare.

The Colchester siege pieces are likewise stamped with a castle, and have engraved around it as Legend: "CAROLI FORTUNA RESURGAM" (*I will restore the fortune of Charles*). They are also of the round and octangular shape, and extremely rare.

None of the coins of Charles I., coined in the Tower, were dated, but the following mint-marks afford sure indications of the dates of the years of issue. 1625, from April 1st to July 7th, 1625, a trefoil; from July to the end of 1625, a fleur-de-lis; from the beginning of 1626 to June 29th, 1626, a Negro head; after that date and up to the end of 1626, a long cross.

1627, castle. 1628, anchor. 1629, heart. 1630, feathers. 1631, rose. 1632, harp. 1633, porteullis. 1634, bell. 1635, crown. 1635-1636, ton. 1638, acorn. 1639, triangle. 1640, star. 1641, triangle in a circle. 1643, P. 1644, R. 1645, eye; and from November 10 to the end of 1645, sun. 1646, to the King's death, a sceptre.

The commonwealth, 1649 to 1660. This money was coined in pursuance of an ordinance of Parliament, July 17th, 1649, and continued to be coined until the restoration; but there were none coined in 1657 and 1659; and only a few in 1658 and 1660.

The Obverse has the cross of St. George in an antique shield, encircled with a branch of laurel, and the four largest pieces have inscribed round them: "THE COMMONWEALTH OF ENGLAND," but the other three pieces have no inscription at all.

The Reverse has the two shields of England and Ireland conjoined, which has given occasion to the name of breeches money,

by which it is often distinguished. Legend: "GOD WITH US," and the date of the year of issue. They have also in the field above the shield, their respective value stamped, viz.; I., II., VI., XII., II., VI., and V. The sun is the mint-mark used until 1656 inclusive, and afterwards on those of 1658 and 1660, the anchor.

All the pieces coined by the Protector have the profile bust of Cromwell laureated, being the first of the English coins with the head thus adorned. Legend: "OLIVAR D. G. R. P. ANG. SCO. HIB. &C. PRO." (*Protector of the Republic of England, Scotland and Ireland, but substituting etc. for France*). With the date at top, which is generally 1658, but there are a few Half Crowns and Shillings 1656.

The Reverse has a crowned shield, with St. George's cross in the first and fourth quarter for England; St. Andrew's cross in the second for Scotland, and the harp for Ireland in the third; and on the shield of pretence with his own coat-of-arms. Legend: "PAX QVÆRITVR BELLO." (*Peace is sought by war*).



CROWN OF CHARLES II., 1662.

Charles II., (1660-1684.) On his ascension in the year 1660, there were issued silver coins, from Half Crowns downwards, with the exception of Groats and Quarter Shillings, which were soon after added. They are much like the earliest coins of his father, with the old shield traversed by the *cross-fleurie*, and the same mottoes; the improvements of the mill and screw being

also abandoned, and the coins again produced by the old process of the hammer.

In 1662 the first Crowns were coined, they bear upon the Obverse the head of Charles II., a rose beneath the same, another sort has an elephant.

Reverse: Four crowned shields, formed into a cross, whose centre exhibits the radiated cross of St. George, or the garter star, and the spaces between the shields filled with two inter-linked "c's." Legend: "MAG. BR. FRA. ET. HIB. REX.," with the date of the year divided at the top from 1662 to 1684. Around the rim they are inscribed with "DECUS ET TUTAMEN" (*Ornamental and useful*). Weight: 464.480 grains. Fineness: 925. Intrinsic value: \$1.16.

The Half Crown of Charles II. bears upon the Obverse Laureated head of Charles II. Legend: "CAROLVS II. DEI. GRATIA."



HALF CROWN OF CHARLES II., 1677.

Reverse and Legend: Same as the Crown. Weight: 232.240 grains. Fineness: 925. Value: 58 cents.



FOUR PENCE, THREE PENCE AND TWO PENCE OF CHARLES II.

Their respective value: 7, 5 and 4 cents each.

Of the smaller coins we give an illustration of Two, Three and Four Pence.

During the reign of Charles II., the coins struck for Scotland are the Four Marks, the Two Marks, Mark and Half Mark pieces, the Crown, and parts thereof, were laid aside for Scotland. The Mark pieces have upon the Obverse the bust of Charles II., in Roman drapery, laureated, long hair, and facing to the right. Upon the Reverse: The arms in four separate shields, the value of each piece in the centre, viz.: $1\frac{1}{4}$, meaning, 53 shillings, 4 pence; $xxvi$, 26 shillings, 8 pence; $x\frac{1}{4}$, 13 shillings, 4 pence; and $\frac{vi}{8}$, 6 shillings, 8 pence; in the interstices double "C" interlaced and crowned. Legend: "MAG. BRIT. FRA. & HIB. REX.," and the date of the year of issue, from 1664 to 1675.

In 1675 they were succeeded by the Dollar, its Half, Quarter and Eighth; they have upon the Obverse: Laureated head of Charles II., facing to the left. Legend: "CAROLVS II. DEI GRA." Reverse: Arms in four shields, crowned, with a leaved thistle in the interstices, and the two letters "C" interlaced, in the centre. Legend: "SCO. ANG. FR. & HIB. REX.," and the date of the year of issue, from 1675 to 1681. The Eighth of a Dollar has a saltire cross, with a crown in the centre, between a thistle, rose, *fleur-de-lis* and a harp. They were current for 28 shillings, 14 shillings, 7 shillings and 3 shillings 6 pence, Scotch value.

In Ireland no silver money was issued in this reign, unless it be the Crowns and half Crowns, irregularly formed pieces, which rather come under the head of money of necessity than regular coinage—like the "gun money" of James II.

James II., (1684-1688.) The head of the King on the money of this reign is turned to the left: the Reverse of that of his predecessor. The coins were in other respects similar to the last of Charles II., having the bust and name on the Obverse, and the arms and titles on the Reverse, with no other motto. The arms are arranged on four shields as a cross; but without the interlaced letters in the angles. The Shillings and Six pences

are milled with oblique lines, and the lesser pieces or Maundy money are marked "III.," "II.," "I.," and "I.," with a crown above.

James II. again altered the value of the principal Scottish coins: issuing a 10 Shilling piece, Scotch, about the size of the English Shilling of Charles I., and a 40 Shilling piece about the size of the English crown, both of the same type as the English coin.

The most remarkable events of the Irish coinage of this reign are those connected with the "Gun Money." After the revolution of 1688 a proclamation was issued by James II., in Ireland, for making shillings and sixpences of mixed metal. They were made of old pieces of ordnance, etc., and are known as the "Gun Money." They are similar on the Obverse: the laureated head of James II., and on the Reverse: two sceptres in saltire through a crown, between "I. R." in decorative italic cypher, with the date, 1689, and the values, "XII." and "VI." Half Crowns were soon after issued of the same type as the shillings, but with the numerals "XXX." over the crown: all this money having the month in which it was struck under the crown. In March, 1690, Pennies and Halfpence of *white metal* were struck, with the King's bust on the Obverse, and a crowned harp on the Reverse: some have the King on horseback on the Obverse. In April, 1690, Crowns of *white metal* were struck. They have the King on horseback on the Obverse, and on the Reverse the four shields, like the English coin. In June, 1690, the half Crowns were called in and re-stamped to pass as Crowns. A large Crown was subsequently struck in *white metal*, with two plugs of brass in the King's horse on the Obverse, and a large crown of brass in the centre of the Reverse.

In the reign of James II. a *tin* piece was issued for the American plantations, where the Spanish dollar chiefly circulated, with its parts, Reals and half Reals. This coin was intended to pass as twenty-four to the Real, and is stamped on the Reverse: "VAL. 24 PART REAL HISPAN.." round four shields, dis-

posed as a cross, bearing the arms of England, Scotland, Ireland, and France; on the Obverse is the King on horseback, with his name and titles as Legend.

William III. and Mary II. (1688-1702.) The same style of coinage in its general appearance, fineness, and weight was continued at the commencement of these reigns.



HALF CROWN OF WILLIAM AND MARY, 1689.

The half Crown has upon the Obverse the profiles of the King, laureated, and the Queen, with plain hair. The Reverse has the arms of England, Scotland, Ireland, and France, quartered, with a shield of pretence bearing arms of Nassau. Weight: 232.240 grains. Fineness: 925. Value: 58 cents.

At the death of Queen Mary, 1695, and after, the Obverse bore only the profile of the King, laureated.



CROWN OF WILLIAM III., 1696.

The Reverse was also changed to the four crowned arms in

the shape of the cross, the shield of Nassau in the centre. Weight: 464.480 grains. Fineness: 925. Value: \$1.16.



HALF CROWN OF WILLIAM III., 1697.

The half Crown bears the same devices and Legends. Weight: 232.240 grains. Fineness: 925. Value: 58 cents.

Most of the coins of William and Mary have four shields, arranged in a cross, on the Reverse, with arms of Nassau in the centre, and "w and m" interlaced in the angles; but some have a simple crowned shield, with the arms of Nassau on an escutcheon of pretence. The Maundy money has the profiles of the King and Queen, with short hair, without drapery, and with numerals on the Reverses. Some of the coins have the



FORTY SHILLINGS, SCOTCH, OF WILLIAM AND MARY.

marks, such as the *rose*, showing that the silver came from the West of England; the *plumes* for Welsh silver; and the *elephant and castle*, indicating the metal from the African Company. These marks were generally placed in the angles between the shields.

This half Crown was coined for Scotland with the letter "E" beneath the bust, which stands for Edinburgh. Weight: 232.240 grains. Fineness: 925. Value: 58 cents.

The slight variations alluded to are the marks denoting the sources from which the silver was derived, some having the *plumes* for the silver from the Welsh mines, and some the *rose* for West of England silver; also some with both marks, denoting that the silver was mixed.



SHILLING OF QUEEN ANNE.

Some of the coins as the above have the word "VIGO" under the Queen's bust, in commemoration of the capture of Vigo, and the Spanish galleons, from the treasure of which the silver of those coins was derived.

Queen Anne's fastidious modesty in insisting upon the drapery about the bust, caused her gold coins so closely to resemble the silver, that Shillings and Six Pences were gilt, and passed for Guineas and half-Guineas; the only difference being that Guineas had a lock of hair proceeding from the nape of the neck, and lying over the right shoulder on the right breast. Another mark by which these false guineas might be detected was, of course, the sceptre on the Reverse.

After this reign the English coins circulated in Scotland as in England, and no difference even of type was made in coins intended for Scotland.

George I. (1714-1727.) The silver coinage of this reign remained the same in weight and value as in the preceding; but the bust of the King was executed in the conventional style of the time, with the Roman mantle and armor, and is turned to

the left. The Legend on the Obverse contains the titles as well as the name, with, for the first time, as a permanent addition: "FIDEI DEFENSOR" (*Defender of the Faith*), abbreviated like the rest; as: "GEORGIUS D. G. M. BR. FR. ET. HIB. REX. F. D." On the Reverse his German titles appear, as "BRUNSVICENSIS ET LUNENBERGENSIS DUX, SACRA ROMANI IMPERII ARCHITHESAURIUS ET ELECTOR," abbreviated, as: "BRUN. ET. L. DUX, S. R. I. A. TH. ET. EL." His own arms are not placed in the centre like those of William III., but occupy the fourth shield.

The Maundy money has the bust, with "GEORGIUS DEI GRA.," and on the Reverse a crowned numeral, with the King's English titles only.



HALF CROWN OF GEORGE II.

George II. (1729–1760). No change took place in the weight, value, etc., of the silver coinage in this reign.

1. Half Crown of George II. Obverse: Laureated bust of George II. Legend: "GEORGIUS. II. DEI. GRATIA."

Reverse: Four crowned shields forming a cross, in the centre the order Star of the Garter, in the interstices the plumes and roses. Legend: "M. B. F. ET. H. REX. F. D. B. ET. L. D. S. R. I. A. T. ET. E.," and the date of the year of issue (*Magni Britanniae, Franciae et Hiberniae Rex, Fides Defensor, Brunsvicensis et Lunenbergensis Dux, Sacra Romani Imperii Archi Thesaurius et Elector*; meaning: *Great Britain, France and Ireland King, Brunswick and Lunenburg Duke, of the Sacred*

Roman Empire, Arch-treasurer and Elector). Intrinsic Value: 58 cents.

2. Shilling and Sixpence of George II. Obverse: Same as No. 1.



REVERSE OF SHILLING OF GEORGE II.

Legend: Same as No. 1. Intrinsic Value: 24 and 12 cents respectively.



FOUR, THREE, TWO AND ONE PENNY OF GEORGE II.

3. Four, Three, Two and One Penny of George II. Ob-



SIX SHILLING PIECE OF THE BANK OF IRELAND, 1804.

verse: Bust of George II. Legend: "GEORGIVS. II. DEI. GRATIA."

Reverse: Crowned figures "4. 3. 2. 1." Legend: "MAG. BRIT. FRA. HIB. REX.," and the date of the year of issue. Value: $7\frac{1}{2}$, $5\frac{3}{8}$, $3\frac{3}{4}$, $1\frac{1}{8}$ cents.

George III. (1760–1820). In this reign a new coinage for Ireland took place, it consisted chiefly of 6s., 3s. and 10d. and 5d. silver pieces.

4. Six Shilling Piece of the Bank of Ireland. Obverse: Laureated bust of George III. Legend: "GEORGIUS III DEI GRATIA REX."

Reverse: Female seated, in her right hand a palm, her left resting on the Irish harp; beneath 1804. Legend: "BANK OF IRELAND." Exergue: "SIX SHILLINGS." Weight: 452.598 grains. Fineness: 890. Value: \$1.13.5516.

5. Three Shilling Piece of the Bank of Ireland. Obverse and Legend: Same as No. 4.



THREE SHILLING PIECE OF THE BANK OF IRELAND.

Reverse: "THREE SHILLINGS TOKEN;" surmounted by a laurel wreath. Weight: 226.299 grains. Fineness: 895. Value: \$0.56.7758.

6. Ten Pence Irish. Obverse and Legend: Same as No. 4.



TEN PENCE IRISH.

Reverse: "BANK TOKEN 10 PENCE IRISH," and the date of

the year of issue; surrounded by a wreath of shamrocks. Weight: 61.730 grains. Fineness: 895. Value: 15 cents.

7. Five Pence Irish. Obverse and Legend: Same as No. 4.



FIVE PENCE IRISH.

Reverse: "BANK TOKEN FIVE PENCE IRISH;" and the date of the year of issue. Weight: 30.865 grains. Fineness: 895. Value: 7½ cents.

8. Five Shilling Piece of the Bank of England. Obverse and Legend: Same as No. 4.



FIVE SHILLINGS BANK OF ENGLAND.

Reverse: Britannia seated; surrounded by a grained double circle upon which is inscribed "FIVE SHILLINGS," "DOLLAR," surmounted by a crown. Legend: "BANK OF ENGLAND." Exergue: Date of the year of issue. This coin was issued in the time of war by the Bank of England; they are now entirely out of circulation.

9. Three Shilling Piece of the Bank of England. Obverse and Legend: Same as No. 4.

Reverse: "BANK TOKEN 3 SHILL;" and the date of the year of issue; surrounded by a laurel wreath. Weight: 226.299 grains. Fineness: 895. Value: \$0.56.7758.

10. One Shilling and Six Pence of the Bank of England
Obverse and Legend: Same as No. 4.



ONE SHILLING AND SIX PENCE OF THE BANK OF ENGLAND.

Reverse: "BANK TOKEN 1s. 6d.," and the date of the year of issue. Weight: 116.249 grains. Fineness: 895. Value: \$0.27.

11. Crown of George III. Obverse: Laureated head of George III. Legend: "GEORGIUS III. D. G. BRITANNIARUM REX. F. D." Exergue: Date of the year of issue.



CROWN OF GEORGE III.

Reverse: St. George and the dragon. Legend: "HONI SOIT QUI MAL Y PENSE." (*Shame on him who evil thinks.*) Weight: 436.3636 grains. Fineness: 925. Value: \$1.21.668.

12. Half Crown of George III. Obverse: Laureated head of George III. Legend: "GEORGIUS III DEI GRATIA." Exergue: Date of the year of issue.

Reverse: Crowned and quartered shield, bearing arms of England, Scotland and Ireland, with a crowned shield of pre-

tence of Hanover, surrounded by the garter, upon which is inscribed "HONI SOIT QUI MAL Y PENSE," the whole encircled by



HALF CROWN OF GEORGE III.

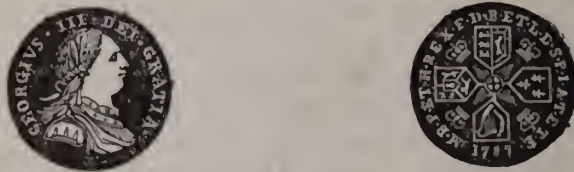
the chain and order of the garter. Legend: "BRITANNIARUM REX FID. DEF." Weight: 218.1818 grains. Fineness: 925. Value: \$0.60.83125.



SHILLING OF GEORGE III.

13. Shilling of George III. Obverse, Reverse and Legends: Same as No. 12. Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

13½. Six Pence of George III. Obverse, Reverse and Legends:



SIX PENCE OF GEORGE III.

Same as No. 12. Weight: 43.6363 grains. Fineness: 925. Value: \$0.12.16625.

14. Six Pence of George III.

Weight, Fineness and Value: Same as No. 13.

15. Four Pence of George III. Obverse, Reverse and Legend: Same as No. 12.

Weight: 29.0909 grains. Fineness: 925. Value: \$0.08-.1108.

George IV., (1820-1830.) During this reign the silver coinage continued of the same value and denominations as the coinage of the previous reign.

16. Crown of George IV. Obverse: Laureated head of George IV. Legend: "GEORGIUS III D. G. BRITANNIAR: REX F: D:"



CROWN OF GEORGE IV.

Reverse: St. George and the dragon. No Legend. Exergue: Date of the year of issue. Weight: 436.3636 grains. Fineness: 925. Value: \$1.21.6625.

17. Half Crown of George IV. Obverse and Legend: Same as No. 16. Reverse: Crowned and quartered shield, bearing arms of England, Scotland and Ireland, with a shield of pretence crowned, bearing arms of Hanover. At the left of shield a thistle; at the right, three shamrocks, beneath the shield a rose. Exergue: "ANNO 1820." Weight: 218.1818 grains. Fineness: 925. Value: \$0.60.83125.

18. Half Crown of George IV. Obverse and Legend: Same as No. 17.

Reverse: Shield, encircled by the garter, and the order, chain

and badge of the Order of the Garter, the whole surmounted by a crown; arms of Hanover on a shield of pretence. Exergue: "ANNO, 1823." Weight: 218.1818 grains. Fineness: 925. Value: \$0.60.83125.

19. Half Crown of George IV. Obverse: Head of George IV. Legend: "GEORGIVS IV DEI GRATIA." Exergue: Date of the year of issue.



HALF CROWN OF GEORGE IV.

Reverse: Shield, surmounted by a crowned helmet; arms of Hanover on a shield of pretence, beneath, a scroll, with the motto: "DIEU ET MON DROIT." (*God and my rights.*) Legend: "BRITANNIARUM REX FID: DEF." Weight: 218.1818 grains. Fineness: 925. Value: \$0.60.83125.



HALF CROWN OF GEORGE IV.

20. Shilling of George IV. Obverse: Laureated head of George IV. Legend: "GEORGIUS IIII. D. G. BRITANNIAR REX. F. D." Reverse: Crowned and quartered shield, bearing arms of England, Scotland and Ireland, with a crowned shield of pretence bearing arms of Hanover, the whole encircled by the

garter, upon which is inscribed "NONI SOIT QUI MAL Y PENSE." Exergue: "ANNO, 1824." Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

21. Shilling of George IV. Obverse: Head of George IV. Legend: "GEORGIUS IV. DEI GRATIA." Exergue: Date of the year of issue.



SHILLING OF GEORGE IV., OF 1826.

Reverse: A crown, surmounted by a crowned lion, beneath the crown a sprig of rose, thistle and shamrock united. Legend: "BRITANNIARUM REX. FIDEI DEFENSOR." Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

22. Shilling of George IV. Obverse: Head of George IV. Legend: "GEORGIUS IV DEI GRATIA."



SHILLING OF GEORGE IV.

Reverse: Crowned shield, with the arms of England, Scotland and Ireland, and a crowned shield of pretence, with arms of Hanover; a rose beneath, a thistle on one side, and shamrocks at the other. Exergue: "ANNO, 1821." Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

23. Six Pence of George IV. Obverse: Laureated head of George IV. Legend: "GEORGIUS IIII. D: G: BRIT. REX. F. D." Reverse: Crowned shield, encircled by the garter, upon which

the motto: "NONI SOIT QUI MAL Y PENSE." No Legend. Exergue: "ANNO," and the date of the year of issue. Weight: 43.6363 grains. Fineness: 925. Value: \$0.12.1662.

24. Six Pence of George IV. Head of George IV. Legend: "GEORGIUS IV DEI GRATIA."



SIX PENCE OF GEORGE IV.

Reverse: Same as Shilling, No. 21. Weight: 43.6363 grains. Fineness: 925. Value: \$0.12.1662.

25. Four Pence of George IV. Obverse: Head of George IV. Legend: "GEORGIUS IV D: G: BRIT: REX. F. D:"

Reverse: Crowned shield, encircled by the garter, upon which the motto "NONI SOIT QUI MAL Y PENSE." Exergue: "ANNO." and the date of the year of issue. Weight: 29.0909 grains. Fineness: 925. Value: \$0.08.1108.



FOUR PENCE OF GEORGE IV.

26. Four Pence *Maunder-Money* of George IV. Obverse: Laureated head of George IV. Legend: "GEORGIUS IIII. D. G. BRITANNIAR REX. F: D:" Reverse: A crowned "4," and the date of the year of issue, inclosed between branches of oak, crossed. Weight: 29.0909 grains. Fineness: 925. Value: \$0.08.1108.

27. Three Pence *Maunder-Money* of George IV. Obverse and Legend: Same as No. 26. Reverse: A crowned "3," and the date of the year of issue, inclosed between branches of oak,

crossed. Weight: 21.8181 grains. Fineness: 925. Value: \$0.06.0831.

28. Two Pence *Maundy-Money* of George IV. Obverse and Legend: Same as No. 26. Reverse: Same as No. 26, with the exception of the numeral "2." Weight: 14.5454 grains. Fineness: 925. Value: \$0.04.0554.



THREE PENCE OF GEORGE II.

William IV. (1830-1837.) Duke of Clarence, ascended the throne on the death of his brother, and arrangements were made for a new coinage exactly on the same principles as those of the last coins of the preceding reign. Pattern Crowns, issued only in small number for the cabinets of collectors, had the arms on the Reverse, in a plain shield, displayed on a mantle of ermine.

29. Half Crown of William IV. Obverse: Undraped bust. Legend: "GULIELMUS IIII. D. G. BRITANNIAR. REX. F: D:"



HALF CROWN OF WILLIAM IV.

Reverse: Shield, with the arms of Hanover on a shield of pretence, and the order, chain and badge of the Order of the Garter, displayed upon a mantle of ermine, suspended from a crown. No Legend. Exergue: "ANNO," and the date of the year of issue. Weight: 218.1818 grains. Fineness: 925. Value: \$0.60.83125.

30. Shilling of William IV. Obverse: Head of William IV., facing to the right. Legend: "GULIELMUS IIII. D: G: BRITANNIAR: REX. F: D:" Reverse: "ONE SHILLING," beneath a crown, inclosed between branches of oak and laurel, crossed; the date of the year of issue. Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

31. Six pence of William IV. Obverse and Legend: Same as No. 30. Reverse: "SIXPENCE," rest same as No. 30. Weight: 43.6363 grains. Fineness: 925. Value: \$0.12.1662.

32. Four pence, *Maundy-Money*, of William IV. Obverse and Legend: Same as No. 30. Reverse: A crowned "4" and the date of the year of issue inclosed between branches of oak, crossed. Weight: 29.0909 grains. Fineness: 925. Value: \$0.08.1108.

33. Three pence, *Maundy-Money*, of William IV. Obverse and Legend: Same as No. 30. Reverse: "3.," rest same as No. 30. Weight: 21.8181 grains. Fineness: 925. Value: \$0.06.0831.

34. Two pence, *Maundy-Money*, of William IV. Obverse and Legend: Same as No. 30. Reverse: "2.," rest same as No. 30. Weight: 14.5454 grains. Fineness: 925. Value: \$0.04.0554.



CROWN OF QUEEN VICTORIA.

The death of King William IV., in 1837, brought the Princess Victoria, daughter of his brother, the Duke of Kent, to the throne.

35. Crown of Queen Victoria. Obverse: Head of Queen Victoria, hair plain, and tied back of her head in a fillet. Legend: "VICTORIA DEI GRATIA." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing the arms, quartered, between two branches of laurel, crossed. Legend: "BRITANNIARUM REGINA FID. DEF." On the edge: "DECUS ET TUTAMEN ANNO REGNI," and the year of the reign in Latin. Weight: 436.3636 grains. Fineness: 925. Value: \$1.21.6625.

36. Crown of Queen Victoria. Obverse: Crowned bust of Queen Victoria. Legend: "VICTORIA DEI GRATIA BRITANNIARUM REG. F. D."



CROWN OF QUEEN VICTORIA.

Reverse: Four crowned shields arranged as a cross, with the star of the Garter in the centre, and the rose, thistle, and shamrock in the angles. Legend: "TUEATUR UNITA DEUS" (*God upholds the United*). Exergue: "ANNO DOM," and the date of the year of issue in Roman figures. Upon the edge: "DECUS ET TUTAMEN ANNO" and the date of the year of the reign in Latin. Weight: 436.3636 grains. Fineness: 925. Value: \$1.21.6625.

37. Half Crown of Queen Victoria. Obverse: Head of Queen Victoria. Legend: "VICTORIA DEI GRATIA." Exergue: Date of the year of issue.

Reverse: Crowned shield, inclosed between two laurel branches, crossed: the rose, thistle, and shamrock beneath.

Legend: "BRITANNIARUM REGINA FID: DEF:" Weight: 218,1818 grains. Fineness: 925. Value: \$0.60.83125.



HALF CROWN OF QUEEN VICTORIA.

38. Florin of Queen Victoria of 1849-1851. This piece, when first issued in 1849, was considered as the first step towards a decimal system of money. Obverse: Crowned bust of Queen Victoria. Legend: "VICTORIA REGINA" and the date of the year of issue.



FLORIN OF QUEEN VICTORIA, 1849-1851.

Reverse: Four crowned shields, arranged as a cross, with a rose in the centre, and the thistle, rose, and shamrock in the angles. Legend: "ONE FLORIN." Exergue: "ONE-TENTH OF A POUND." Weight: 174.5454 grains. Fineness: 925. Value: \$0.48.6650.

39. Florin of Queen Victoria of 1852 and since. Obverse: Same as No. 38. Legend: "VICTORIA D: G: BRIT: REG: F: D:" and the date of the year of issue in Roman numerals. Reverse and Legends: Same as No. 38. Weight: 174.5454 grains. Fineness: 925. Value: \$0.48.6650.

This florin is larger in diameter, but reduced in thickness.

40. Shilling of Queen Victoria. Obverse: Head of Queen Victoria. Legend: "VICTORIA DEI GRATIA BRITANNIAR: REG: F: D:"



SHILLING OF QUEEN VICTORIA.

Reverse: "ONE SHILLING," inclosed by branches of laurel, crossed and tied, the whole surmounted by a crown. Exergue: Date of the year of issue. Weight: 87.2727 grains. Fineness: 925. Value: \$0.24.3325.

41. Six Pence of Queen Victoria. Obverse and Legend: Same as No. 40.



SIXPENCE OF QUEEN VICTORIA.

Reverse: "SIXPENCE," rest same as No. 40. Weight: 43.6363 grains. Fineness: 925. Value: \$0.12.1662.

42. Four Pence of Queen Victoria, 1838-1848. Obverse: Head of Queen Victoria. Legend: "VICTORIA D: G: BRITANNIAR REGINA. F: D:" Reverse: Britannia seated. Legend: "FOUR PENCE." Exergue: Date of the year of issue. Weight: 29.0909 grains. Fineness: 925. Value: 8 cents.

43. Four Pence of Queen Victoria, 1848 and since. Obverse and Legend: "Same as No. 42. Reverse: Crowned "4" and the date of the year of issue, inclosed between two branches of oak, crossed and tied. Weight: 29.0909 grains. Fineness:

925. Value: 8 cents. This four penny piece is larger in diameter, but reduced in thickness.

44. Three Pence, *Maundy-Money*, of Queen Victoria. Obverse and Legend: Same as No. 42.



FOUR PENCE AND THREE PENCE, OF QUEEN VICTORIA.

Reverse: Crowned "3," rest same as No. 43. Weight: 21.8181 grains. Fineness: 925. Value: 6 cents.

45. Two Pence, *Maundy-Money*, of Queen Victoria. Obverse and Legend: Same as No. 42. Reverse: Crowned "2," rest same as No. 43. Weight: 14.5954 grains. Fineness: 925. Value: 4 cents.

46. One Penny, *Maundy-Money*, of Queen Victoria. Obverse and Legend: Same as No. 42. Reverse: Crowned "1," rest same as No. 43. Weight: 7.2927 grains. Fineness: 925. Value: 2 cents.

COPPER COINAGE OF GREAT BRITAIN.

Copper coins were first issued in bulk in the reign of Charles II.: a slight sketch which led to its adoption appears proper in this place. As early as the reigns of Henry IV., V., and VI., the black, or base money, of the Continent of Europe, circulated in England to supply the deficiency of small national coin, and was imitated in England in the monasteries, and, perhaps, even by private individuals. These pieces were known as "Abbey pieces," and were about the size of the Tournaye Groat of Henry VIII., and of somewhat similar type to the Reverse of that coin. In the reign of Henry VIII., or even earlier, many traders, to remedy the want of small change, coined for themselves leaden tokens to pass as half pennies and farthings; but as the tokens were only payable by the persons issuing them, great loss was caused to the poor.

In order to put a stop to this kind of private coinage, it was proposed by Elizabeth to issue a small copper coinage; a pattern piece of a copper half-penny was struck but never issued. It bears the date 1601. James I. was much prejudiced against copper coins, and the copper farthings of his reign were not coined at the royal mints, but through means of patents granted to private persons, the first being granted to Lord Harrington.

The first copper farthings of James bear a harp, which proves that they were chiefly intended for Ireland, though the royal proclamation concerning their issue made them current in England, and forbade private and town tokens in consequence; which, however, did not cease at that time.

The first copper half-pennies and farthings, equal in their nominal and intrinsic values, were issued in 1672; but still the royal prejudice would not allow them to be coined in the national mints. They were coined by virtue of a patent granted to private parties, and the head of the King was, apparently, to denote the inferiority of the copper coinage, turned in the opposite direction to that on the gold and silver coins, and the motto also styled the new coin "*FAMULUS NUMMORUM,*" the *Servant of money*. This money, however, was of the finest Swedish copper, and of full weight.

The favor with which this coinage was received appears to have removed the royal prejudice against a currency of the inferior metals, and a large amount of these farthings was soon afterwards issued from the royal mint.

In 1665 the first copper half-penny was issued from the Tower mint. It bears upon the Obverse: "*CAROLUS A CAROLO*" (*A Carolus from Charles*). Reverse: Britannia. Legend: "*QUATOUR MARIO VINDICO*" (*I vindicate the four seas*). The figure of Britannia is very graceful and beautifully executed, being the portrait of the beautiful Frances Stuart.

In Scotland, in this reign, "Boddles" or "Turners" were struck. Towards the end of Charles' reign a "Bawbee" was issued, its value about a half-Penny.

In 1679 the Dublin Half-penny was struck; it has upon the

Obverse a shield bearing the arms of Dublin, three castles, and the date, 1679; the Legend: "THE DUBLIN HALF-PENNY." Reverse: Irish harp, crowned. Legend: "LONG LIVE THE KING."

In 1680 the half-penny has the King's bust and titles (Charles II.) on the Obverse and the harp on the Reverse.

During James II's reign very little copper money was coined; the half-pennies and farthings being of tin with a copper plug. Obverse: "JACOBUS SECUNDUS." Reverse: "FAMULUS NUMMORUM."

After James quitted Ireland, copper money was issued in his name by his adherents, in Limerick. The pieces were half-pennies, now known as the "Hibernias," from the figure of Hibernia on the Reverse, holding the harp, and resembling the Britannia on the English copper money.

The copper or tin coinage of William and Mary did not vary much in character from that of Charles and James; but the half-penny of William III., 1699, has the Britannia with the right leg crossed, like that on the farthings of Charles I.; but on this coinage the leg is draped. The tin half-pennies and farthings have a plug of copper in them. In Scotland the "Bawbees" were coined with the portraits of William and Mary on the Obverse and a thistle on the Reverse. The "Boddles" of this reign are of the same type as those of Charles.

During Queen Anne's reign no copper coinage was issued. The Queen Anne farthings, of which so much has been written, were only patterns, and never issued for circulation.

During the reign of George I. the copper coinage was much extended, the pound avoirdupois was coined into twenty-eight pence. The Britannia on the half-penny now became more like that of the Roman coin, from which it was originally taken. In 1722 William Wood obtained a patent to coin copper half-pence and farthings for Ireland; they have Hibernia on the Reverse, leaning on a harp.

The farthing of George I. bears his head and titles upon the Obverse, and Britannia upon the Reverse.

The copper coinage of George II. was equal to forty-six half-pence to the avoirdupois pound of copper. Though the false coinage of gold or silver had been made high treason, the coining of copper money was only deemed a misdemeanor, and the increased penalty of this reign only made the punishment two years' imprisonment; which slight punishment, in comparison to that for forging gold and silver coins, was perhaps one cause of the great quantity of false copper money then put into circulation. Birmingham was the chief seat of the illegal mints.

For Ireland, copper pence and half-pence were issued, only differing from the English in the crowned harp on the Reverse.

For America, a small issue of brass pennies was made; the King's head upon the Obverse, and a rose crowned upon the Reverse.

Of the copper coinage of George III., there were several issues.

First: Half-Penny, bearing upon the Obverse laureated bust of George III., clad in armor. Legend: "GEORGIUS III. REX." Reverse: Britannia, seated. Legend: "BRITANNIA." Exergue: Date of the year of issue, from 1770-1775. On some of the Half-Pennies of 1772 the King's name is spelled "GEORGIUS."

Farthing, similar in device and Legend. Second issue took place in 1797, consisting of Two Penny, Penny, Half-Penny and Farthing pieces, the only time when copper coins of Two-Penny value were issued in England. The Obverses of this coinage have the bust of George III., laureated and draped; on the drapery of the shoulder is a small K, the initial of Kügler, the German artist, who cut the die. The Legends are: "GEORGIUS III. D. G. REX." The Reverses: Britannia, as before, but differently posed; in her left hand a trident in place of a spear; waves wash the rock on which she sits; a ship sailing to the right is seen in the distance, while the word "SOHO," the place of their manufacture, is on the rock at the base of the shield. Legends: "BRITANNIA." Exergues: Date of the year

of issue. The Two Penny weighs 2 ounces, the Penny 1 ounce. The Half-Penny weighs less than half an ounce, and has milled edges. The Legends on these coins are sunk into the metal, and appear on a broad rim or border that runs around a depressed field or centre, while the edges are perfectly plain. The third issue took place in 1799, consisting of a Half-Penny and of a Farthing. One and Two Penny pieces were mentioned in the proclamation, but were not issued.

The Half-Penny has the laureated bust of the King. Legend: "GEORGIUS III DEI GRATIA REX." Reverse: Britannia, but with the waves cut off with a semi-circle. Legend: "BRITANNIA." Exergue: Date of the year of issue.

The Farthing is similar in style, but has the date of the year of issue on the Obverse below the bust, and on the Reverse, in place of date, "1 FARTHING." On these coins there are no raised borders, as on those of 1797 and 1798, and the letters of the Legend are not sunk, but in relief. The edge has a shallow groove, milled, with short diagonal lines running all round.

The fourth and last issue was made in 1806, when Pennies, Half-Pennies and Farthings were coined. On the Obverse: Laureated and draped bust of George III. Legends: "GEORGIUS III D. G. REX." Exergue: Date of the year of issue. Reverse: Britannia, as before, but with a horizontal line of base. The rim of these coins is slightly raised and ornamental, with a slight round edge pattern, while the edge is grooved and milled.

George IV., in September, 1821, ordered a new issue of copper Farthings, having on Obverse: bust of the King, draped and laureated. Legend: "GEORGIUS IIII. DEI GRATIA." Reverse: Britannia, with helmet; a trident in her left hand, and her right, in which she holds an olive branch, leaning on the shield, and a lion's head at her feet. Legend: "BRITANNIA REX. FID. DEF.," with the date of the year of issue as Exergue.

In 1825 a new Penny, Half-Penny and Farthing were issued, having upon the Obverse: laureated bust of the King, with bare neck. Legend: "GEORGIUS IV. DEI GRATIA." On the Pennies

the date 1825, 1826 or 1827 is below the bust. Reverse: Britannia, as before, but without the olive branch or the lion's head at her feet. Legend: "BRITANNIA REX FID: DEF:" Exergue: A rose, thistle and shamrock intertwined, instead of a date, with edge plain.

In 1826 and 1827 a Half-Penny was issued, similar in all respects to the Penny, except the date, which is 1826 and 1827. A Farthing of this design was also issued, with the dates 1826, 1827, 1828, 1829 and 1830.

The copper coinage of William IV. consists of a Penny, Half-Penny and Farthing. The Obverses have the bust of the King, no drapery, and no wreath. Legend: "GULIELMUS IIII DEI GRATIA," with the date 1831 to 1834 below the bust. Reverse: Britannia, exactly as on the last issue of George IV. The dies for these coins were engraved by William Wyon, whose initials are sunk on the truncation of the bust on the Half-Pennies and the Farthings. The copper coinage of England and of Queen Victoria ceased with 1859. The Penny, Half-Penny, Farthing and Half-Farthing have upon the Obverses, the bust of the Queen, hair fastened with a band, the neck bare. The initials of William Wyon, the engraver, are on the truncation of the bust, with the date of the year of issue below.



FARTHING OF QUEEN VICTORIA.

Legend: "VICTORIA DEI GRATIA." Reverse: Britannia, exactly the same as on the last coinage of George IV. On the Half-Farthing the Obverse has the bust of Queen Victoria. Legend: "VICTORIA D. G. BRITANNIAR REGINA F. D.," but no date, while the Reverse has in the centre of the field the words: "HALF-FARTHING," in two lines, surmounted by a crown, and

below them the date, with rose, thistle and shamrock in the Exergue. Edges all plain. The issue of these Half-Farthings ceased in 1856.

The regular copper coinage of Great Britain, Ireland and Scotland, in general, is not scarce, if we except the Farthings of Queen Anne. Yet it is almost needless to state that there is no foundation for the absurd notion that only three farthings of Queen Anne exist, and that each is worth about five thousand dollars; they can be had in England for one or two pounds sterling a piece.

BRONZE COINAGE OF GREAT BRITAIN.

In 1860, by order of proclamation, a new bronze coinage was ordered and issued. The composition contains 95 parts of copper, 4 of tin, and 1 of zinc. They were coined: Penny, Half-Penny, Farthing and Half-Farthing.

The Obverse: Laureated bust of Queen Victoria, with low bare neck, but a dress on her shoulders. Legend: "VICTORIA D. G. BRITT. REG., F. D." Reverse: Figure of Britannia, surrounded by the sea, a vessel before her, and a lighthouse behind the shield on which she sits. Legend: "ONE PENNY." Exergue: Date of the year of issue. The Half-Penny, Farthing and Half-Farthing are precisely similar in devices and Legends, the value only being changed.

The intrinsic value of the Bronze Penny of Queen Victoria is one and seven-eighths of an American cent, and the Half-Penny, Farthing and Half-Farthing in exact proportion, respectively.

COINAGE OF THE CHANNEL ISLANDS.

In 1406 Henry IV. granted the Isle of Man, with all its regalities, to Sir Thomas Stanley, afterwards Earl of Derby.

The earliest money coined by this family is dated 1723; it has the arms of the Isle of Man, the three legs on the Obverse. Legend: "QUOCUNQUE JECERIS STABIT" and "I. D.," which stands for James, Earl of Derby, or rather Iacobus Darbiensis.

The Reverse has the crest of the Derby family, and the Legend: "SANS CHANGER" (*Without change*).

Their last coins have on the Reverse a cypher formed of the initials "A. D." (*Duke of Athole*) beneath an imperial crown, and the Exergue: "1758."

In 1770 the sovereignty of the Isle of Man was purchased of the Duke and Duchess of Athole for £70,000.

After 1770 copper money was coined for the use of the Isle of Man, with the local device of the three legs, but omitting all reference to the Derby family. Some copper coins were struck by George III. for the Isle of Man, in the style of the heavy penny of that period, with the mottoes *sunk* round the edge.

At the commencement of this century George III. ordered some silver coins to be struck for the "States of Jersey." Previous to 1813 the currency of Jersey consisted of both French and English coins.

In 1813 the three shilling piece was coined for the first time. It bears upon the Obverse: A shield with three leopards, one above the other. Legend: "STATES OF JERSEY." Exergue: "1813."



THREE SHILLINGS TOKEN OF THE STATES OF JERSEY.

Reverse: A wreath inclosing the words: "THREE SHILLING TOKEN." Intrinsic value: $52\frac{1}{2}$ cents.

In 1813 there was also coined a shilling and six pence token. Obverse and Legend: Same as the shilling.

Reverse: A wreath inclosing the words: "ONE SHILLING SIX PENCE TOKEN." Intrinsic value: $26\frac{1}{2}$ cents.

In 1841 copper coins of the value of one penny and its half were issued by Queen Victoria, and continued so until 1862.



ONE SHILLING SIX PENCE TOKEN OF THE STATES OF JERSEY.

The penny bears upon the Obverse: Head of Queen Victoria. Legend: "VICTORIA D. G. BRITANNIAR: REGINA F: D:." Exergue: Date of the year of issue. Reverse: Shield with three leopards, one above the other. Legend: "STATES OF JERSEY." Exergue: " $\frac{1}{3}$ OF A SHILLING."

The Half-Penny of 1841-1862 bears a similar device and Legends of the penny, only the Exergue upon the Reverse is changed to " $\frac{1}{2}$ OF A SHILLING." Intrinsic value of the penny $1\frac{2}{3}$ of a cent and the half in exact proportion.

Another of these Channel Islands is Guernsey, having also its "States," with authority over the local matters, and which, in like manner, has issued a copper coinage. The standard of value there is the "Double." The Obverse of these Doubles, of which there are: 1, 2, 4 and 8 Doubles, bear the arms of Guernsey, viz.: three lions upon a shield surmounted by three leaves in place of the customary crown. No Legend. Exergue: "GUERENSEY" in a semi-circle. The 8 Double piece has branches inclosing the shield. Reverse: In the upper field the figures "1, 2, 4, or 8," as the case may be; in the middle field "DOUBLE" or "DOUBLES;" and in the lower field, the date of the year of issue from 1830 to 1868 inclusive. Intrinsic value of the Double, about one-fourth of a cent.

COINAGE OF IONIAN ISLANDS.

In the fifteenth century Venice became mistress of the Ionian Islands, viz.: Corfu, Paxo, Santa Maura, Theaki, Cephalonia,

Zante and Cerigo, and issued for them at different periods copper coins having on Obverse: the winged lion of St. Marks. Legend: "SAN MARC VEN" (*St. Marks of Venice*). Upon the Reverse: "CORF" for *Corfu*. "PAXO," "THEA," for *Theaki*. "CEFAL" for *Cephalonia*. "SAN MAURO" and "ZANTE."

In 1797 Venice ceded the islands to France, from whom they were taken in 1800, by the allied forces of Russia and Turkey. In 1807 Napoleon recovered them, but lost them to the British in 1809.

As the independence of the islands was always claimed by their natives, they were formed in 1815, into the "Septinsular Republic," under the Protectorate of Great Britain. In 1864 Great Britain ceded the islands to Greece.

These changes of government have led to a corresponding diversity of coinage. In 1801 the currency of the Ionian Islands consisted of copper coins of one, five and ten Gazettas, with inscriptions in Greek and Italian.

In 1810, and after the standard value was the Turkish Para, England, in 1815, countermarked foreign silver coins with figures declaring its value in Paras, shortly afterwards adding to this a rude profile of George III.

In 1819 the Obolus, half and quarter, were struck in England for circulation in the Ionian Islands.

The Obolus has upon the obverse: Britannia seated upon a rock; at her side the Union Jack of England upon a shield; in her left hand an olive branch; in her right hand the trident. Legend: "BRITANNIA." At the base "W WYON," the name of the engraver of the London mint. Reverse: The Ionian arms, viz.: the winged lion of St. Mark, clasping with his right paw a shield with the Greek cross and seven arrows, to denote the seven islands. Legend: "IONIKON KRATOE" (*Ionian government*) in Greek characters. Exergue: Date of the year of issue from 1819 to 1831.

The half and quarter Obolus are similar in device and legends only in proportion to size. In 1821 an eighth of an Obolus was issued in Corfu, similar to the afore-described coins;

but the issue was not continued after that year. The value of the Obolus is about one cent, its half, quarter and eighth in proportion.

In 1834 and up to 1863 the Ionian coins were again struck at the royal mint, and their character changed to the "Mikron" and its half.

The Mikron bears upon the Obverse: Britannia seated. Upon the Reverse: The lion of St. Mark's. The Mikron is of copper and its value about one cent.

In 1835 England struck a silver coin for circulation upon the Ionian Islands. It is known as the "Tripenon." The Tripenon bears upon the Obverse: Britannia. Legend: "BRITANNIA." Reverse: "XXX" inclosed in an oak wreath. Its intrinsic value about 28 cents.

In 1844 England issued a Half Farthing for the use of the Ionian Islands, having upon the Obverse: Head of Queen Victoria. Legend: "VICTORIA D. G. BRITANNIAR REGINA: F: D:" Reverse: "HALF FARTHING" and the date of the year of issue, in three parallel lines, in the centre, surmounted by a royal crown, and the rose, shamrock, and thistle below.

In 1852 England struck for the Ionian Islands the thirty Oboliece piece in silver. Obverse: Britannia, seated. Legend: "BRITANNIA." No Exergue. Reverse: "30," surrounded by an oak wreath. Legend: "ΙΟΝΙΚΟΝ ΚΡΑΤΟΣ" (*Ionian Government*). Exergue: Date of the year of issue. Weight: 21.820 grains. Fineness: 925. Value: 6 cents.

COINAGE OF THE BRITISH POSSESSIONS IN AFRICA.

In 1791 George III., by proclamation, ordered the coinage in silver and copper of the British possessions in Africa.

1. Dollar of the Sierra Leone Company. Obverse: A lion in the middle of the field. Legend: "SIERRA LEONE COMPANY." Exergue: "AFRICA."

Reverse: Clapsed hands, "100" above and below the same.

Legend: "ONE DOLLAR PIECE." Exergue: "1791." Weight: 405 grains. Fineness: 817. Value: \$0.98.2245.



DOLLAR OF SIERRA LEONE COMPANY, 1791.

2. Dollar of the Sierra Leone Company of 1791. Obverse, Legend, and Exergue: Same as No. 1. Reverse, Legend, and Exergue: Same as No. 1, with the exception that the figure "1" takes the place of "100" above and below the clasped hands. Weight, Fineness, and Value: Same as No. 1.

3. Ackey Trade Dollar of 1818. Obverse: Laureated head of George III., beneath the head: "1 ACKEY TRADE." Legend: "GEORGIUS III. BRITANNIAR. REX. F. D." Exergue: Date of the year of issue. Reverse: A shield, supported by two negroes; upon the shield a horn of plenty, a beehive, and a ship under full sail; below the shield a negro head; above the shield an elephant and castle, surmounted by a flag. Legend: "FREE TRADE TO AFRICA BY ACT OF PARLIAMENT 1750." Weight: 216 grains. Fineness: 925. Value: \$0.56.6650.

4. Ackey Trade Half Dollar. Obverse and Legend: Same as No. 3, with the exception of " $\frac{1}{2}$ ACKEY TRADE," beneath the head. Reverse and Legend: Same as No. 3. Weight: 108 grains. Fineness: 925. Value: \$0.28.3325.

5. Half Dollar of the Sierra Leone Company. Obverse, Legend, and Exergue: Same as No. 1. Reverse, Legend, and Exergue: Same as No. 1, with the exception of "50" above

and below the clasped hands. Weight: 202.500 grains. Finess: 817. Value: \$0.46.6272.

6. Twenty Cents of the Sierra Leone Company. Obverse, Legend, and Exergue: Same as No. 1. Reverse, Legend, and Exergue: Same as No. 1, with the exception of "20" above and below the clasped hands. Weight: 81 grains. Finess: 817. Value: \$0.19.2493.

7. Ten Cents of the Sierra Leone Company. Obverse, Legend, and Exergue: Same as No. 1. Reverse, Legend, and Exergue: Same as No. 1, with the exception of "10" below and above the clasped hands. Weight: 40.500 grains. Finess: 817. Value: \$0.09.6246.

BRITISH POSSESSIONS IN AMERICA.

CANADA COINS.

Prior to the conquest of Canada, 1760, the coins in use were the Sol, the Livre, or Franc of 20 Sols, and the Crown, or Ecu of three Francs. The Sol is of brass, the Franc and Ecu of silver.

In 1670 Louis XIV. issued a silver piece of five Sous for Canada, having on the Obverse the bust of Louis XIII., laureated, surmounted by a small sun. Legend: "LVD XIII. D. G. FR. ET NAV REX." Reverse: Royal arms, crowned. Legend: "GLORIAM REGNI TVI DICENT, 1670."

He issued also a Copper Double or Two Denier Piece, having on the Obverse a large Roman "L," crowned, dividing the date 1670, with the letter "A" (*Paris mint-mark*), below it. Legend: "LVDOVICVS. XIII. D. GR. FRAN. ET NAV. REX." Reverse: "DOUBLE DE L'AMERIQUE. FRANÇOISE." Exergue: "A" (*mint-mark*), and on either side of it a *fleur-de-lis*.

Nova Scotia was the first colony which issued a regular coinage. In 1823 there appeared the Penny and Half-Penny, bearing the bust of George IV. on the Obverse. Similar coins were issued regularly up to 1832, although George IV. died in 1830, and William IV. was already the reigning sovereign of

England for two years prior to the issue of the last-named date. In 1837 the Canadian Rebellion broke forth, and the country was flooded with tokens, of which the famous Sou was one of the principal and the most important token: the Bank of Montreal issuing a large number. In 1838 and 1839 the Bank of Montreal issued a Penny, which is now very scarce and much sought after by collectors of coins.

As early as 1822 a movement was made towards the introduction of a regular colonial decimal coinage, but no definite action was taken until 1858, when the Canadian coinage, consisting of 20, 10, and 5 cents silver, and 1 cent copper coins, made their appearance. In 1861 New Brunswick introduced her really fine coinage, of the same denominations as Canada, but adding to the list the half-cent. In 1862 Nova Scotia issued for the first time the Cent and its half. In 1865 Newfoundland struck for the first time the Two Dollar gold piece.

1. Fifty Cents, silver, of Queen Victoria. Obverse: Head of Queen Victoria, with diadem. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "CANADA." Reverse: "50 CENTS," and the date of the year of issue, surrounded by a wreath of maple leaves, surmounted by a crown. Weight: 192.125 grains. Fineness: 900. Value: 50 cents.

2. Twenty-five Cents, silver, of Queen Victoria. Obverse, Legend, and Exergue: Same as No. 1. Reverse: "25 CENTS;" rest same as No. 1. Weight: 96.0625 grains. Fineness: 900. Value: 25 cents.

3. Twenty Cents, silver, of Queen Victoria. Obverse: Laureated head of Queen Victoria. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "CANADA."



TWENTY CENTS OF CANADA.

Reverse: "20 CENTS," and the date of the year of issue, in three lines, surrounded by branches of maple, crossed and tied, surmounted by a crown. Weight: 76.850 grains. Fineness: 900. Value: 20 cents.

4. Ten Cents, silver, of Queen Victoria. Obverse, Legend, and Exergue: Same as No. 3.



TEN CENTS OF CANADA.

Reverse: "10 CENTS;" rest same as No. 3. Weight: 38.425 grains. Fineness: 900. Value: 10 cents.

5. Five Cents, silver, of Queen Victoria. Obverse, Legend, and Exergue: Same as No. 3.



FIVE CENTS OF CANADA.

Reverse: "5 CENTS;" rest same as No. 3. Weight: 19.2175 grains. Fineness: 900. Value: 5 cents.

The last-mentioned three coins usually have their edges milled; but there are also specimens of these coins with plain edge, which are very scarce and at a premium. Some of the silver coins have the letter "H.," referring to Sir Francis Hincks, Finance Minister of Canada.

6. Two Cents, copper, of George IV., 1822 and 1823. Obverse: Bust of George IV. laureated and draped. Legend: "GEOR: IV: D: G: BRI: REX." Reverse: " $\frac{1}{30}$ DOLLAR COLONIAL 1822 AND 1823," inclosed in a wreath of oak leaves. Value: 2 cents.

7. One Cent of George IV., 1822 and 1823. Obverse and Legend: Same as No. 6. Reverse: " $\frac{1}{100}$ Dollar;" rest same

as No. 6. Value: One cent. These two coins found but little favor, and the use of the other Canadian copper tokens of the tradesmen and banks, especially of the "Bouquet" series, being preferred by the people, they were soon afterwards withdrawn from circulation, and have become very scarce now, and at a high premium with collectors of coins.

8. Bronze Cent of Queen Victoria of 1858, and since. Obverse: Wreathed head of Queen Victoria. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "CANADA." Reverse: "ONE CENT," and the date of the year of issue, surrounded by a wavy wreath of maple leaves. Value: One cent.

NEW BRUNSWICK COINS.

1. Twenty Cents of Queen Victoria of 1862, and since. Obverse: Laureated head of Queen Victoria. Legend: "VICTORIA D: G: REG." Exergue: "NEW BRUNSWICK." Reverse: "20 CENTS," and the date of the year of issue, surrounded by a wreath, between the tops of which is a crown. Weight: 76.850 grains. Fineness: 900. Value: 20 cents.

2. Ten Cents of Queen Victoria of 1862, and since. Obverse, Legend and Exergue: Same as No. 1. Reverse: "10 CENTS," rest same as No. 1. Weight: 38.425 grains. Fineness: 900. Value: 10 cents.

3. Five Cents of Queen Victoria of 1862, and since. Obverse, Legend and Exergue: Same as No. 1. Reverse: "5 CENTS," rest same as No. 1. Weight: 19.2175 grains. Fineness: 900. Value: 5 cents.

4. Copper Penny of Queen Victoria, 1843, known as the Frigate Penny. Obverse: Bust of Queen Victoria, wearing an open crown. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "1843." Reverse: A frigate with full rigging, but without sails. Legend: "NEW BRUNSWICK, ONE PENNY." Value: 2 cents.

5. Copper Half-Penny of Queen Victoria of 1843. Obverse, Legend and Exergue: Same as No. 4. Reverse: "HALF-PENNY," rest same as No. 4. Value: 1 cent.

6. Copper Penny of Queen Victoria, 1854. Obverse: Head of Queen Victoria, filleted. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "1854." Reverse: Same as No. 4. Legend: "NEW BRUNSWICK ONE PENNY CURRENCY." Value: 2 cents.

7. Copper Half-Penny of Queen Victoria of 1854. Obverse, Legend and Exergue: Same as No. 6. Reverse: "HALF-PENNY;" rest same as No. 6. Value: 1 cent.

8. Bronze Cent of Queen Victoria of 1861, and since. Obverse: "VICTORIA D: G: BRIT: REG: F: D." Reverse: Crowned date of the year of issue, within a wreath. "ONE CENT, NEW BRUNSWICK." Value: 1 cent.

9. Bronze Half-Cent of Queen Victoria, 1861, and since. Obverse and Legend: Same as No. 8. Reverse: "HALF CENT," rest same as No. 8. Value: $\frac{1}{2}$ cent.

NEWFOUNDLAND COINS.

1. Two Dollar Gold Piece of 1865, and since. Obverse: Laureated head of Queen Victoria. Legend: "VICTORIA D: G: REG." Exergue: "NEWFOUNDLAND."



TWO DOLLAR GOLD PIECE OF 1865, AND SINCE.

Reverse: "2 DOLLARS," and the date of the year of issue, surrounded by a dotted circle. Legend: "TWO HUNDRED CENTS." Exergue: "ONE HUNDRED PENCE." Weight: 51.600 grains. Finess: 900. Value: \$2.00.

2. Fifty Cents, silver, of Queen Victoria. Obverse: Laureated head of Queen Victoria. Legend: "VICTORIA DEI GRATIA REGINA." Exergue: "NEWFOUNDLAND." Reverse: "50 CENTS," and the date of the year of issue, within a beaded and ornamented circle. Edge milled. Weight: 192.125 grains. Finess: 900. Value: 50 cents.

3. Twenty Cents, silver, of Queen Victoria. Obverse, Legend and Exergue: Same as No. 2. Reverse: "20 CENTS;" rest same as No. 2. Weight: 76.850 grains. Fineness: 900. Value: 20 cents.

4. Ten Cents, silver, of Queen Victoria. Obverse, Legend and Exergue: Same as No. 2. Reverse: "10 CENTS;" rest same as No. 2. Weight: 38.425 grains. Fineness: 900. Value: 10 cents.

5. Five Cents, silver, of Queen Victoria. Obverse, Legend and Exergue: Same as No. 2. Reverse: "5 CENTS;" rest same as No. 2. Weight: 19.2175 grains. Fineness: 900. Value: 5 cents.

6. Copper Cent of Queen Victoria. Obverse: Laureated bust of Queen Victoria. Legend: "VICTORIA D: G: REG:" Reverse: Date of the year of issue, surmounted by a royal crown, within a beaded circle, the whole surrounded with a wreath of oak. Legend: "ONE CENT." Exergue: "NEW-FOUNDLAND." Value: 1 cent.

NOVA SCOTIA COINS.

1. Copper Penny of George IV., 1822-1832. Obverse: Head of George IV. Legend: "PROVINCE OF NOVA SCOTIA." Reverse: A large thistle. Legend: "PENNY," and the date of the year of issue. Value: 2 cents.

2. Half-Penny of George IV., of 1822-1832. Obverse and Legend: Same as No. 1. Reverse: "HALF-PENNY;" rest same as No. 1. Value: 1 cent. It will be observed that some of these coins bear the dates 1831 and 1832, although George IV. died in 1830.

3. Copper Penny of Queen Victoria, of 1840. Obverse: Head of Queen Victoria. Legend: "PROVINCE OF NOVA SCOTIA."

Reverse: Two-leaved thistle. Legend: "ONE PENNY," and the date of the year of issue. Value: 2 cents.

4. Copper Half-Penny of Queen Victoria of 1840. Similar to the Penny No. 3, with the exception of Legend on Reverse: "HALF-PENNY." Value: 1 cent.

These coins are of very inferior workmanship, and they bear only the dates 1840, 1843 and 1856.



COPPER PENNY OF 1843.

5. Copper Penny of Queen Victoria of 1856. Obverse: Head of Queen Victoria, wearing an open coronet, of which only the front is seen, the neck bare. Legend: "VICTORIA D: G: BRITANNIA: REG: F: D:" Exergue: Date of the year of issue. Reverse: A large sprig of Mayflower. Legend: "PROVINCE OF NOVA SCOTIA." Exergue: "ONE PENNY." Value: 2 cents.

6. Copper Half-Penny of Queen Victoria of 1856. Legends, Obverse and Reverse: Same as No. 5. Exergue: "HALF-PENNY." Value: 1 cent.

7. Bronze Cent of Queen Victoria of 1861, and since. Obverse: Laureated bust of Queen Victoria. Legend: Same as No. 5. Reverse: A wreath of flowers, inclosing a crown and date, surmounted as Legend: "ONE CENT." Exergue: "NOVA SCOTIA." Value: 1 cent.

8. Bronze Half Cent. Obverse, Legend, Reverse and Exergue: Same as No. 7. Legend on Reverse: "HALF CENT." Value: $\frac{1}{2}$ cent.

PRINCE EDWARD'S ISLANDS.

1. Copper Cent of 1855-1857. Obverse: "PRINCE EDWARD'S ISLANDS," and the date of the year of issue. Reverse: "SELF-GOVERNMENT AND FREE TRADE," in five lines. Edge plain. Value: 1 cent.

2. Bronze Cent of Queen Victoria of 1871. Obverse: Head of Queen Victoria, with diadem. Legend: "VICTORIA QUEEN." Exergue: Date of the year of issue. Reverse: A small and a large tree, with "PARVA SUBINGENTI" below them, surrounded by a beaded circle of dots. Legend: "PRINCE EDWARD ISLAND." Exergue: "ONE CENT." Value: 1 cent.

WEST INDIA COINS.

ANTIGUA.

In Antigua and the other Leeward Islands the Dollar is often reckoned at 9 shillings, which rate is most generally called the *Leeward Currency*. A small circular piece called the *Bit* is often cut out of the centre of the Spanish Dollar, which is about one-twelfth of its value, but, in order to prevent its exportation, it is allowed to pass for one-eighth, and is then stamped, by authority, with the initials of the Island. The Dollar thus cut passes for 8s. 3d. currency. It is called the *Cut Dollar*, to distinguish it from the entire piece, which is called the *Round Dollar*. Dollars of the United States are often cut in halves and quarters, and pass accordingly.

The copper coins consist of Half Dogs and Dogs, bearing upon the Obverse: A palm tree. The natives count two half Dogs, a Dog; three half Dogs, a Stampe; four Stampes or six Dogs, a Bit; one and a half Bit, a Moco; eleven Bits, a Cut Dollar, and twelve Bits or eight Mocos, a Round Dollar.

BAHAMA.

After the peace of Utrecht, several colonial privateers that had become pirates made their homes on the Bahamas. In 1717 England resumed the government, pardoning the inhabitants and making them a regulated colony, under Captain Rogers as governor.

In 1806 George III. ordered a copper Penny to be struck for the Bahamas; it bears upon the Obverse: Laureated head of George III. Legend: "GEORGIUS III. D: G. REX. Exergue:

Date of the year of issue. Reverse: A ship under full sail, peaks of a mountain in the background; two smaller vessels in the offing. Legend: "BAHAMA." Exergue: "EXPULSIS PIRATIS, RESTITUTA COMMERCIA" (*Pirates being driven away, commerce is restored*). This device on the Reverse is taken from the great seal of the Bahamas, and alludes to the pirates pardoned in 1717.

BARBADOES.

In 1788 a copper Penny was issued for Barbadoes; upon the Obverse: A negro's head, facing to the left, wearing a crown, from which protrude the three Prince of Wales' feathers. No Legend. Exergue: "I SERVE." Reverse: A pine-apple. Legend: "BARBADOES PENNY." Exergue: Date of the year of issue. A Half-Penny was also struck of similar device and legend.

In 1792 another copper Penny and Half-Penny were issued. Obverse: Same as the Penny of 1788. Reverse: In the centre of the field George III., crowned, and holding a trident, seated in a chariot, and drawn to the left over the waves by two sea-horses. Legend: "BARBADOES PENNY," or "HALF-PENNY." Exergue: Date of the year of issue.

BERMUDAS.

In 1612 a colony was endeavored to be settled by the Virginia Company. In 1614 the Virginia Company resigned the Islands to England, and received a new incorporation for the plantation of Sommers Islands. In this document the company was distinctly allowed to issue coin for use in the Islands, of such metal and in such form as might be most expedient. The coin struck in brass bears upon the Obverse: A wild boar, facing to the left, with "XII" above. Legend: "SOMMER ISLAND;" both words separated by a mullet of five points. Reverse: A ship under sail with a flag on each mast.

Of another piece of lower value, the device on both sides is similar, except that on the Obverse the numerals "VI." take the place of XII; and the Legend: "SOMER ISLAND." These

coins are exceedingly rare and at a high premium. For nearly two hundred years, no further coinage was issued for the Bermudas. Spanish and English coins freely circulated. In 1793 the Committee of Privy Council for Trade in Great Britain recommended that a new coin for Bermuda be issued. It bears upon the Obverse: Laureated head of George III. Legend: "GEORGIUS III. D. G. REX." Reverse: A ship under full canvas, sailing to the left, with a high peak of a mountain just visible over the stern. Legend: "BERMUDA." Exergue: Date of the year of issue.

DEMERARA AND ESSEQUEBO.

In 1809 George III. ordered a new and very handsome silver coinage for Demerara and Essequibo. The coin first struck was the 3 Shilling or Guilder piece.

1. Three Shilling or Three Guilder Piece. Obverse: Laureated head of George III. Legend: "GEORGIUS III. DEI. GRATIA." Exergue: Date of the year of issue.



THREE SHILLING OR THREE GUILDER PIECE OF 1809.

Reverse: A large figure "3" occupying the field, surrounded by oak branches, crossed and tied, surmounted by a royal crown. Within the circle the Legend: "COLONIES OF ESSEQUEBO AND DEMARARY TOKEN." Exergue: Date of the year of issue. Weight: 360 grains. Fineness: 816.666. Value: \$0.82-.9975.

2. Two Shilling or Two Guilder Piece of George III. Ob-

verse and Legend: Same as No. 1. Reverse: Large figure "2;" rest same as No. 1. Weight: 240 grains. Fineness: 816.666. Value: \$0.55.1982.

3. Shilling or Guilder Piece of George III. Obverse and Legend: Same as No. 1. Reverse: Large figure "1;" rest same as No. 1, with the exception of the inner circle, surrounding the field, being omitted. Weight: 120 grains. Fineness: 816.666. Value: \$0.27.5991.

4. Half Shilling or Half Guilder of George III. Obverse and Legend: Same as No. 1.



HALF SHILLING OR HALF GUILDER.

Reverse: Large figure " $\frac{1}{2}$;" rest same as No. 3. Weight: 60 grains. Fineness: 816.666. Value: \$0.13.7995.

5. Quarter Shilling or Quarter Guilder of George III. Obverse and Legend: Same as No. 1. Reverse: Large figure " $\frac{1}{4}$;" rest same as No. 3. Weight: 30 grains. Fineness: 816.666. Value: \$0.06.8998.

In 1832 William IV. struck 3, 2, 1, $\frac{1}{2}$, and $\frac{1}{4}$ Shilling or Guilder pieces for Demerara and Essequibo.



SHILLING OR GUILDER OF WILLIAM IV.

They bear upon the Obverse the head of William IV., and the Legend: "GULIELMUS IIII. D. G. BRITANNIAR. REX. F. D." Reverse: A large figure "3," "2," "1," " $\frac{1}{2}$," or " $\frac{1}{4}$," accord-

ing to their respective value. Legend: "UNITED COLONY OF DEMERARA & ESSEQUIBO." Exergue: Date of the year of issue. Weight, Fineness, and Value: Same as those of George III's issue.

In 1831 and 1833 there were also issues of 3, 2, 1 Guilders, with the $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ values, with and without a crown upon the Reverse.



ONE-FOURTH AND ONE-EIGHTH GUILDER OF WILLIAM IV.

The eighth of a Guilder weighs: 15 grains. Fineness: 816.666. Value: \$0.03.4499.

In 1813 a copper Stiver was issued; upon the Obverse: Head of George III. Legend: "GEORGIUS III DEI GRATIA." Reverse: "ONE STIVER," occupying the field, inclosed by an oak wreath, and surmounted by a royal crown. Legend: "COLONIES OF ESSEQUEBO & DEMERARA TOKEN." Value: \$0.01.3799. Half and quarter Stivers were also issued, bearing similar Legends, their denomination occupying the field of the Reverse.

JAMAICA.

In 1822 George IV. ordered the coinage of the half Dollar for Jamaica.

1. Half Dollar of George IV. Obverse: Quartered shield, bearing arms of Great Britain, Scotland, and Ireland, with a shield of pretence with the arms of Hanover. Legend: "GEORGIUS IV. D. G. BRITANNIARUM REX. F. D.:" Reverse: A crowned anchor occupying the field, Roman numerals "II" at each side of it, signifying two to make one dollar. Legend: "COLONIAR: BRITAN: MONET:" (*Coloniarum Britanniarum Moneta*, meaning: *Colonial British Money*). Exergue: Date of the year of issue. Weight: 205 grains. Fineness: 895. Value: \$0.49.9597.

2. Quarter Dollar of 1822. Obverse and Legend: Same as No. 1.



QUARTER DOLLAR OF JAMAICA, 1822.

Reverse, Legend, and Exergue: Same as No. 1; with the exception of the Roman numerals "IV" appearing at each side of the anchor. Weight: 102.500 grains. Fineness: 895. Value: \$0.24.9798.

3. One-eighth of a Dollar of 1822. Obverse and Legend: Same as No. 1.



ONE-EIGHTH OF A DOLLAR OF JAMAICA, 1822.

Reverse, Legend, and Exergue: Same as No. 1, with the exception of the Roman numerals "VIII" appearing at each side of the anchor. Weight: 51.250 grains. Fineness: 895. Value: \$0.12.4899.

4. One-sixteenth of a Dollar of 1822. Obverse and Legend: Same as No. 1.



ONE-SIXTEENTH OF A DOLLAR OF JAMAICA OF 1822.

Reverse, Legend, and Exergue: Same as No. 1, with the ex-

ception of the Roman numerals "xvi" appearing at each side of the anchor. Weight: 25.625 grains. Fineness: 895. Value: \$0.06.2449.

In 1869 a Nickel Penny and Half-Penny were struck in England for Jamaica.

1. Nickel Penny of Queen Victoria, 1869 and since. Obverse: Head of Queen Victoria, facing to the left, surrounded by a circle of dots. Legend: "VICTORIA QUEEN." Exergue: Date of the year of issue.



NICKEL PENNY OF JAMAICA.

Reverse: A shield, upon it five pineapples on a cross, an alligator surmounting it, and below the shield a badge with the inscription: "INDUS UTERQUE SERVIET UNI." Legend: "JAMAICA." Exergue: "ONE PENNY." Composition: 20 parts nickel and 80 parts copper. Weight: 150 grains. Value nominal at 2 cents.

2. Nickel Half-Penny of Queen Victoria of 1869 and since. Obverse, Legend, and Exergue: Same as No. 1.



NICKEL HALF-PENNY OF JAMAICA.

Reverse and Legend: Same as No. 1. Exergue: "HALF-

PENNY." Composition: Same as No. 1. Weight: 75 grains. Value, nominal: 1 cent.

BRITISH GUIANA.

During the reign of William IV. there were struck for circulation in British Guiana silver coins of one, half, and quarter Guilder.

1. Guilder of William IV. Obverse: Head of William IV. Legend: "GULIELMUS IIII. D. G. BRITANNIAR REX F. D." Reverse: "1 Guilder," encircled by oak branches, and crowned with a royal crown. Legend: "BRITISH GUIANA." Exergue: Date of the year of issue. Weight: 120 grains. Fineness: 816.666. Value: \$0.28.3879.

2. Half Guilder of William IV. Obverse and Legend: Same as No. 1. Reverse: " $\frac{1}{2}$ Guilder;" rest same as No. 1. Weight: 60 grains. Fineness: 816.666. Value: \$0.14.1939.

3. Quarter Guilder of William IV. Obverse and Legend: Same as No. 1. Reverse: " $\frac{1}{4}$ Guilder;" rest same as No. 1. Weight: 30 grains. Fineness: 816.666. Value: \$0.07.0969.

EAST INDIA COINS.

Before the British Colonies were established, particularly while the Mogul's power prevailed in Hindostan, the monetary system was very simple. There was current throughout those dominions one principal coin of silver, denominated the "Sicca Rupee." There were, however, gold coins minted. The principal piece was the "Mohur." Both the Sicca Rupee and the Mohur were originally coined of pure silver and gold, without any alloy.

These denominations of money are still current in India, but they differ from each other and all have departed from the original purity.

The monies of some of the Native Princes are still of a high degree of fineness, but they are subject to frequent alterations; and hence the necessity of *Shroffs*, who are a kind of money

brokers and assayers, appointed to set a value upon the different coins that may require examination.

The principal money of account in India is the "Current Rupee." It is an imaginary money, to which real coins are generally reduced before they are entered into books of account. This reduction is performed by allowing a certain percentage, called the "Batta," which varies according to circumstances.

There are under the Presidency of Bengal three Mints, the principal of which is at Calcutta; and the subordinate are: one at Benares, and the other at Furruekabad.

At the Mint of Calcutta there are coined gold Mohurs and silver Sicca Rupees. The fineness of both coins is 916.666.

It being found that money of the native Legends circulated more freely than with English ones, exact imitations of the native Rupees were issued, even to the defects in the mode of coinage. Thus, the native dies being always made much larger than the piece of metal to be coined, the latter only received a portion of the Legends; except when presentation pieces were struck, as on the accession of a new monarch.

In 1790, however, machinery was forwarded from England for the Calcutta mint, and Rupees were issued showing the entire legend, and properly milled at the edge like American coins; this improvement was shortly afterwards adopted in the Madras and Bombay mints.

In 1830 the mint was completed in Calcutta with steam-power, capable of coining 300,000 coins in one working day of seven hours.

In 1835 it was determined that the Anglo-Indian coinage should henceforward bear the name of the reigning British sovereign, with English Legends, the name of the coin only being repeated in Persian. The native gold coins which at first circulated at Madras were known as "Varahas or Hoons," and "Fanams." The former is called by the colonists a "Pagoda," the appellation being derived from the Indian Pagoda on the Obverse. A gold Rupee was afterwards substituted in the English mints, having native inscriptions similar

to those of the silver Rupees. The principal gold coin afterwards received another modification, when the lion *rampant*, holding a crown, became the type of the Obverse, and on the Reverse the name of the coin in native characters. At the Madras mint, where similar improvements had taken place to those at Calcutta, very pretty small silver coins were issued, of the value of five Fanams. In 1808 there was coined at Madras a half Pagoda of silver of about the size of the American Trade Dollar. It has a temple in the form of a Pagoda for principal type, and on the Reverse the Indian deity "Vishnu." It is now superseded by the Rupee with the native Legends.

The Madras mint also issued pieces termed "Dubs" or "Cash-pieces," being twenty, ten, five and one cash-pieces. The Dubs or Cash-pieces have the East India Company's arms on the Obverse, and their value in Persic on the Reverse. At Bombay, silver and gold Rupees with native Legends are coined as at Calcutta and Madras. The Bombay mint is now supplied with steam-power, and issues the same amount of coins in a day as that of Calcutta. The early copper coins of Bombay were struck in England. Ceylon has always been supplied with coins struck in Europe. The elephant formed the principal type, till the head of the British sovereign was adopted.

A copper coinage has also been struck in England for St. Helena, with the arms of the East India Company on the Obverse; and the inscription: "ST. HELENA HALF-PENNY," and the date, with a wreath of laurel on the Reverse.

For Fort Marlboro (Bencoolen), half dollars were issued as early as 1783; they were coined in the style of the native money, having Persian legends on the Obverse; but on the Reverse "Fort Marlboro" in English, with the date.

The Island of Mauritius was supplied with British coin in 1822 from the mint at Calcutta, where pieces of fifty and twenty-five Sols or Sous, of a low standard, were issued.

GOLD COINS OF THE MOGULS.

1. Mohur, coined under the reign of the Mogul Shah Allum,

1776. Obverse: Inscription in Persic, which translated means: "*He who is the shadow of God's favor, the Protector of the religion of Mahomet, the Mogul Shah Allam, coins money for seven climates.*" Below the date of the Hegira: "1190." Reverse: "*Struck at Calcutta the year eight from the happy accession.*" Weight: 204.700 grains. Fineness: 916.666. Value: \$8.07-.0279.

2. Mohur, coined under the reign of the Mogul Shah Allam, 1789. Obverse: Inscription in Persic, which translated means: "*Coin of the Mogul Shah Allam;*" below the date of the Hegira: "1203." Reverse: "*Year nineteen of the happy accession.*" Weight: 204.700 grains. Fineness: 916.666. Value: \$8.07-.0279. These two Mohurs are of 16 Rupees, and are still in circulation.

Half and Quarter Mohurs of the same devices and in proportion to weight and value are still in general circulation in the interior of Hindostan.

3. Mohur of Tippoo Saib. Obverse: Inscription in Persic, which translated means: "*The faith of Mahomet, the most excellent in this world, is supported by the splendor of the victories of Hyder. Hyder! exalted in equity.*" Below: "*Struck at Pattan (Serlingapatam) the year pre-cminent in prosperity.*" As exergue, the date of the Indian era: "81" instead of the usual Hegira. The Indian era is divided into Cycles of 60 years each, of which about 82 Cycles have already passed. "*He alone is the equitable Sultan; the epoch of the accession was a year of happy omen.*" Weight: 190 grains. Fineness: 983. Value: \$8.02.9725. This Mohur is very scarce and brings a high premium.

4. Faruki, or Quarter Mohur of Tippoo Saib, 1782-1799. Obverse: Inscription in Persic, which translated means: "*Mahomet! He is the only and right Sultan.*" Below: The date of the Hegira: "1197 to 1204." "*Faruki, struck at Pattan*" (Serlingapatam), and the date of Tippoo Saib's reign which commenced in 1782 and ended with 1799; in Persian figures. As exergue: "The letter "H" in Persic; the initial of Mogul Hyder Ally, father of Tippoo Saib, who fought so bravely

against the English troops in 1780, and died in 1782. Weight: 27.250 grains. Fineness: 983. Value: \$2.00.7481.

5. Pagoda of Hyder Ally. Obverse: Inscription in Persian, which translated means: "*Blessed coin of the conquering Mogul Hyder Ally.*" Reverse: "*Struck at Arcot in the fifth year of the reign, which God may prolong.*" Weight: 52.83 grains. Fineness: 916.666. Value: \$1.91.1113.

6. Pagoda of Tippoo Saib. Obverse: Inscription in Persian, which translated means: "*Mahomet! He is the power of equity.*" Below the date of the Hegira: "1197 to 1204." Reverse: "*Struck at Pattan.*" Below the initial "H" of Hyder. Weight: 52.83 grains. Fineness: 839.925. Value: \$1.91-.1113.

7. The Zodiacal Rupees are pieces of twelve different impressions, representing the twelve signs of the Zodiac. They were coined between 1616 and 1624 of the Christian era, by the great Mogul Jehangeer, and have long been out of circulation. They are, however, much sought after, and highly valued as objects of curiosity. Each sign, or figure, is surrounded by rays representing the sun; and on the Reverse is the following inscription in native Indian characters, which translated means: "*This ornamented coin in Agra, found its face (received its impression), in the year (first to ninth) from the Sovereign Jehangeer, son of King Akber.*"

The Zodiacal Rupees are exceptions to the Mahometan law which forbids the representation or embossment of figures, but it is said that Mogul Jehangeer had little respect for his religion. Under his reign was also struck a gold coin, a Rupee of Queen Nour-Mahal, his favorite Queen, who had obtained permission to reign for one day. To perpetuate the memory of her short reign, she had a beautiful coin issued which for a long time circulated largely in Hindostan. So far as known only four of these coins exist in the Museums of Europe; their intrinsic value about \$8.15 each; their weight 185 grains, their fineness almost pure gold.

GOLD COINS OF THE EAST INDIA COMPANY.

1. Mohur of 15 Rupees. Obverse: Coat of arms of the East India Company, a quartered shield surmounted by a helmet upon which a lion *rampant*; the shield is supported by two lions, each holding a staff, with Union Jaek upon the flag. Legend: "ENGLISH EAST INDIA COMPANY." Reverse: In native characters: "*The Ashrafce or Mohur of the Honorable English Company.*" Weight: 180 grains. Fineness: 916.666. Value: \$7.09.6979.

2. Mohur of 15 Rupees of 1841 to 1860. Obverse: Head of Queen Victoria. Legend: "VICTORIA QUEEN." Exergue: "1841-1860."



GOLD MOHUR OF 15 RUPEES.

Reverse: A lion, a palm tree occupying the field. Legend: "EAST INDIA COMPANY." Exergue: "ONE MOHUR," and below, the same in native characters. Weight: 180 grains. Fineness: 916.666. Value: \$7.09.6979.

3. One-third Mohur of 5 Rupees. Obverse: Quartered shield surmounted by a lion *rampant*. Legend: "ENGLISH EAST INDIA COMPANY."



ONE-THIRD MOHUR OF 5 RUPEES.

Reverse: Same as No. 1. Weight: 60 grains. Fineness: 916.666. Value: \$2.36.5659.

4. One Mohur of Queen Victoria, 1862, and since. Obverse: Crowned bust of Queen Victoria. Legend: "VICTORIA QUEEN."



MOHUR OF QUEEN VICTORIA OF 15 RUPEES.

Reverse: "ONE MOHUR" — "INDIA;" and below, the date of the year of issue, the whole in four lines occupying the field, surrounded by a circle of dots and fancy arabesques. Weight: 180 grains. Fineness: 916.666. Value: \$7.09.6979.

5. Two Pagoda piece of 1799. Obverse: A pagoda of several stories high, surrounded by stars; hence often called East India Star Pagodas; the whole occupying the field. Legend inscribed upon a belt: "TWO PAGODAS," and the same repeated in native characters. Reverse: The deity Vishnu surrounded by dots; the whole occupying the field. Legend in native characters, inscribed upon a belt: "MAHOMET! HE IS THE POWER OF EQUITY." Weight: 105.660 grains. Fineness: 916.666. Value: \$3.92.2227.

6. Pagoda of 1799. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 52.830 grains. Fineness: 916.666. Value: \$1.96.11135.

The old Pagodas of the Moguls, especially of Tippoo Saib, are still in general circulation; these pieces differ in shape from all American and European coins; they have a convex, with prominent dots, and a flat, side, which generally bears a figure, and in some three figures of Indian idols.

The Star Pagoda is marked on the convex side with a star; the Crescent Pagoda with a crescent.

The Pagodas of Masulipatam have nothing on the convex side but dots.

The Pagodas of Tippoo Saib have no figures on the flat side, but a Legend in Persic, which translated means: "*Mahomet! The power of equity;*" below, the date of the Hegira. The Pagodas of Hyder, father of Tippoo Saib, have on the convex side the letter "H" in Persic character.

SILVER COINS OF EAST INDIA.

The silver coins of the Moguls are devoid of likenesses: their Koran forbids the use of them on their coins; therefore they have only inscriptions of the name and era of the ruling Mogul.

The silver coins of the East India Company, which was founded by charter from Queen Elizabeth, in 1602, are quite handsome. The East India Company soon found that the Spanish Dollar was the best piece they could carry thither, being better than bullion, as the natives were well acquainted with them, and liked them better than any other kind; they therefore applied to Queen Elizabeth for liberty to export a certain quantity of these pieces yearly, alleging that her own money was not known there, for which very reason the Queen refused to grant it, being determined that if they were not acquainted with her coins, they should be; therefore she ordered a particular sort of money to be struck on purpose for this trade, of the same weight and fineness as the Spanish Dollar, but with her royal arms and device of the Portcullis, called from thence the Portcullis money.

The Portcullis forms part of the armorial shield of the Tudor family.

1. Crown or Ryal of Elizabeth. Obverse: Crowned quartered shield, bearing arms of England and France; the letters "E" and "R" crowned at the side of the shield, the whole surrounded by a circle of dotted lines. Legend: "ELIZABETH. D. G. ANG: FRA: ET HIBER: REGINA." Reverse: Portcullis surmounted by a large royal crown. Legend: "POSVI. DEVM. ADIVTOR. MEVM." (*I have made God my helper*). Weight: 420 grains. Fineness: 900. Value: \$1.00.

There was also coined halves, quarters and eighths of this

Porteullis money, of the same devices and bearing the same Legends as No. 1, only in proportion to size and weight; their value of course corresponding accordingly.

Upon the marriage of Charles II. with the Infanta Catherine of Portugal, in 1662, the island and port of Bombay were ceded to him as part of her portion, and by him ceded to the East India Company in 1668.

Among the first money coined in the Bombay mint was the silver Rupee.

2. Silver Rupee of the East India Company, struck at Bombay, by authority of Charles II. Obverse: "THE RUPEE OF BOMBAY;" occupying the field, two rosettes below. Legend: "1678. BY AUTHORITY OF CHARLES THE SECOND." Reverse: Crowned quartered shield bearing the arms of England, France, Ireland and Scotland. Legend: "KING OF GREAT BRITAIN, FRANCE AND IRELAND." Weight: 175 grains. Fineness: 916.666. Value: \$0.45.3698.

3. Bombay Rupee of the East India Company. Obverse: "PAX DEO" (*God's Peace*), occupying the field, surrounded by a circle of large dots. Legend: "MONETA BOMBAIENSIS" (*Money of Bombay*). Reverse: Shield, bearing the arms of England and France upon two of the upper middle compartments, at each side a star; below and middle of the field two vessels, still lower one vessel; the whole surrounded by palm branches. No Legend. This piece is smaller than the usual Rupee; but is thicker in proportion. Weight: 175 grains. Fineness: 916.666. Value: \$0.45.3698.

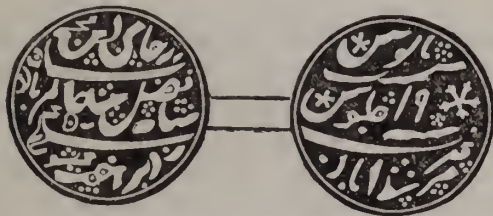
4. Bombay Rupee of the E. I. C. Obverse: Same as No. 3, only in Indian characters. Reverse: Same as No. 3. Weight, Fineness, and Value: Same as No. 3.

5. Rupee of the East India Company of 1687. Obverse: Shield, bearing arms of the East India Company. Reverse: "MON: BOMBAY ANGLIC REGIMS." Weight: 175 grains. Fineness: 916.666. Value: \$0.45.3698.

6. Fanam, or one-fifth of a Rupee of the E. I. Co., of 1687. Obverse: Same as No. 5. Reverse: Same as No. 5. Weight: 35 grains. Fineness: 916.666. Value: \$0.09.0739.

7. Bombay Rupee of the E. I. Co. Obverse: "MOET BOMBAY ANGLIC REGIM." (*Money of the English Regime*). Legend: "HON SOC ANG. IND. ORE" (*Honorable Society of the English Indian Corporation*). Reverse: Same as No. 3. Legend: "INCREMENTUM A DEO ET PAX" (*Increase with God and peace*). Weight: 175 grains. Fineness: 916.666. Value: \$0.45.3698.

8. Sicca Rupee of Mogul Shah Allam of 1789. Obverse: Inscription in Persic which translated means: "*Struck in the seren climates by the shadow of God's favor, Shah Allam, Mogul, disciple in the faith of Mahomet.*"



SICCA RUPEE OF SHAH ALLAM.

Reverse: "*Struck at Pattan, in the nineteenth year of the august and glorious reign of the Mogul, Shah Allam.*" Weight: 185 grains. Fineness: 916.666. Value: \$0.47.9048. Some of the Sicca Rupees bear the date of the Hegira instead of the year of the Mogul's reign. The East India Company has struck for many years the Sicca Rupee with the nineteenth year of Mogul Shah Allam's reign.

9. The Arcot Rupee of Mogul Hyder. Obverse: Inscription in Persic, which translated means: "*Blessed coin of the conquering Mogul Hyder Ally.*" Reverse: "*Struck at Arcot in the ninth year of the reign,*" and the date of the Hegira below; which corresponds with 1781. Weight: 185 grains. Fineness: 916.666. Value: \$0.47.9048. Most of the Rupees of Hyder and Tippoo Saib are so badly coined that the inscriptions are hardly legible.

10. Sultanee Rupee of Tippoo Saib. Obverse: Inscription in Persic, which translated means: "*The faith of Mahomet, the*"

most excellent in this world, is supported by the splendor of the victories of Hyder. Hyder! exalted in equity; struck at Seringapatam, the year pre-eminent in prosperity." Below, the date of the Hegira. Reverse: "He alone is the equitable Sultan: the epoch of the accession was a year of happy omen." Weight: 185 grains. Fineness: 916.666. Value: \$0.47.9048.

11. Half Rupee of Tippoo Saib. Obverse: Inscription in Persic, which translated means: "The faith of Mahomet is supported by the splendor of the victories of Tippoo Saib." Reverse: "Struck at Seringapatam, the year pre-eminent in glory and prosperity." Weight: 92.500 grains. Fineness: 916.666. Value: \$0.23.9524.

12. Quarter Rupee of Tippoo Saib. Obverse: Inscription in Persic, which translated means: "Blessed coin of the glorious Mogul Tippoo Saib." Reverse: "Struck at Seringapatam in the victorious reign of the Mogul Tippoo Saib." Weight: 46.250 grains. Fineness: 916.666. Value: \$0.11.9762.

13. Half Pagoda. Obverse: A Pagoda nine stories high, surrounded by a belt upon which the Legend: "HALF PAGODA;" and the same repeated in native characters. Reverse: Indian Deity, Vishnu, at each side dots formed into the shape of a cross and string; and surrounded by three circles formed of dots. Weight: 326 grains. Fineness: 902. Value: \$0.83-.1340.

14. Quarter Pagoda. Obverse and Legends: Same as No. 13.



QUARTER PAGODA.

Reverse: Same as No. 13. Weight: 164 grains. Fineness: 902. Value: \$0.41.5670.

15. Rupee of William IV. Obverse: Head of William IV. Legend: "WILLIAM IIII KING." Reverse: "ONE RUPEE," below the same repeated in native characters; the whole surrounded by a laurel wreath, crossed and tied. Legend: "EAST INDIA COMPANY." Exergue: Date of the year of issue. Weight: 180 grains. Fineness: 925. Value: \$0.47.1446.

16. Rupee of Queen Victoria, 1840-1860. Obverse: Head of Queen Victoria. Legend: "VICTORIA QUEEN." Reverse: Same as No. 15. Weight: 180 grains. Fineness: 925. Value: \$0.47.1446.

17. Rupee of Queen Victoria of 1861 and since. Obverse: Bust of Queen Victoria, crowned. Legend: "VICTORIA QUEEN." Reverse: "ONE RUPEE." "INDIA," and the date of the year of issue; surrounded by arabesques of flowers and leaves. Weight: 180 grains. Fineness: 925. Value: \$0.47.1446.

18. Half Rupee of Queen Victoria of 1840-1860. Obverse and Legend: Same as No. 16. Reverse: "HALF RUPEE," and the same repeated in native characters; rest same as No. 16. Weight: 90 grains. Fineness: 925. Value: \$0.23.5723.

19. Half Rupee of Queen Victoria of 1861 and since. Obverse and Legend: Same as No. 17.



HALF RUPEE OF QUEEN VICTORIA.

Reverse and Legend: Same as No. 17. Weight: 90 grains. Fineness: 925. Value: \$0.23.5723.

20. Quarter Rupee of Queen Victoria. Obverse and Le-

gends: Same as No. 16 and 17. Reverse: " $\frac{1}{4}$ RUPEE;" rest same as No. 16 and 17. Weight: 45 grains. Fineness: 925. Value: \$0.11.78615.

20. Two Annas of Queen Victoria. Obverse and Legend: Same as No. 16.



TWO ANNAS OF QUEEN VICTORIA.

Reverse: "TWO ANNAS," the same repeated below in native characters; the whole surrounded by branches of laurel, crossed and tied. Legend: "EAST INDIA COMPANY." Exergue: Date of the year of issue. Weight: 22.500 grains. Fineness: 925. Value: \$0.05 $\frac{1}{2}$.

21. Double Fanam of Charles II. Obverse: An East India idol. Reverse: Two "c's," crossed, saltier-wise. Weight: 70 grains. Fineness: 916.666. Value: \$0.18.1478.

22. Fanam of Charles II. Obverse and Reverse: Same as No. 21. Weight: 35 grains. Fineness: 916.666. Value: \$0.09.0739.

TUTANAGUE OR TIN COINS OF EAST INDIA.

1. Pice of 1717-1718. Obverse: Large crown, surmounted by the letters "G. R." (*George Rex*), below the crown "BOMB." Reverse: "AUSPICIO REGISET SENATUS ANGLIÆ;" and the date of the year of issue. Value entirely nominal.

2. Half Pice of 1739. Obverse, Reverse and Value: Same as No. 1. There were also coined that year some half Pice pieces with " $\frac{1}{2}$ P." on the Obverse, and "E. I. C." on the Reverse. Value entirely nominal.

COPPER COINS OF EAST INDIA.

1. 4 Pice of 1791, and the last coin struck in England for circulation in the East Indies. Obverse: A heart-shaped

shield, quartered, bearing the letters "V. E. I. C." in each angle (*United East India Company*), above the heart a clumsy figure "4," meaning: 4 Pice. Reverse: A pair of scales; below in native characters: "ADIL" (*Just weight*). Value entirely nominal at 1 cent.

2. Half Anna of 1832. Obverse: Arms of the East India Company. Legend: "EAST INDIA COMPANY," and in a scroll beneath "AUS. REG. ET. SEN. ANG." (*Auspicio Regiset Senatus Angliac*). Exergue: Date of the year of issue. Reverse: Pair of scales. Legend: "HALF ANNA." Exergue: "ADIL," meaning: (*Just weight*). Value nominally $1\frac{1}{2}$ cents.

3. Quarter Anna of the E. I. Co. Obverse and Legend: Same as No. 2. Reverse: A pair of scales, above them "QUARTER ANNA," and below "JUST WEIGHT." Exergue: "1246" of the Hegira, which corresponds with A. D. 1830.

4. One Pie or Pice of 1795, altered from the earlier Anglo-Indian types of coins of Charles II. and James II., and issued with Legend in native character, having upon the Obverse: "*In the 37th year of the reign of Shah Allam.*" Reverse: In Bengalee, Najari and Persian characters "ONE PAI SICCA"—the term Sicea, in reference to the standard weight of that name.

5. One Pie or Pice of E. I. Co., 1831, in imitation of the aforementioned native coin. It was made thicker, but smaller in diameter, and the Legends differently disposed on the Obverse. Reverse: "ONE PIE," and the same repeated in Bengalee characters. Value entirely nominal at one-fourth of a cent.

6. Four Pie or Pice piece of 1833. Obverse: Arms of E. I. Co. Reverse: Large figure "4" inclosed in a wreath. Value nominal at one cent.

7. One Pice or Pie piece of 1833. Obverse: Arms of E. I. Co. Exergue: "1833. Reverse: " $1\frac{1}{2}$ ANNA," and the same repeated in native characters: the whole inclosed by two branches of laurel. Legend: "EAST INDIA COMPANY."

8. One Half Anna of 1835. Obverse: Arms of the E. I.

Co., a scroll with "AUSP. REG. SEN. ANG." upon it. Reverse: "HALF ANNA" in two lines surrounded by oak branches, crossed and tied. Legend: "EAST INDIA COMPANY." Value: One and a half cents.

9. Quarter Anna of 1835. Obverse and Reverse: Same as No. 8, only the inscription on Reverse is changed to "ONE QUARTER ANNA" in three lines. Value, nominally at three-quarters of a cent.

10. Twenty Cash piece of the E. I. Co. Obverse: Arms of the East India Company. Legend: "EAST INDIA COMPANY." Exergue: Date of the year of issue from 1803 to 1815. Reverse: In Persic letters "XX CASH." Value entirely nominal at one cent.

11. Ten Cash and 5 Cash pieces. Obverse and Reverse: Same as No. 10, with the exception that "x" and "v" take the place of "xx." Values entirely nominal at a half and a quarter cent.

12. One Cash piece. Obverse: Lion rampant. Reverse: "1 CASH." Value, nominally one-twentieth part of a cent.

13. Cent, Half Cent and Quarter Cent pieces of Queen Victoria. Obverse: Head of Queen Victoria, the hair encircled by a diadem. Legend: "VICTORIA QUEEN." Reverse: A wreath inclosing: "ONE CENT," "HALF CENT" and "QUARTER CENT." Legend: "EAST INDIA COMPANY." Exergue: Date of the year of issue, beginning with 1845.

14. One Quarter Anna of Queen Victoria of 1862 and since. In 1858 the British government ceased to coin money for the E. I. Co., and from that date the Legend of "EAST INDIA COMPANY" disappears from all the East India coins. Obverse: Crowned bust of Queen Victoria. Legend: "VICTORIA QUEEN." Reverse: "ONE QUARTER ANNA" — "INDIA," and the date of the year of issue, occupying five lines of the field; surrounded by a circle of dots. No Legend or Exergue; but in their stead a heavy arabesque border of leaves and flowers. Value entirely nominal at three-quarters of a cent.

GREECE.

From 1453 to 1829 Greece under Turkish rule had no coins of her own ; using the Piasters and Paras of Turkey.

In 1827 Capo D'Istria was chosen governor of the new Greek republic, but being unpopular in the extreme, he was assassinated in 1831. His coinage is limited to a few coins only. His coins were struck at Ægina, in 1829, by means of a coining press that had been used formerly by the Knights of Malta.

These coins consisted of the "PHOENIX" of 100 Leptas, in silver, and the Lepton, five and ten Lepta pieces in copper.

1. Phoenix, silver. Obverse: A Phoenix, a cross above its head. Legend: ΕΛΛΑΝΙΚΗ ΠΟΛΙΤΕΙΑ, 1821" (*State of Greece*, 1821). Reverse: A wreath of olive and laurel branches, inclosing Value and Legend: "ΚΤΒΕΡΝΗΤΗΣ Ι. Α. ΚΑΠΟ ΔΙΣΤΡΙΑΣ, 1828" (*Governor J. A. Capo D'Istria*, 1828). Weight: 47 grains. Fineness: 900. Value: \$0.16.666.

2. Twenty Lepta copper piece. Obverse and Legend: Same as No. 1. Reverse: "20 LEPTA," rest same as No. 1. Value, nominally 3½ cents.

3. Ten and Five Lepta copper piece. Same as No. 2, only upon the Reverse: "10 and 5 LEPTA" instead of "20." Value about one and a half and three-quarters of a cent.

4. The Lepton copper piece. Same as No. 2 and 3, only upon the Reverse the word "ΛΕΠΤΟΝ" (*Lepton*) occupying the field. Value one-fiftieth of a cent.

In 1832 Otto of Bavaria was elected King of Greece, and in that year a new coinage was inaugurated.

GOLD COINS OF KING OTTO.

1. Forty Drachma piece of King Otto. Obverse: Head of Otto. Legend: "ΟΘΩΝ ΒΑΣΙΛΕΥΣ ΤΗΣ ΕΛΛΑΔΟΣ" (*Otho King of the Greeks*). Reverse: Crowned shield bearing the arms of Greece (*azure ; a cross argent*), with the arms of Bavaria in the centre of the cross, inclosed between two branches of laurel.

Exergue: "40 ΔΡΑΧΜΑΙ." (40 *Drachmas*), and the date of the year of issue. Weight: 178.274 grains. Fineness: 900. Value: \$6.90.4544.

2. Twenty Drachma piece of Otto. Obverse and Legend: Same as No. 1.



TWENTY DRACHMAS OF OTTO.

Reverse: Same as No. 1. Exergue: "20 ΔΡΑΧΜΑΙ" (20 *Drachmas*), and the date of the year of issue. Weight: 89.137 grains. Fineness: 900. Value: \$3.45.2274.

SILVER COINS OF KING OTTO.

1. Five Drachmas of Otto. Obverse: Head of Otto facing to the right. Legend: "ΟΘΩΝ ΒΑΣΙΛΕΥΣ ΤΗΣ ΕΛΛΑΔΟΣ" (*Otto King of the Greeks*).



FIVE DRACHMAS OF OTTO.

Reverse: Crowned shield, bearing the arms of Greece with the arms of Bavaria in the centre, surrounded by laurel branches, a sectional line dividing the Exergue: "5 ΔΡΑΧΜΑΙ" (5 *Drachmas*), and below, the date of the year of issue. Weight: 345.452 grains. Fineness: 900. Value: \$0.87.1964.

2. Drachma of Otho. Obverse and Legend: Same as No. 1.



DRACHMA OF ΟΤΗΟ.

Reverse: Same as No. 1. Exergue: "Ι ΔΡΑΧΜΗ" (*One Drachma*). Weight: 69.090 grains. Fineness: 900. Value: \$0.17.4393.

3. Half Drachma of Otho. Obverse and Legend: Same as No. 1.



HALF DRACHMA OF ΟΤΗΟ.

Reverse: Same as No. 1. Exergue: " $\frac{1}{2}$ ΔΡΑΧΜΗ" (*Half Drachma*). Weight: 34.545 grains. Fineness: 900. Value: \$0.08.7196.

4. Quarter Drachma of Otho. Obverse and Reverse: Same as No. 1. Exergue on Reverse: " $\frac{1}{4}$ ΔΡΑΧΜΗ" (*Quarter Drachma*). Weight: 17.272 grains. Fineness: 900. Value: \$0.04.3598.

COPPER COINS OF ΟΤΗΟ.

1. Ten Lepta piece. Obverse: Crowned shield, bearing the arms of Greece. Legend: "ΒΑΣΙΛΕΙΑ ΤΗΣ ΕΛΛΑΔΟΣ" (*Kingdom of Greece*). Reverse: "10 ΛΕΠΤΑ" (*Ten Lepta*), and the date of the year of issue inclosed in a heavy wreath of laurel. Value, nominal, at \$0.01.7440.

2. Five Lepta piece. Obverse and Legend: Same as No. 1.

Reverse: "5 ΛΕΠΤΑ" (*Five Lepta*). Rest same as No. 1. Value: §0.00.8719.

3. Two Lepta piece. Obverse and Legend: Same as No. 1. Reverse: "2 ΛΕΠΤΑ" (*Two Lepta*). Rest same as No. 1. Value: §0.00.3488.

4. Lepton. Obverse and Legend: Same as No. 1. Reverse: "ΛΕΠΤΟΝ" (*Lepton*). Rest same as No. 1. Value: §0.00.1744.

From 1833 to 1847 the branches of the wreath on Reverse were composed of laurel, and solid all round. In 1847 to 1863, olive branches took the place of the laurel wreath, and were fastened below; the Legend: "ΒΑΣΙΛΕΙΑ" (*King*) was changed to "ΒΑΣΙΛΕΙΟΝ" (*Kingdom*).

The reign of Otto was not a fortunate one, and his unpopularity ended in a revolution in 1863. During this uprising King Otto abdicated the throne of Greece, and retired to Bavaria.

Soon after Prince George, of Denmark, accepted the then vacant throne, and in 1867 joined the Latin Union, adapting his coins to the French Franc monetary system.

GOLD COINS OF KING GEORGE I.

1. One Hundred Drachmas. Obverse: Head of George I. Legend: "ΓΕΩΡΓΙΟΣ Α' ΒΑΣΙΛΕΥΣ ΤΩΝ ΕΛΛΗΝΩΝ" (*George I., King of the Greeks*). Exergue: Date of the year of issue. Reverse: The Greek shield, inclosed by heavy drapery suspended from a crown above, while on a ribbon running across the drapery, are the words "ΙΣΧΥΣ ΜΟΥ Η ΑΤΑΝΗ ΤΟΥ ΛΑΟΥ" (*My strength is in my people's love*). Legend: "ΒΑΣΙΛΕΙΟΝ ΤΗΣ ΕΛΛΑΔΟΣ" (*Kingdom of the Greeks*). Exergue: "100 ΔΡΑΧΜΑΙ" (*100 Drachmas*). Weight: 497.816 grains. Fineness: 900. Value: §19.30.

2. Fifty Drachmas. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "50 ΔΡΑΧΜΑΙ" (*50 Drachmas*). Weight: 248.908 grains. Fineness: 900. Value: §9.65.

3. Forty Drachmas. Obverse and Legend: Same as No. 1.

Reverse and Legend: Same as No. 1. Exergue: "40 ΔΡΑΧΜΑΙ" (40 *Drachmas*). Weight: 199.1235 grains. Fineness: 900. Value: \$7.72.

4. Twenty Drachmas. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "20 ΔΡΑΧΜΑΙ" (20 *Drachmas*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

5. Ten Drachmas. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "10 ΔΡΑΧΜΑΙ" (10 *Drachmas*). Weight: 49.769 grains. Fineness: 900. Value: \$1.93.

6. Five Drachmas. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "5 ΔΡΑΧΜΑΙ" (5 *Drachmas*). Weight: 24.876 grains. Fineness: 900. Value: \$0.96½.

SILVER COINS OF KING GEORGE I.

1. Five Drachmas. Obverse: Head of George I. Legend: "ΓΕΩΡΓΙΟΣ Α' ΒΑΣΙΛΕΥΣ ΤΩΝ ΕΛΛΗΝΩΝ" (*George I., King of the Greeks*). Exergue: Date of the year of issue. Reverse: The Greek shield, inclosed by heavy drapery suspended from a crown above, while on a ribbon running across the drapery are the words: "ΙΣΧΥΣ ΜΟΥ Η ΑΓΑΠΗ ΤΟΥ ΛΑΟΥ" (*My strength is in my people's love*). Legend: "ΒΑΣΙΛΕΙΟΝ ΤΗΣ ΕΛΛΑΔΟΣ" (*The Kingdom of the Greeks*). Exergue: "5 ΔΡΑΧΜΑΙ" (5 *Drachmas*). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

2. Two Drachmas. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "2 ΔΡΑΧΜΑΙ" (2 *Drachmas*). Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

3. One Drachma. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "1 ΔΡΑΧΜΗ" (1 *Drachma*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

4. Fifty Lepta. Obverse and Legend: Same as No. 1.

Reverse: A large crown occupying the field. Legend: Same as No. 1. Below the crown: "50 ΛΕΠΤΑ" (50 *Lepta*). Exergue: Date of the year of issue. Weight: 38.580 grains. Fineness: 900. Value: \$0.09.650.

5. Twenty *Lepta*. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 4. Below the crown: "20 ΛΕΠΤΑ" (20 *Lepta*). Exergue: Date of the year of issue. Weight: 15.432 grains. Fineness: 900. Value: \$0.07.720.

COPPER COINS OF KING OTHO.

1. Ten *Lepta*. Obverse: Crowned shield of Greece. Legend: "ΒΑΣΙΛΕΙΟΝ ΤΗΣ ΕΛΛΑΔΟΣ" (*Kingdom of the Greeks*). Reverse: "10 ΛΕΠΤΑ" (10 *Lepta*), and the date of the year of issue, surrounded by a heavy laurel wreath. Value, entirely nominal at 1 $\frac{3}{4}$ cents.

2. Five *Lepta*. Obverse and Legend: Same as No. 1. Reverse: "5 ΛΕΠΤΑ" (5 *Lepta*); rest same as No. 1. Value: nominally at seven-eighths of a cent.

3. Two *Lepta*. Obverse and Legend: Same as No. 1. Reverse: "2 ΛΕΠΤΑ" (2 *Lepta*); rest same as No. 1. Value: nominally at three-sixteenths of a cent.

4. *Lepton*. Obverse and Legend: Same as No. 1. Reverse: "ΛΕΠΤΟΝ" (*Lepton*).

BRONZE COINS OF KING GEORGE I.

1. Ten *Lepta*. Obverse: Head of George I. Legend: "ΓΕΩΡΓΙΟΣ Α' ΒΑΣΙΛΕΥΣ ΤΩΝ ΕΛΛΗΝΩΝ." Exergue: Date of the year of issue. Reverse: "10 ΛΕΠΤΑ" (10 *Lepta*), surrounded by a laurel wreath. Legend: "ΔΙΩ ΒΟΛΟΝ" (*Two Obolons*). Value: entirely nominal at 1 $\frac{3}{4}$ cents.

2. Five *Lepta*. Obverse and Legend: Same as No. 1. Reverse: "5 ΛΕΠΤΑ;" rest same as No. 1. Legend: "ΒΟΛΟΣ" (*Obol*). Value: nominally at seven-eighths of a cent.

3. Two *Lepta*. Obverse and Legend: Same as No. 1. Reverse: "2 ΛΕΠΤΑ," surrounded by a laurel wreath. Value: nominally at three-sixteenths of a cent.

4. Lepton. Obverse and Legend: Same as No. 1. Reverse: "ΛΕΠΤΟΝ" (*Lepton*); rest same as No. 4.

HOLLAND.

In 1795 the territory of the Netherlands was conquered by the French, and formed soon after into the Batavian Republic. In 1806 Napoleon the First changed it into the Kingdom of Holland, and in 1810 it was incorporated into the French Empire. After the fall of Napoleon it was, in 1815, erected into a kingdom with Belgium. In 1830 the Belgians took advantage of the revolution in France, and have maintained to this day their independence. The Netherlands now exist as a distinct kingdom, comprising the seven principalities: Holland, Zealand, West Friesland, Utrecht, Guelderland, Overijssel, and Groningen. Each of the seven provinces had its own mint. Their coins, however, have differed but little. They are generally quite readily distinguished by the name of the Province, which appears in an abbreviated form at the end of the Legend.

Thus the coins of the Province Holland are known by *Holl.* or *Holland*; those of Zealand by *Zel.* or *Zeelandia*—sometimes merely the letter *Z*; those of West Friesland by *Westf.*; those of Utrecht by *Tra.* or *Traject*; those of Guelderland by *Geldria*; those of Overijssel by *Tran.*, *Transisal*, or *Transisalaniam*; those of Groningen by *Gron.*

GOLD COINS.

1. The Ryder. Obverse: Armed horseman above the arms of the province. Legend: "MO. AUR. PEO. CONFOED. BELG. ZELAND." (*Moneta Aureæ Provinciæ Confederationis Belgicæ Zelandiæ*, meaning: *Gold coin of Zealand, province of the Belgic Confederacy*). Reverse: Arms of the seven United Provinces, with "14 GL" (*14 Guilders or Florins*), in the field. Legend:

"CONCORDIA RES PARVAE CRESCUNT" (*Small things increase by concord*). Weight: 153.500 grains. Fineness: 917. Value: \$5.63.4996.

2. Dukaat of Lodewig Napoleon, 1809. Obverse: Head of Louis Napoleon. Legend: "LODEW. NAP. KON. VAN HOLL." (*Lodewig Napoleon Koning Van Holland*, meaning: *Louis Napoleon, King of Holland*). Reverse: Quartered shield, bearing two French Eagles and two Hollandish lions, surmounted by a large royal crown; beneath the shield "1809." Legend: "HOLLAND KONINGRIJK" (*Kingdom of Holland*). Weight: 53.92 grains. Fineness: 900. Value: \$2.28.1169.

3. Dukaat of 1817 and since. Obverse: Knight in armor, sword drawn in dexter, bundle of arrows in sinister hand; at the side of Knight the year of issue, divided. Legend: "CONCORDIA RES PARVAE CRESCUNT." Above and at the side of helmet of Knight the mint-marks.



DUCAT OF HOLLAND.

Reverse: "MO. AUR. REG. BELGII AD LEGEM IMPERII." (*Moneta Aurea Regnum Belgii ad legem imperii*, meaning: *Gold coin of the Kingdom of Belgium according to the law of the Empire*).

This gold Ducat was coined first for the province of Belgium under Netherland's rule, but has ever since been struck by Holland for general circulation. In 1831, during the revolution in Poland, Russia coined the Hollandish Ducat for circulation in Poland and the Russian Empire, continuing ever since to coin these Ducats, according to the mint regulations of Holland, with respect to Weight, Fineness, and Impression, distinguishing it from the Dutch Ducat by the Polish eagle at the beginning of the Legend. Russia and Holland still use the words: "REG-

NUM BELGII" upon their coins. Weight: 53.92 grains. Fineness: 983. Value: \$2.28½.

4. Ten Guilders of Willem of 1816-1840. Obverse: Head of William I. Legend: "WILLEM KONING DER NED. G. H. V. L." (*Willem Koning der Nederlanden, Groot Hertog van Luxemburg*, meaning: *William, King of the Netherlands, Grand Duke of Luxemburg*).



10 GUILDERS, OR FLORINS OF WILLIAM, 1816-1840.

Reverse: Crowned shield, bearing arms of Holland, the lion rampant, with a sword in his right and a bundle of arrows in his left paw; "10" at the left of shield, and "G." at the right (10 Guilders or Florins). Legend: "MUNT VAN HET KONINGRYK DER NEDERLANDEN," and the date of the year of issue (*Coin of the Kingdom of the Netherlands*). Round the edge: "GOD ZIJ MET ONS" (*God be with us*). Weight: 103.828 grains. Fineness: 900. Value: \$4.01.4862.

5. Five Guilders of Willem of 1816-1840. Obverse and Legend: Same as No. 4.



FIVE GUILDERS, OR FLORINS OF WILLIAM, 1816-1840.

Reverse: Same as No. 4, with the exception of 5 G." taking the place of "10 G.," and the edge grained. Weight: 51.914 grains. Fineness: 900. Value: \$2.00.7431.

6. Ten Guilders of Willem II. of 1840-1849. Obverse: Head of William II. Legend: "WILLEM II KONING DER

NED. G. H. V. L." Reverse: Shield, bearing the arms of Holland, the lion *rampant*, a helmet above the shield; the whole upon a mantle of ermine, draped from a crown from above. Legend: "10 GULDEN" (10 *Guilders or Florins*). Exergue: Date of the year of issue. Weight: 103.828 grains. Fineness: 900. Value: \$4.01.4862.

7. Five Guilders of Willem II. of 1841-1849. Obverse and Legend: Same as No. 6.



FIVE GULDERS, OR FLORINS OF WILLIAM II., 1840-1849.

Reverse and Exergue: Same as No. 6. Legend: "FIVE GULDEN" (*Five Guilders or Florins*). Weight: 51.914 grains. Fineness: 900. Value: \$2.00.7431.

8. Double William of 20 Florins of William III., 1849 and since. Obverse: Head of William III. Legend: "GOD ZIJ MET ONS" (*God be with us.*) Exergue: "KONING WILLEM DE DERDE" (*King William the Third*). Reverse: Crowned shield, upon it lion *rampant*. "20" at the left and "G" at the right of shield (*20 Guilders or Florins*). Legend: "KONINGRIJK DER NEDERLANDS, and the date of the year of issue. Weight: 207.656 grains. Fineness: 900. Value: \$8.02.9724.

9. William of 10 Florins of William III. Obverse, Legend, and Exergue: Same as No. 8.



WILLIAM OF 10 GULDERS OR FLORINS OF WILLIAM III.

Reverse and Legend: Same as No. 8, only "10 g" taking the place of "20 g." Weight: 103.828 grains. Fineness: 900. Value: \$4.01.4862.

10. Half William of 5 Florins of William III. Obverse, Legend, and Exergue: Same as No. 8. Reverse and Legend: Same as No. 8, only "5 g" taking the place of "20 g." Weight: 51.914 grains. Fineness: 900. Value: \$2.00.7431.

There are yet a few Double Ducats in circulation of former coinage, bearing the same Impressions and Legends as the Ducat, described as coin No. 3, only larger in proportion. Weight: 107.84 grains. Fineness: 983. Value: \$4.59.

SILVER COINS.

In 1680 there were coined Half Pound Flemish silver pieces of 10 Shillings, each Shilling being again divided into 12 Groats. The Groat was again equal to a Half Stiver: the Stiver of that period is worth about 2 cents.

1. Crown or Ten Shillings Current of Zealand. Obverse: Knight in armor, carrying a sword, one leg hidden by a crowned shield, with wavy lines to represent water, with a lion rampant rising from it. Legend: "LUCTOR ET EMERGO."



CROWN OR TEN SHILLINGS CURRENCY OF ZEELAND, 1689.

Reverse: Seven shields. "10 s. c." in the field. (*Ten Shillings currency.*) "MO. NO. ARG. ORD. ZEELANDIA, 1689." Weight: 462 grains. Fineness: 917. Value: \$1.20.

2. Crown or Ten Shillings Current of Gueldres. Obverse: Knight in armor, both legs hidden by a shield, upon which is a lion rampant. Legend: "MO. ARG. PRO. CONFÆ. BELG. GEL." (*Moneta Aurea Provincie Confæderationis Belgicæ Gebræ*; meaning: Silver money of Gueldres, a province of the Belgic confederacy).



CROWN OR TEN SHILLINGS OF GUELDRES, 1696.

Reverse: Lion rampant. Legend: "CONFIDENS DNO. NON. MOVLTVR," and the date of the year of issue. Weight: 462 grains. Fineness: 917. Value: \$1.20.

3. Ducatoon of Utrecht, 1801. Obverse: Armed horseman, below the arms of the province Utrecht, a crowned shield, with cross and lion rampant, borne double. Legend: "MO: NO: ARG: CONFÆ: BELG: PRO: TRAI." (*Moneta Nova Argentea Confæderatarum Belgicarum Provincie Trajectus*, meaning: New silver money of Utrecht, a province of the Belgic Confederacy).



DUCAATON OF UTRECHT, 1794.

Reverse: Crowned shield, bearing a lion *rampant*, carrying a sword and a bundle of arrows, supported by two lions. Legend: "CONCORDIA RES PARVÆ CRESCUNT." Weight: 522 grains. Fineness: 937. Value: \$1.33.6625.

4. Half Ducatoon of Utrecht. Obverse and Legend: Same as No. 3. Reverse and Legend: Same as No. 3. Weight: 261 grains. Fineness: 937. Value: \$0.66.8312.

5. Three Guilder or Florin piece of Utrecht, 1793. Obverse: Crowned shield, with cross and lion *rampant*, borne double. Legend: "MO. NO. ARGENT. ORDIN. TRAJ." (*Moneta Nova Argentea Ordinum Trajectus*; meaning: *Common new silver coin of Utrecht*).



THREE GUILDER OR FLORIN PIECE OF UTRECHT.

Reverse: A full-length female figure, holding in her dexter hand a lance, with the point downward and resting upon the ground; a hat hung upon the other end; her left arm resting upon a clasped book, which stands upon its end, and is supported by a pedestal. Legend: "HAC NITIMVR. HANC. TVE-MVR" (*This we support, on this we depend*). Date: 1793. Weight: 487 grains. Fineness: 917. Value: \$1.20.

6. Silver Lion of the revolted Netherlands, 1790. Obverse: Lion *rampant*, supporting a shield with his left paw, and sword in the right. Legend: "DOMINE EST REGNUM" (*The Kingdom is the Lord's*).

Reverse: A sun, with eleven esuteheons round it. Legend: "ET IPSE DOMINABITVR GENTIVM" (*And he himself shall reign*



SILVER LION OF NETHERLANDS, 1790.

over the Nations). Around the edge: "QUID FORTIUS LEONE" (*What is stronger than a lion?*)? Weight: 507 grains. Fineness: 871. Value: \$1.05.

7. Florin of the revolted Netherlands, 1790. Obverse and Legend: Same as No. 6. Reverse: Two joined hands and eleven arrows, with the mark "1 FLOR" (*One Florin*). Legend: "ET IPSE DOMINABITVR GENTIVM." Weight: 144.500 grains. Fineness: 867. Value: \$0.34.4710.

8. Florin of the revolted Netherlands, 1791. Obverse: Lion. Legend: "MON. NOV. ARG. PROV. FÆD. BELG." (*New silver coin of the Confederated Belgic Provinces*).

Reverse: Two joined hands and eleven arrows, with the mark "1 FLOR." Legend: "IN UNIONE SALVS." (*Safety in Union*). Weight: 144.500 grains. Fineness: 867. Value: \$0.34.4710.

9. Three Guilder or Florin of West Friesland. Obverse: Crowned shield, bearing a lion rampant; at the left of shield "3," and at the right "GL." (*3 Guilder*). Legend: "MO: ARG: ORD: FÆD: BELG: WEST F." (*Moneta Auræ Provincie Confæderationis Belgicæ West Frieslandicæ*; meaning: *Silver money of West Friesland, a Province of the Belgic Confederation*).

Reverse and Legend : Same as No. 5. Weight : 487 grains.
 Fineness : 917. Value : \$1.20.



THREE GUILDERS OR FLORINS OF WEST FRIESLAND.

9. Three Guilders or Florins of Guelders and Zeeland. Obverse: Crowned shield, bearing lion *rampant*. Legend : "MO : ARG : ORD : BELG : D : GEL : & C : Z : " (*Common silver coin of the Duchy of Guelders and the County of Zeeland of the Belgic Federation*).



THREE GUILDERS OR FLORINS OF GUELDERS AND ZEELAND.

Reverse and Legend : Same as No. 5. Weight : 487 grains.
 Fineness : 917. Value : \$1.20.

10. Rijksdaaler of Utrecht. Obverse: Knight in armor, one leg hidden by a crowned shield, upon which the arms of the province of Utrecht, in his dexter hand a drawn sword. Legend : "MO : NO : ARG : PRO : CONFEE : BELG : TRAI."

Reverse: Crowned shield, bearing lion *rampant*; at the left of shield "18," and at the right "01." Legend: "CONCORDIA



RIJKSDAALER OR DOLLAR OF UTRECHT, 1801.

RES PARVÆ CRESCUNT." Weight: 438 grains. Fineness: 858. Value: \$0.98½.

11. Rijksgdaaler of Zeeland. Obverse: Knight in armor, holding a crowned shield, bearing a lion *rampant* emerging from the waves. Legend: "MON: NOV: ARG. PRO. CONFÆD. BELG. COM. ZEL." (*New silver coin of Zeeland a Province of the Belgic Confederation*).



RIJKSDAALER OF ZEELAND, 1813.

Reverse and Legend: Same as No. 10, with the exception that "1813" instead of "1801" is divided by the shield. Weight: 450 grains. Fineness: 858. Value: \$1.02.

12. Half Rijksgdaaler of the Provinces of the Belgic Confederation, bear the same devices and Legends as the Rijksgdaalers No. 10 and 11. Weight: 216 grains. Fineness: 858. Value: \$0.47.255.

13. Daalder of 30 Stivers of West Friesland of 1686. Obverse: Crowned shield, bearing arms of West Friesland, two lions courant. Legend: "DEVS. FORTI. ET. SPES. NOST:" (*God our strength and hope*).



DAALDER OF 30 STIVERS OF WEST FRIESLAND, 1686.

Reverse: Three crowned shields, in the upper angle "1686," left angle "ST," right angle "30" (30 Stivers). Legend: "MO NO ARG. ORDIN W FRISIA." Weight: 246 grains. Finesness: 875. Value: \$0.59.

13. Daalder of 30 Stivers of West Friesland, 1795. Obverse: Knight in armor, one leg hidden by a crowned shield upon which is the arms of West Friesland. Legend: "DEVS FORTI ET SPES. NOST:" (*God our strength and hope*).

Reverse and Legend: Same as No. 12, only better executed and the coin of regular shape. Weight: 246 grains. Finesness: 875. Value: \$0.59.

14. Guilder of Utrecht, 1717. Obverse: Crowned shield, bearing lion rampant. Legend: "MO ARG ORD FÆD BELG TRAI." At the left of shield "1" (*One Guilder or Florin*).



GUILDER OR FLORIN OF UTRECHT, 1717.

Reverse and Legend: Same as No. 5. Weight: 158 grains. Fineness: 908. Value: \$0.40.

15. Half Guilder of Utrecht. Obverse and Legend: Same as No. 14.

Reverse and Legend: Same as No. 5. Weight: 79 grains. Fineness: 908. Value: \$0.20.

16. Eight Stivers of 1776. Obverse: Crowned shield, bearing lion *rampant*.



EIGHT STIVERS OF 1776.

Reverse: Rider, sword drawn. Legend: "CONCORDIA RES PARVE CRESCUNT." Weight: 72 grains. Fineness: 850. Value: \$0.15.

17. Six Stivers of Zeeland, 1770. Obverse: Crowned shield, bearing a lion *rampant*, rising from the waves; at the left of shield "6," at the right "ST" (6 *Stivers*). Legend: "MON: NOV: ARGENT: ORDIN: ZEALAND." Above the shield "1770."



SIX STIVERS OF ZEALAND, 1770.

Reverse and Legend: Same as No. 16. Weight: 54 grains. Fineness: 850. Value: \$0.11 $\frac{1}{2}$.

18. Two Stivers of Holland, 1727. Obverse: Crowned shield, bearing lion *rampant*, "2 s" (Two *Stivers*), divided by the shield. No Legend or Exergue.

Reverse: "HOL—LAN—DIA," in three lines, occupying the



TWO STIVERS OF HOLLAND, 1727.

field; below "1727." Weight 18 grains. Fineness: 850. Value nominally at 3 cents.

20. Quarter Guilder of Zeeland. Obverse: Crowned shield, bearing lion *rampant*, above the crown "1774." Legend: "CONCORDIA RES PARVÆ CRESCUNT."



QUARTER GUILDER OF ZEELAND, 1774.

Reverse: Knight in armor, one leg hidden by crowned shield, bearing lion *rampant*, emerging from the waves. Legend: "MON: NOV: ARG: PRO: CONFED. BELG. COM. ZEL." Weight: 39.500 grains. Fineness: 908. Value: \$0.10.

19. Half Guilder of 10 Stivers of Holland, 1749. Obverse:



HALF GUILDER OF 10 STIVERS OF HOLLAND, 1749.

Crowned shield, bearing lion *rampant*, sword in dexter and

bundle of arrows in sinister paw; above the crown "1749." At the left of shield "x.," and at the right "st." (10 *Stivers*). Legend: "MO: ARG: ORD: FOED: BELG: HOLL:"

Reverse and Legend: Same as No. 5. Weight: 79 grains. Fineness: 908. Value: \$0.20.

21. Rijksdaaler of Napoleon, 1808. Obverse: Head of Louis Napoleon. Legend: "NAP. LODEW. I KON VAN HOLL." (*Napoleon Louis I. King of Holland*). Reverse: Arms of Holland, lion rampant, with "50 ST" (50 *Stivers*). Legend: "KONINGRIJK HOLLAND" (*Kingdom of Holland*). Exergue: "1808." Weight: 450 grains. Fineness: 858. Value: \$1.02.

22. Three Guilders or Florins of Willem. Obverse: Head of William I. Legend: "WILLEM KONING DER NED. G. II. V. L." (*William King of the Netherlands, Grand Duke of Luxemburg*).



THREE GUILDERS OR FLORINS OF WILLIAM I.

Reverse: Crowned shield, bearing lion *rampant*, right paw sword, left, bundle of arrows. Above the crown, the date of the year of issue; at the left of shield "3," at the right "G." Legend: "MUNT VAN HET KONINGRYK DER NEDERLANDEN" (*Money of the Kingdom of the Netherlands*). Weight: 462.989 grains. Fineness: 945. Value: \$1.21.6625.

23. Two and a Half Guilders or Florins of Willem II. Obverse: Head of William II. Legend: "WILLEM II. KONING DER NED. G. II. V. L."

Reverse: Crowned Shield, bearing the arms of Holland;

above the crown, the date of the year of issue; at the left side of shield "2½," at the right "G." Legend: "MUNT VAN HET



TWO AND A HALF GULDERS OR FLORINS OF WILLIAM II.

KONINGRYK DER NEDERLANDEN." Weight: 385.808 grains. Fineness: 945. Value: \$1.01.3854.

24. Two and a Half Guilders of Willem III. Obverse: Head of William III., full beard, facing to the right. Legend: "WILLEM III KONING DER NED. G. H. V. L."



TWO AND A HALF GULDERS OF WILLIAM III.

Reverse and Legend: Same as No. 23. Weight: 385.808 grains. Fineness: 945. Value: \$1.01.3854.

25. Guilder or Florin of Willem I. Obverse: Head of William I. facing to the right. Legend: "WILLEM KONING DER NED. G. H. V. L." Reverse: Crowned shield, bearing arms of Holland; above the crown, the date of the year of issue; below the shield "100 c." (100 Cents), at the left of shield "1," at the right "G" (One Guilder or Florin). Legend: "MUNT VAN

HET KONINGRYK DER NEDERLANDEN." Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

26. Guilder or Florin of Willem II. Obverse: Head of William II. facing to the left. Legend: "WILLEM II KONING DER NED. G. H. V. L."



GUILDER OR FLORIN OF WILLIAM II.

Reverse and Legend: Same as No. 25. Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

27. Guilder or Florin of Willem III. Obverse: Head of Willem III., full beard, facing to the right. Legend: "WILLEM III. KONING DER NED. G. H. V. L." Reverse and Legend: Same as No. 25. Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

28. Half Guilder or Florin of Willem I. Obverse and Legend: Same as No. 25. Reverse and Legend: Same as No. 25, with the exception that at the sides of the shield, " $\frac{1}{2}$ G.," takes the place of "1 G.," and below the shield "50 c.," instead of "100 c." Weight: 77.161 grains. Fineness: 945. Value: \$0.20.

29. Half Guilder or Florin of Willem II. Obverse and Legend: Same as No. 26. Reverse and Legend: Same as No. 26, with exceptions noted in No. 28. Weight: 77.161 grains. Fineness: 945. Value: \$0.20.

30. Half Guilder or Florin of Willem III. Obverse and Legend: Same as No. 27. Reverse and Legend: Same as No. 27, with the exceptions noted in No. 28. Weight: 77.161 grains. Fineness: 945. Value: \$0.20.

31. Twenty-five Cents, Ten Cents and Five Cent pieces of Willem I. bear upon the Obverse a "W" crowned, and on the

Reverse the King's arm, between "25 CT.," "10 CT." and "5 CT." respectively.

32. Twenty-five Cents of Willem II. Obverse: Head of William II. Legend: "WILLEM II. KONING DER NED. G. H. V. L." Reverse: "25 CENTS," and the date of the year of issue in three lines occupying the field, surrounded by heavy branches of oak, crossed and tied. Weight: 55.170 grains. Fineness: 640. Value: \$0.09.

33. Ten Cents of Willem II. Obverse and Legend: Same as No. 32. Reverse: "10 CENTS;" rest same as No. 32. Weight: 21.605 grains. Fineness: 640. Value: \$0.03½.

34. Five Cents of Willem II. Obverse and Legend: Same as No. 32. Reverse: "5 CENTS;" rest same as No. 32. Weight: 10.571 grains. Fineness: 640. Value: \$0.01¾.

35. Twenty-five Cents of Willem III. Obverse: Head of Willem III., full beard. Legend: "WILLEM III. KONING DER NED. G. H. V. L." Reverse: Same as No. 32. Weight: 55.170 grains. Fineness: 640. Value: \$0.09.

36. Ten Cents of Willem III. Obverse and Legend: Same as No. 35. Reverse: Same as No. 33. Weight: 21.605 grains. Fineness: 640. Value: \$0.03½.

37. Five Cents of Willem III. Obverse and Legend: Same as No. 35. Reverse: Same as No. 34. Weight: 10.571 grains. Fineness: 640. Value: \$0.01¾.

COPPER COINS.

1. Two Cents of William I., II. and III. Obverse: Large "W" crowned, and the date of the year of issue divided by the "W." Reverse: Crowned shield, bearing lion rampant. "2 C" divided by the shield. Value entirely nominal.

2. One Cent of William I., II. and III. Obverse: Same as No. 1. Reverse: "1 C;" rest same as No. 1.

3. Half-Cent of William I., II. and III. Obverse: Same as No. 1. Reverse: "½ C;" rest same as No. 1.

COINS OF THE POSSESSIONS OF HOLLAND.

EAST AND WEST INDIES.

1. Gold Mohur of the East India Company of Holland. Obverse, in native character, which translated means: "*Mohur Coin of the Company of Holland*," occupying the field; above it a cock, and below the date of the year of issue of the Christian era. Reverse, in native characters, which translated means: "*In the great Island of Java.*" Weight of Mohur of 1783: 242 grains. Fineness: 750. Value: \$7.88. That of 1797: Weight: 236 grains. Fineness: 710. Value: \$7.30.

2. Gold Half Mohur of the East India Company of Holland. Obverse, in native characters, which translated means: "*Coin of the Company of Holland*," occupying the field, below the date of the Christian era (1801). Reverse, in native characters, which translated means: "*In the great Island of Java.*" Weight: 123.500 grains. Fineness: 740. Value: \$4.13.

3. Silver Rupee of the East India Company of Holland. Obverse, in native characters, which translated means: "*Rupee Coin of the Company of Holland*," and the date of the year of issue below. Reverse, in native character, which translated means: "*In the great Island of Java.*" Weight: 180 grains. Fineness: 925. Value: \$0.47½.

4. Guilder or Gulden of the East India Company of Holland, Sumatra and Borneo. Obverse: Head of William I. Legend: "WILLEM KONING DER NEDERLANDEN, GROOT HERTOG VAN LUXEMBURG" (*William, King of the Netherlands, Grand Duke of Luxembury*) Reverse: Crowned shield, bearing the lion rampant between "1 G." (1 Gulden). Legend: "MUNT VAN HET KONINGRYK DER NEDERLANDEN." Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

5. Guilder or Gulden of Java. Obverse and Legend: Same as No. 4. Reverse: A woman leaning on a book which lies on an altar, holding in the other hand a lance with the cap of liberty. Legend: "N. O. MO. ARG. REG. TOT. BELG. JAV."

(*Nova Ordinarea Moneta Argentea Regni Totius Belgicae Javae*; meaning: *New Common Silver Coin of the whole Kingdom of Belgium and Java*). Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

6. Guilder or Gulden of Willem I., of 1840, for circulation in Java, Sumatra and Borneo. Obverse: Head of William I. Legend: "WILLEM KONING DER NED. G. H. V. L." Reverse: Crowned shield, bearing lion *rampant* between "1 G." (1 *Guilder*), below the shield "NIEDERLANDISH INDIE" (*Dutch East India*). Legend: "MUNT VAN HET KONINGRYK DER NEDERLANDEN, 1840." Weight: 154.323 grains. Fineness: 945. Value: \$0.40.

7. Kwart Gulden or one-fourth of a Guilder or Gulden of 1837 and 1840. Obverse and Legend: Same as No. 6.



KWART GULDEN OF 1837 AND 1840.

Reverse: "KWART GULDEN" (*One fourth of a Gulden*), surrounded by a palm wreath. Legend: "NIEDERLANDSCH INDIE." Exergue: "1837" and "1840." Weight: 55.170 grains. Fineness: 640. Value: \$0.09½.

8. One-Fourth of a Gulden of 1854. Obverse, in native characters, which translated means: "25 CENTS OF THE DUTCH EAST INDIES." Reverse: Crowned shield, bearing lion *rampant*, between "¼ G." (¼ of a *Guilder or Gulden*). Legend: "NEDERL INDIE." (*Dutch East Indies*). Exergue: "1854." Weight: 55.170 grains. Fineness: 640. Value: \$0.09½.

9. One-Tenth of a Gulden. Obverse and Legend: "10 CENTS;" rest same as No. 8. Reverse: "1/10 G;" rest same as No. 8. Weight: 21.605 grains. Fineness: 640. Value: \$0.03⅞.

10. Six Stivers of the Dutch West Indies. Obverse:

Crowned shield, bearing two lions *courant*, between "6 s." (*Six Stivers*). Legend: "MO. NO ORDIN WEST FRISIAE, 1678."



SIX STIVERS OF 1678.

Reverse: Ship under full sail. Legend: "DEVS FORTITVDO. ET. SPES. NOSTRA." (*God our Strength and Hope*). Weight: 54 grains. Fineness: 850. Value: \$0.11 $\frac{3}{4}$.

ITALY.

The territory comprised this day under the name of Italy consists of a considerable stretch of peninsular mainland, besides several islands, situated in Southern Europe, between latitude 36° 35' and 47° north, and between longitude 6° 35' and 18° 35' east. Its boundaries on the north are Austria and Switzerland, on the south the Mediterranean sea, on the west France and the Mediterranean, and on the east the Ionian and Adriatic seas, while its natural limits are strongly defined by the Alps and the sea. King Victor Emanuel II., of Sardinia, was the first King of the United Italy of to-day.

The coins of Italy of former days are varied and numerous, and we shall give them in their alphabetical order, irrespective of their dates and former sovereignties.

REPUBLIC OF ITALY, 1802-1805.

GOLD COINS.

1. Doppia of Bonaparte, 11th year of the French Republic, 1804. Obverse: Head of Napoleon Bonaparte. Legend:

"BONAPARTE FONDATORE E PRESIDENTE" (*Bonaparte Founder and President*). Exergue: "ANNO 11." Reverse: "DOPPIA," occupying the field, surrounded by oak branches, crossed and tied. Legend: "REPUBBLICA ITALIANA" (*Republic of Italy*). Exergue: "D. 12.142" (12.142 *Grammes* or 187.379 *grains*). Weight: 187.379 grains. Fineness: 900. Value: \$7.25.

2. Mezza or Half Doppia of 1804. Obverse, Legend, and Exergue: Same as No. 1. Reverse: "MEZZA DOPPIA" (*Half Doppia*), rest same as No. 1. Exergue: "D 6.071." (6.071 *Grammes* or 93.689 *grains*). Weight: 93.689 grains. Fineness: 900. Value: \$3.62½.

3. Marengo or Piece of 20 Francs of 1801. Obverse: Head of a woman with a helmet. Legend: "L'ITALIE DELIVREE A MARENGO" (*Italy delivered or liberated at Marengo*). Reverse: A wreath containing: "20 FRANCS L'AN 9." (20 *Francs*, 9th year). Legend: "LIBERTE EGALITE" (*Liberty, Equality*). Exergue: "ERIDANIA" (*The name that was given to that part of Italy*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

SILVER COINS.

1. Five Francs of Gaule Subalpine, 10th year of the French Republic, 1803. Obverse: Two females, one holding spear with



FIVE FRANCS OF GAULE SUBALPINE, 1803.

liberty cap, the other a palm branch and wreath. Legend: "GAULE SUBALPINE" (*Gaul beyond the Alps*).

Reverse: "5 FRANCS L'AN 10." (*Five Francs, 10th year of the French Republic*). Legend: "LIBERTÉ EGALITÉ" (*Liberty, Equality*). Exergue: "ERIDANIA" (*The name given to that part of Piedmont*). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

KINGDOM OF ITALY UNDER NAPOLEON I., 1805-1814.

GOLD COINS.

1. Forty Lire Piece of Napoleon I., 1805-1814. Obverse: Head of Napoleon I., below, the date of the year of issue, and "M." (*Mint-mark of Mantua*), beneath. Legend: "NAPOLEONE IMPERATORE E RE" (*Napoleon, Emperor and King*).



FORTY LIRES OF NAPOLEON I., 1805-1814.

Reverse: The French eagle, with a shield upon its breast, draped with an order chain and star; a shield of pretence, bearing the iron crown of Mantua; behind the eagle are two spears in *saltiere*, the whole being displayed upon a mantle of ermine, draped from a crown; beneath is the denomination: "40 LIRE." Legend: "REGNO D'ITALIA" (*Kingdom of Italy*). On the edge is inscribed: "DIO PROTEGGE LA ITALIA" (*God protects Italy*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

2. Twenty Lire Piece of Napoleon I. of 1805-1814. Obverse and Legend: Same as No. 1.

Reverse: Same as No. 1. Exergue: "20 LIRE." Weight: 99.569 grains. Fineness: 900. Value: \$3.86.



TWENTY LIRES OF NAPOLEON I., 1805-1814.

SILVER COINS.

1. Five Franc Piece of Napoleon I. Obverse: Head of Napoleon I., below the date of the year of issue, and beneath it the letter "M" (*Mint-mark of Mantua*). Legend: "NAPOLEONE IMPERATORE E RE."



FIVE FRANCS OF NAPOLEON I., 1805-1814.

Reverse: The French eagle, with a shield upon its breast, draped with an order chain and star; a shield of pretence,



TWO FRANCS OF NAPOLEON I., 1805-1814.

bearing the iron crown of Mantua; behind the eagle are two spears in *saltiere*, the whole being displayed upon a mantle of

ermine, draped from a crown. Exergue: "5 LIRE." Legend: "REGNO D'ITALIA." Around the edge: "DIO PROTEGGE LA ITALIA." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

2. Two Frane Piece of Napoleon I. Obverse and Legend: Same as No. 1.

Reverse and Legend: Same as No. 1. Exergue: "2 LIRE." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

3. Lira of Napoleon I. Obverse and Legend: Same as No. 1.



LIRA OF NAPOLEON I., 1805-1814.

Reverse and Legend: Same as No. 1. Exergue: "1 LIRA." Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

4. Three-Quarter Lira of 15 Soldi of Napoleon I. Obverse, Legend, and Exergue: Same as No. 1. Reverse: Sharp-pointed crown of Italy; below "15 SOLDI," and "M" (*Mint-mark of Mantua*). Legend: "REGNO D'ITALIA." Weight: 57.871 grains. Fineness: 900. Value: \$0.14¾.

5. Half and Quarter Lira of 10 and 5 Soldi, respectively, of Napoleon I. Obverse, Legend, and Exergue: Same as No. 1.



TEN AND FIVE SOLDI OF NAPOLEON I., 1805-1814.

Reverse: "10" and "5 SOLDI" respectively, rest same as No. 4. Weight: 38.580 grains and 19.290 grains. Fineness: 900. Value: \$0.09½ and \$0.04¾.

KINGDOM OF ITALY SINCE 1860.

GOLD COINS.

1. Hundred Lires of Victor Emanuel II. Obverse: Head of Victor Emanuel II. Legend: "VITTORIO EMANUELE." Exergue: Date of the year of issue. Reverse: Crowned shield, bearing arms of Italy, surrounded by two branches of laurel, crossed and tied. Legend: "REGNO D'ITALIA" (*Kingdom of Italy*). Exergue: "L 100" (100 *Lires*). Weight: 497.816 grains. Fineness: 900. Value: \$19.30.

2. Eighty Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "L 80" (80 *Lires*). Weight: 398.246 grains. Fineness: 900. Value: \$15.44.

3. Forty Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "L 40" (40 *Lires*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

4. Twenty Lires or Doppia of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "L 20" (20 *Lires*). Weight: 99.569 grains. Fineness: 900. Value: \$3.86.

5. Ten Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "L 10" (10 *Lires*). Weight: 49.784 grains. Fineness: 900. Value: \$1.93.

SILVER COINS.

1. Five Lires of Victor Emanuel II., 1861. Obverse: Head of Victor Emanuel II. Legend: "VITTORIO EMANUELE II." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing arms of Italy, surrounded by two branches of laurel, crossed and tied. Legend: "REGNO D'ITALIA" (*Kingdom of Italy*). Exergue: "L 5" (5 *Lires*). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

2. Two Lires of Victor Emanuel II., 1860, issued by the

mint of Florence. Obverse: Head of Victor Emanuel II. Legend: "VITTORIO EMANUELE RE ELETTO" (*Victor Emanuel,*



FIVE LIRES OF VICTOR EMANUEL II., 1869.

King Elected). Reverse: Crowned shield, bearing arms of Italy, surrounded by two branches of laurel, crossed and tied. Legend: "DUE LIRE ITALIANE" (*Two Lires of Italy*). Exergue: "FIRENZE" (*Florence*) "1860." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

3. Lira of Victor Emanuel, 1860. Obverse and Legend: Same as No. 2. Reverse: Same as No. 2. Legend: "UNA LIRA ITALIANA." Exergue: "FIRENZE" (*Florence*) "1860." Weight; 77.161 grains. Fineness: 900. Value: \$0.19.300.

4. Half Lira of Victor Emanuel, 1860. Obverse and Legend: Same as No. 2. Reverse: Same as No. 2. Legend: "CINQUANTA CENTESIMI." Exergue: "FIRENZE 1860." Weight: 38.580 grains. Fineness: 900. Value: \$0.09.650.

5. Quarter Lira of Victor Emanuel, 1860. Obverse and Legend: Same as No. 2. Reverse: Same as No. 1. Legend: "VENTI CINQUE CENTESIMI." Exergue: "FIRENZE 1860." Weight: 19.790 grains. Fineness: 900. Value: \$0.04.825.

BOLOGNA.

GOLD COINS.

1. Double Doppia, or Pistole of Pius VI. Obverse: Two esutechons, occupying the field. Legend: "BONON DOCET."

(*Bononia Docet*; meaning: *Bologna teaches*). Exergue: "2 DOP" (*Two Doppia*).



DOUBLE DOPPIA, OR PISTOLE OF POPE PIUS VI.

Reverse: A lily plant in blossom. Legend: "PIVS. VI. PONT. MAX. A. XIII." (*Pius VI. Supreme Pontiff, 13th year of his reign*). Exergue: Date of the year of issue. Weight: 140-.156 grains. Fineness: 905. Value: \$5.45.

2. Ten Zecchini of Bologna of Pius VI. Obverse: Shield bearing the arms of Pope Pius VI., with keys and tiara. Legend: "PIVS SEXTVS PON. MA." (*Pius Sextus Pontifex Maximus; meaning: Pius VI. Supreme Pontiff*). Reverse: A bishop seated on a cloud, supported by two small escutcheons. Legend: "S. PETRON. BON. PROT." (*St. Petronius, Protector of Bologna*). Exergue: "ZECCH 10" (*10 Zecchini or Sequins*). Weight: 537-.810 grains. Fineness: 993.056. Value: \$23.01.4539.

3. Five Zecchini of Bologna of Pius VI. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue: "ZECCH 5" (*5 Zecchini or Sequins*). Weight: 268-.905 grains. Fineness: 993.056. Value: \$11.50.7265.

4. Double Zecchino of Bologna of Pius VI. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 1. Exergue: "DUE ZECCHINI" (*Two Zecchini or Sequins*). Weight: 107.562 grains. Fineness: 993.056. Value: \$4.60-.2907.

5. Zecchino of Bologna of Pius VI. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 2. No Exergue. Weight: 53.781 grains. Fineness: 993.056. Value: \$2.30.1453.

6. Half Zecchino of Bologna, Pius VI. Obverse and Le-

gend: Same as No. 2. Reverse and Legend: Same as No. 2. No Exergue. Weight: 26.890 grains. Fineness: 993.056. Value: \$1.15.0721.

The Zecchini of Pope Pius VII. and Leo XII. bear upon the Obverse their respective arms, and the Legends are changed to Pius VII. and Leo XII., otherwise no change was made.

SILVER COINS.

1. Scudo of Bologna. Obverse: View of the City, and above it the Virgin and Child on a cloud. Legend: "PRÆSIDIVM ET DECVS" (*Protection and Ornament*).



SCUDO OF TEN PAOLI OF BOLOGNA.

Reverse: The arms of the city of Bologna. Legend: "POPVLVS ET SENATVS. BON." (*The People and the Senate of Bologna*). Exergue: "P 10" (10 Paoli, or 100 Soldi, or 5 Lires), and the date of the year of issue. Weight: 415.099 grains. Fineness: 900. Value: \$1.01.

2. Half Scudo of Bologna. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Exergue: "P 5" (5 Paoli). Weight: 207.549 grains. Fineness: 900. Value: \$0.50.

3. Half Scudo of Pope Pius VI. Obverse: Bust of Pius VI. Legend: "PIVS SEXTVS PONT MAX AN.," and the date of his reign in Roman numerals. Reverse: A chapel, with shield at each side, one surmounted by the hat and tassels, and the

other by a lion's head. Legend: "ADVENTUS OPTIMI PRINCIPIS" (*Advent of the best Prince*). Exergue: "BONONIA," and the date of the year of issue. "50" (50 BAJOCCHI). Weight: 207.549 grains. Fineness: 900. Value: \$0.50.

4. Paolo of Bologna. Obverse: Shield, with the arms quartered, the abbreviated word "LIBER" (*Libertas*), occupying the second and third, beneath the date of the year of issue. Reverse: A lily, with the letter "B" (*Bologna*), and the numeral "10." in the Exergue. Legend: "PIVS VI PONT. MAXIM." Value quite nominal at 10 cents.

5. Half Paolo of Bologna. Obverse, Reverse, and Legends: Same as No. 4; only the Exergue on Reverse: "5." Value quite nominal at 5 cents.

GENOA.

GOLD COINS.

1. Genovina of 96 Lires, formerly of 100 Lires. Obverse: Virgin and Child on a cloud, with a sceptre and a crown of stars. Legend: "ET REGE EOS" (*And govern them*), and the date of the year of issue. Exergue: "L 96" (96 Lires).



GENOVINA OF 96 LIRES OF THE REPUBLIC OF GENOA.

Reverse: Crowned shield, upon it a cross, the shield supported by two griffins, the whole upon a pedestal, beneath which a lion's head. Legend: "DUX ET GUB. REIP. GENU" (*Dux et Gubernator Reipublicæ Genuensis*, meaning: *Doge and Governor of the Republic of Genoa*). Weight: 398 grains. Fineness: 916. Value: \$15.39.0146.

2. Genovina of 48 Lires, formerly of 50 Lires. Obverse and Legend: Same as No. 1. Exergue: "L 48" (48 *Lires*). Reverse and Legend: Same as No. 1. Weight: 199 grains. Fineness: 916. Value: \$7.69.5073.

3. Genovina of 24 Lires, formerly of 25 Lires. Obverse and Legend: Same as No. 1. Exergue: "L 24" (24 *Lires*). Reverse and Legend: Same as No. 1. Weight: 99.500 grains. Fineness: 916. Value: \$3.84.7536.

4. Four Pistole or Doppia Piece of the Ligurian Republic. Obverse: Woman seated, holding a spear and resting her left arm on a shield bearing the arms of Genoa. Legend: "REPUBBLICA LIGURE, ANNO I" (*Ligurian Republic, first year*). Exergue: "L 96" (96 *Lires*).



FOUR PISTOLE PIECE OF THE LIGURIAN REPUBLIC.

Reverse: A wreath of laurel, with the *fascēs* and the cap of liberty. Legend: "NELL' UNIONE LA FARZA" (*Strength in Union*). Around the edge: "PESO GRANI 550, BONTA CAR. 22" Weight, 550 grains of Genoa, equal to 414 grains Troy; fineness, 22 carats, equal to 916.660 fine). Weight: 414 grains. Fineness: 916.660. Value: \$16.05.945.

5. Two Pistole or Double Doppia of the Ligurian Republic. Obverse and Legend: Same as No. 4. Exergue: "L 48" (48 *Lires*). Reverse and Legend: Same as No. 4. Around the edge: "PESO GRANI 275, BONTA CAR. 22." Weight: 207 grains Troy, or 275 grains, the Ligurian Republic. Fineness: 916.660. Value: \$8.02.972.

6. Pistole or Doppia of the Ligurian Republic. Obverse

and Legend: Same as No. 4. Exergue: "L 24" (24 *Lires*). Reverse and Legend: Same as No. 4. Weight: 103.500 grains. Fineness: 916.660. Value: \$4.01486.

7. Five Doppie Piece of the Republic of Genoa. Obverse: Virgin and Child on a cloud, with sceptre and crown of stars. Legend: "ET REGE EOS" (*And govern them*). Exergue: Initial of the Doge's name and the date of the year of issue. Reverse: A cross with four stars. Legend: "DVX ET GVB. REIP. GENV" (*Dux et Gubernator Reipublicæ Genuensis*, meaning: *Doge and Governor of the Republic of Genoa*). Weight: 517.500 grains. Fineness: 915. Value: \$20.05.

8. Four, Two, and One Doppie Pieces of the Republic of Genoa. Obverse, Reverse, Legends, and Exergues: Same as No. 7. Weights: 414 grains, 207 grains, and 103.500 grains, respectively. Fineness: 915. Values: \$16.05, \$8.02½, and \$4.01¼.

9. Zecchino or Sequin of the Republic of Genoa. Obverse: Figure of St. John the Baptist. Legend: "NON SVRREXIT MAJOR" (*A greater has not arisen*). Reverse: Crowned shield, with the arms of Genoa. Legend: "DVX ET. GVB. REIP. GENV." Weight: 53 grains. Fineness: 963. Value: \$2.29-.1310.

SILVER COINS.

1. Sudo Della Croce (*Sudo of the cross*). Obverse: Virgin and child on a cloud. Legend: "ET REGE EOS." Reverse: A cross with four flowers. Legend: "DVX ET GVB. REIP. GENV." Weight: 592 grains. Fineness: 954. Value: \$1.59.

2. Sudo di S. Giambatista (*Sudo of St. John the Baptist*). Obverse: Figure of St. John the Baptist. Legend: "NON SVRREXIT MAJOR" (*A greater has not arisen*). Exergue: Initials of the Doge's name. Reverse: Shield bearing arms of Genoa. Legend: "DVX ET GVB REIP. GENV." Weight: 320 grains. Fineness: 917. Value: \$0.83.1360.

3. Sudo of 8 Lires. Obverse, Legend, and Exergue: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue:

"L 8." (8 *Lires*). Weight: 513 grains. Fineness: 892. Value: \$1.29.

4. Scudo of 4 *Lires*, 2 *Lires* and 1 *Lira*. Obverse, Legend, and Exergue: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue: "L 4," "L 2," "L 1," respectively. Weights: 256.500 grains, 128.250 grains, and 64.125 grains. Value: \$0.64½, \$0.32¼ and \$0.16⅛.

5. Double Madonnina. Obverse: Whole length figure of the Virgin. Legend: "S'VB TVVM PRESIDIVM" (*Under Thy protection*), and the date of the year of issue. Around the figure of the Madonna "NE DERELING NOS" (*Do not forsake us*). Reverse: Shield, with the arms of Genoa, crowned. Legend: "DVX ET GVB. REIP. GENV." Weight: 139 grains. Fineness: 833. Value: \$0.32.

6. Madonnina. Obverse and Legend: Same as No. 5. Reverse and Legend: Same as No. 5. Weight: 69.500 grains. Fineness: 833. Value: \$0.16.

7. Half-Madonnina. Obverse and Legend: Same as No. 5. Reverse and Legend: Same as No. 5. Weight: 34.750 grains. Fineness: 833. Value: \$0.08.

8. Scudo of the Ligurian Republic. Obverse: Two figures, representing a soldier and a woman. Legend: "LIBERTA EGUAGLIANZA" (*Liberty, Equality*), and the date of the year of issue. Reverse: Arms of Genoa, encircled by palm and laurel branches, surmounted by a cap of liberty. Legend: "REPUBBLICA LIGURE ANNO I." Exergue: "L 8." (8 *Lires*). Around the edge: "PESO GRANI 726; BONTA ONCIE 10. 16." (*Weight, 726 grains of Genoa, equal to 513 grains Troy; fineness 10 ounces 16 Deniers, equal to 889 fine*). Weight: 513 grains. Fineness: 889. Value: \$1.27.

LOMBARDY.

GOLD COINS.

1. Sequin or Zecchino of Joseph II. Obverse: Head of Joseph II. Legend: "JOSEPH II. D. G. R. IMP. S. AUG. G. H.

ET B. REX. A. A." (*Joseph II., by the Grace of God, Emperor of Rome, ever August, King of Germany, Hungary and Bohemia, Archduke of Austria*). Reverse: The arms of Milan. Legend: "MEDIOTANI ET MANTUA DUX." (*Duke of Milan and Mantua*). Weight: 53.750 grains. Fineness: 962. Value: \$2.29.

2. Doppia or Pistole of Joseph II. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 2. Weight: 97.500 grains. Fineness: 915. Value: \$3.79.1864.

3. Forty Lire Piece of the Provisional Government of Lombardy, 1848. Obverse: Full length figure, a staff in her right hand; a star above her head. Legend: "ITALIA LIBERA DIO LO VUOLE" (*Italy free, so God will*). Exergue: "M." (*Milan*).



FORTY LIRES OF THE PROVISIONAL GOVERNMENT OF 1848.

Reverse: "40 LIRE ITALIANE;" surrounded by a wreath of oak and palm branches. Legend: "GOVERNO PROVVISORIO DI LOMBARDA" (*Provisional Government of Lombardy*). Exergue: Date of the year of issue. Weight: 199.123 grains. Fineness: 900. Value: \$7.70.5291.

4. Twenty Lire Piece of the Provisional Government of Lombardy, 1848. Obverse, Legend, and Exergue: Same as No. 3. Reverse: "20 LIRE ITALIANE;" rest same as No. 3. Weight: 99.569 grains. Fineness: 900. Value: \$3.85.2645.

5. Ten Lire Piece of the Provisional Government of Lombardy, 1848. Obverse, Legend, and Exergue: Same as No. 3. Reverse: "10 LIRE ITALIANE;" rest same as No. 3. Weight: 49.784 grains. Fineness: 900. Value: \$1.92.6323.

SILVER COINS.

1. Scudo of Prince Hereules III. of 1782. Obverse: Head of Prince Hereules III. Legend: "HERCULES III. D. G. MVT. REG. MIR. EC. DVX" (*Hereules III., by the Grace of God, Duke of Modena, Reggio, Mirandola, etc.*) Reverse: Shields bearing arms of Modena. Legend: "PROXIMA SOLI" (*Next to the sun*). Weight: 356.750 grains. Fineness: 913. Value: \$0.91-2191.

2. Scudo of Prince Hereules III. of 1796. Obverse and Legend: Same as No. 1. Reverse: Arms of Modena. Legend: "DEXTERA DOMINI EXALTAVIT ME" (*The right hand of the Lord hath exalted me*). Weight: 356.750 grains. Fineness: 900. Value: \$0.91.2191.

3. Lira of Joseph II. Obverse: Head of Joseph II. Legend: "JOSEPH II. D. G. R. IMP. S. AUG. G. H. ET B. REX A. A." (*Joseph II., by the Grace of God, Emperor of Rome, ever August, King of Germany, Hungary, and Bohemia, Archduke of Austria*). Reverse: Arms of Milan. Legend: "MEDIOLANI ET MANT. DUX" (*Duke of Milan and Mantua*). Exergue: "UNA LIRA" (*One Lira*). Weight: 58 grains. Fineness: 915. Value: \$0.14.

4. Scudo of the Cisalpine Republic. Obverse: An armed female sitting, and another standing before her. Legend: "ALLA NAZ. FRAN. LA REP. CISAL. RICONOSCENTE" (*To the French Nation, the grateful Cisalpine Republic*). Reverse: A wreath of oak leaves, and within it: "SCUDO DI LIRE SEI, 27 PRATILE ANNO VIII" (*Scudo of Six Lires, 27th of the month Pratile, year 8th*). Around the edge: "UNIONE ET VIRTUTE" (*Union and Virtue*). Weight: 348.500 grains. Fineness: 900. Value: \$0.89.2191.

5. Thirty Soldi of the Cisalpine Republic. Obverse: Head of a woman. Legend: "REPVBBLICA CISALPINE, SOLDI 30." Reverse, within the field: "PACE CELEBRATA, FORO BONAPARTE FONDATE ANNO IX" (*Peace proclaimed, foundation of Bonaparte's Forum, year ninth*). Weight: 113 grains. Fineness: 700. Value: \$0.21.

6. Five Lire Italiane of the Provisional Government of Lombardy, 1848. Obverse: Full length figure, holding a staff in her right hand; a star above her head. Legend: "ITALIA LIBERA DIO LO VUOLE" (*Italy free, so God will*). Exergue: "M" (*Milan*).



FIVE LIRE ITALIANE OF THE PROVISIONAL GOVERNMENT,
1848.

Reverse: "5 LIRE ITALIANE;" surrounded by branches of laurel and oak leaves. Legend: "GOVERNO PROVVISORIO DI LOMBAR DIA." Exergue: Date of the year of issue. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

LUCCA AND PIOMBINO.

GOLD COIN.

1. Doppia. Obverse: Head of Jesus, crowned. Legend: "VULTVS SANCTVS" (*Holy countenance*). Reverse: Shield, with arms of the Republic of Lucca. Legend: "REPUBLICA LUCENSIS" (*Republic of Lucca*). Weight: 85 grains. Fineness: 916. Value: \$3.34.5718.

SILVER COINS.

1. Seudo of 5 Lires. Obverse: Crowned shield, bearing the word "LIBERTAS." Legend: "REPUBLICA LUCENSIS." Exergue: Date of the year of issue. Reverse: A beggar, and a mounted knight, throwing his mantle over the former. Le-

gend: "SANCTUS MARTINUS." Weight: 408 grains. Fineness: 915. Value: \$0.99.

2. Mezzo Scudo or Half Scudo. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 204 grains. Fineness: 915. Value: \$0.49½.

3. Terzo Scudo or One-Third of a Scudo. Obverse: A crucifix. Legend: "VULTVS SANCTVS" (*Holy countenance*). Reverse and Legend: Same as No. 1. Weight: 136 grains. Fineness: 915. Value: \$0.33.

4. Quinto Scudo or One-Fifth of a Scudo. Obverse: Crowned shield, bearing the word: "LIBERTAS." Legend: "RESPUBLICA LUCENSIS."



QUINTO OR ONE-FIFTH OF A SCUDO OF THE REPUBLIC OF LUCCA.

Reverse: A beggar, and a mounted knight throwing his mantle over the former. Legend: "SANCTUS MARTINUS" (*St. Martin*). Exergue: Date of the year of issue. Weight: 44.250 grains. Fineness: 915. Value: \$0.19.800.

5. Barbone. Obverse: Head of Jesus, crowned. Legend: Same as No. 3. Reverse: A cross. Legend: "RESPUBLICA LUCENSIS." Weight: 44.250 grains. Fineness: 665. Value: \$0.08.

6. Five Francs of the Principality of Lucca and Piombino. Obverse: Busts of Felix and Eliza. Legend: "FELICE ET ELISA P. P. DI LUCCA E PIOMBINO" (*Felix and Eliza, prince and princess of Lucca and Piombino*).

Reverse: "5 FRANCHI" (*5 Francs*), inclosed in a wreath of laurel. Legend: "PRINCIPATE DI LUCCA E PIOMBINO." Ex-

ergue: Date of the year of issue. Weight: 385.808 grains.
 Fineness: 900. Value: \$0.96½.



FIVE FRANCS OF FELIX AND ELIZA OF LUCCA AND PIOMBINO.

7. One Franc of Felix and Eliza. Obverse and Legend: Same as No. 6.



FRANC OF FELIX AND ELIZA OF LUCCA AND PIOMBINO.

Reverse: "1 FRANCO;" rest same as No. 6. Weight: 77-.161 grains. Fineness: 900. Value: \$0.19,300.

8. Five Lires of Carlo Lodovico. Obverse: Head of Charles Louis of Lucca. Legend: "CARLO LOD. I. D. S. DUCA DI LUCCA" (*Charles Louis I., Duke of Lucca*). Reverse: Crowned shield, with the three lilies of the Bourbon dynasty, surrounded by branches of laurel and oak, at the sides of shield "5" "L." (5 Lires). Exergue: Date of the year of issue. Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

9. Two Lires of Carlo Lodovico. Obverse and Legend: Same as No. 8. Reverse and Legend: Same as No. 6. At the sides of shield "2" "L." Exergue: Date of the year of issue. Weight: 154.323 grains. Fineness: 900. Value: \$0.38,600.

10. One Lira of Carlo Lodovico. Obverse and Legend: Same as No. 8. Reverse: "LIRA," surrounded by a heavy wreath; no Legend or Exergue. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

MONACO.

SILVER COINS.

1. Five Francs of Honore V. Obverse: Head of Prince Honore V. Legend: "HONORE V. PRINCE DE MONACO" (*Honore V., Prince of Monaco*). Reverse: Crowned shield, bearing arms of Monaco, supported by two priests in robes. No Legend. Exergue: "5 FRANCS," and below the date of the year of issue.

2. One Franc of Honore V. Obverse and Legend: Same as No. 1. Reverse: Same as No. 1. Exergue: "1 FRANC;" below, the date of the year of issue. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

NAPLES AND SICILY.

GOLD COINS.

1. Forty Lires of Giochino Napoleone, 1813. Obverse: Head of Giochino Napoleone, facing to the left. Legend: "GIOCHINO NAPOLEONE." Exergue: "1813." Reverse: "40 LIRE," surrounded by branches of laurel and olive. Legend: "REGNO DELLE DUE SICILIE" (*Kingdom of the two Sicilies*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

2. Twenty Lires of Giochino Napoleone, 1813. Obverse, Legend and Exergue: Same as No. 1.



TWENTY LIRES OF GIOCHINO NAPOLEONE, 1813.

Reverse: "20 LIRE;" rest same as No. 1. Weight: 99.569 grains. Fineness: 900. Value: \$3.86.

3. Thirty Ducati or Ten Oncette Piece of Ferdinand II. Obverse: Head of Ferdinand II., facing to the right. Legend: "FERDINANDVS II. DEI GRATIA REX" (*Ferdinand II., by the grace of God, King.*) Exergue: Date of the year of issue. Reverse: An angel, full figure, beside a column, upon which lies a cushion, and upon the cushion a royal crown, the right hand of the angel resting upon the cushion, his left hand resting on an oval shield, upon which are the three lilies of the Bourbon dynasty. Legend: "REGNI VTR SIC ET HIER." (*Regni Utriusque Siciliae Et Hierosolymae*; meaning: *Kingdom of both Sicilies and Jerusalem.*) Exergue: "TRAPP. 42 $\frac{5}{100}$ TITOLO MILLESIMI 996. DUCATI 30" (*Trappesi 42 $\frac{5}{100}$ equal 584.375 grains Troy. Millesimi 996, equal to 996 fine; Ducati 30 = 30 Ducats.*) Weight: 584.375 grains. Fineness: 996. Value: \$25.06.

4. Fifteen Ducati or Five Oncette Piece of Ferdinand II. Obverse, Legend and Exergue: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "TRAPP 21 $\frac{25}{100}$ TITOLO MILLESIMI 996 DUCATI 15" (*Trappesi 21 $\frac{25}{100}$ equal to 292.180 grains Troy. Millesimi 996, equal to 996 fine; Ducati 15 = 15 Ducats.*) Weight: 292.180 grains. Fineness: 996. Value: \$12.53.

5. Six Ducati or Two Oncette Piece of Ferdinand II. Obverse, Legend and Exergue: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "TRAPP 8 $\frac{5}{100}$ MILLESIMI 996. DUCATI 6" (*Trappesi 8 $\frac{5}{100}$ equal to 116.868 grains Troy. Millesimi 996, equal to 996 fine; Ducati 6 = 6 Ducats.*) Weight: 116.868 grains. Fineness: 996. Value: \$5.01.200.

6. Three Ducats or One Oncette Piece of Ferdinand II. Obverse, Legend and Exergue: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "TRAPP. 4 $\frac{25}{100}$ MILLESIMI 996. DUCATI 3" (*Trappesi 4 $\frac{25}{100}$ equal to 58.426 grains. Millesimi 996, equal to 996 fine.*) Value: \$2.50.600.)

SILVER COINS.

1. Scudo of Prince Charles, Archduke of Austria, 1734. Obverse: Crowned shield, bearing arms of Naples, Castile, Aragon, Parma and Tuscany, with the arms of Anjou (*fleur-de-lis*) on a shield of pretence. (It is rather presumptive on the part of Prince Charles, Archduke of Austria, to place upon his Neapolitan coins the arms of Aragon and Castile, together with the title "Hispaniarum Infans," Infant of Spain; because Pope Clement XI. had acknowledged, through compulsion, his right to the crown of Spain. He seems to have considered his claim to a throne a sufficient reason for the adoption of the family arms of Aragon and Castile. He assumes also upon his coins the arms of Tuscany; but why he had the arms of Anjou, the *fleur-de-lis*, of the Bourbon dynasty, put upon his coins, is inexplicable, he being the Count of Hapsburg and Archduke of Austria; therefore he had no claim to a Bourbon pedigree. Still more strange, that on none of his Neapolitan coins he acknowledges his Hapsburg pedigree.) Legend: "CAR: D: G. REX NEA. HISP: INFANS &c." (*Charles by the Grace of God King of Naples, Infant of Spain.*) Exergue: "G 120" (120 grani.)



SCUDO OF PRINCE CHARLES OF AUSTRIA, 1734-1735.

Reverse: *Aquarius* with water, and a volcano in the background: Legend: "DESOCIO PRINCEPS." Exergue: "1734." Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

2. Half Scudo of Prince Charles, Archduke of Austria. Obverse, Reverse, Legends: Same as No. 1. Exergue: "G 60" (60 *grani*.) Weight: 212.287 grains. Fineness: 833.333. Value: \$0.49 $\frac{1}{4}$.

3. Ducat of Prince Charles, Archduke of Austria. Obverse and Legend: Same as No. 1.



DUCAT OF PRINCE CHARLES OF AUSTRIA.

Reverse and Legend: Same as No. 1. Exergue: "100" (100 *grani*.) Weight: 350.822 grains. Fineness: 840. Value: \$0.83.1360.

4. Scudo of Charles VII. of Sicily, 1736. Obverse: Bust laureated of Charles VII. Legend: "CAROLVS D. G. SIC. ET. HIEREX IHS. INF." (*Carolus Dei Gratiae Siciliae et Hierosolymae Rex, Hispaniarum infans*; meaning: *Charles by the grace of God King of Sicily, Jerusalem, Infant of Spain*). Reverse: A double



HALF SCUDO OF CHARLES VII. OF SICILY, 1738.

cross *moline*; three limbs surmounted by crowns; *fleur-de-lis*

in the angles. Legend: "FAUSTO CORONATIONIS ANNO: 1738" (*In the happy year of the coronation, 1738*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

5. Half Scudo of Charles VII. of Sicily, 1736. Obverse and Legend: Same as No. 4.

Reverse and Legend: Same as No. 4. Weight: 212.287 grains. Fineness: 833.333. Value: \$0.49¼.

6. Quarter Scudo of Charles VII. of Sicily, 1736. Obverse and Legend: Same as No. 4.



QUARTER SCUDO OF CHARLES VII. OF SICILY, 1736.

Reverse: Crowned eagle. Legend: "FAUSTO CORONATIONIS ANNO" (*Happy year of the coronation*). Weight: 106.143 grains. Fineness: 833.333. Value: \$0.24¾.

7. Two Carlini of Charles VII. of Sicily, 1736. Obverse and Legend: Same as No. 4.



TWO CARLINI OF CHARLES VII. OF SICILY, 1736.

Reverse: Crowned eagle. Legend: "HISPA. INFANS." Exergue: "1736." Weight: 70.760 grains. Fineness: 833.333. Value: \$0.13.

8. Scudo of Charles VII. of Sicily, 1750. Obverse: Bust of Charles VII., decorated with the cross of Malta. Legend: "CAR. D. G. UTR. SIC. ET HIER. REX."



SCUDO OF CHARLES VII. OF SICILY, 1750.

Reverse: Crowned shield, with the arms of Naples, Castile, Aragon, Parma and Tuscany. Legend: "HISPANIARUM INFANS, 1750." Exergue: "G. 120" (120 *grani*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

In 1759 Charles VII., being called to the throne of Spain, vacated that of Naples, and was succeeded by his son Ferdinand. This monarch bore the two titles of Ferdinand IV. of Naples, and Ferdinand III. of the Island of Sicily. Having joined in the alliance against France, Ferdinand was expelled from Naples, 1799, and his kingdom erected into the Neapolitan Republic. In 1801 Ferdinand made a treaty, by which he recovered his dominions.

He again made war upon Napoleon, and, in 1805, he was a second time driven from the Neapolitan throne and compelled to retire to the Island of Sicily, where he established his court, and was permitted to continue in power; Joseph Napoleon being placed upon the throne of Naples. In 1808 this Prince was transferred to the throne of Spain, and Joachim Napoleon, Prince Murat, was placed upon the throne of Naples. In 1814 the power of Napoleon came to an end, and the rearrangement of Europe, which then took place, not only deprived Joachim of his transitory title, but of his life also. Ferdinand, finding himself again reinstated upon the throne of the Two Sicilies, assumed the title of Ferdinand I.; thus the coins of this King bear the several titles of Ferdinand, Ferdinand IV., Ferdi-

nand III., and during the latter years of his reign Ferdinand I.

9. Scudo of Ferdinand IV., 1784. Obverse: Bust of Ferdinand IV. Legend: "FERDINAN. IV. SICIL. REX." Reverse: A cross, three limbs surmounted by crowns: *fleur-de-lis* in each angle. Legend: "HIS PAN INF ANS," divided by the ends of the cross. Exergue: "1784." Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

10. Half Scudo of Ferdinand IV., 1784. Obverse and Legend: Same as No. 9.



HALF SCUDO OF FERDINAND IV., 1784.

Reverse, Legend, and Exergue: Same as No. 9. Weight: 212.287 grains. Fineness: 833.333. Value: \$0.49¼.

11. Ducat of 100 grani of Ferdinand IV., 1785. Obverse: Head of Ferdinand IV., facing to the right. Legend: "FERDINAN IV. D. G. SICILIAR. ET. HIE REX" (*Ferdinandus IV. Dei Gratia Siciliarum et Hierosolymae Rex*; meaning: *Ferdinand IV., by the Grace of God, King of Sicily and Jerusalem*).



DUCAT OF 100 GRANI OF FERDINAND IV., 1785.

Reverse: Crowned shield, between branches of palm and laurel, crossed and tied. Legend: "HISPANIAR INFANS, 1785" (*Infant of Spain, 1785*). Exergue: "DUCATO NAP. G. 100" (*Ducat of Naples of 100 Grani*). Weight: 350.822 grains. Fineness: 840. Value: \$0.83.1360.

12. Sudo of Ferdinand IV., 1787. Obverse: Bust of Ferdinand IV. Legend: "FERDINAN. IV. D. G. SICILIAR ET HIE. REX."



SCUDO OF FERDINAND IV., 1787.

Reverse: Crowned shield, bearing arms of Naples, Castile, Aragon, Parma and Tuscany, with arms of Anjou, *fleurs-de-lis*, on a shield of pretence; the upper ends of the shield are draped with laurel. Legend: "HISPANIARUM INFANS, 1787." Exergue: "G. 120" (120 *grains*) between two branches of palms. Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

13. Twelve Carlini Piece or Scudo of 120 grains of Ferdinand IV. and Maria Carolina. Obverse: Profiles of the King and Queen. Legend: "FERDINANDUS IV. ET MARIA CAROLINA." Reverse: The sun in the zodiac, with the globe of the earth at the bottom. Legend: "SOLI REDVCI." (*To the returning sun*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

14. Twelve Carlini Piece or Sudo of 120 grani of Ferdinand IV. and Maria Carolina. Obverse and Legend: Same as No. 2. Reverse: A man and a woman making a sacrifice on an altar, behind which is a view of Mount Vesuvius. Legend:

"PRO FAVSTO P. P. REDITR." (*For the happy return of our Sovereigns*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

15. Ducato of Ferdinand IV. and Maria Carolina, 1791. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue: "DVCATO NAP. GRA. 100" (*Neapolitan Ducat of 100 grani*). Around the edge: "PROPUGNACULA FIRMA ADVERSUS FRAUDATORES" (*A firm guard against fraudulent persons*). Weight: 350.822 grains. Fineness: 840. Value: \$0.83.1360.

16. Half-Ducato of Ferdinand IV. and Maria Carolina, 1792. Obverse and Legend: Same as No. 2. Reverse and Legend: Same as No. 2. Exergue: "ME. D. NAP. G. 50" (*Half-Ducat of Naples of 50 grani*). Weight: 175.411 grains. Fineness: 840. Value: \$0.41.5680.

17. Ducato of Ferdinand IV., 1795. Obverse: Bust of Ferdinand IV. Legend: "FERDINAN. IV. D. G. SICILIAR. ET HIE. REX." Reverse: Crowned shield, bearing arms of Naples, Castile, Aragon, Parma and Tuscany, with the arms of Anjou on a shield of pretence; the whole draped with laurel leaves. Legend: "HISPANIAR. INFANS. 1795." Exergue: "G. 120," within palm and laurel branches, crossed. Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

18. Half-Scudo of Ferdinand IV., 1798. Obverse: Bust of Ferdinand IV. Legend: "FERDINAN. IV. D. G. SICIL. ET HIE REX."



HALF-SCUDO OF FERDINAND IV.

Reverse: An eagle, with shield upon his breast, bearing

arms of Naples, Castile, Aragon, Parma and Tuscany, with the arms of Anjou, *fleurs-de-lis*, upon a shield of pretence. Legend: "HISPAN INFANS." Exergue: "1798." Weight: 212.287 grains. Fineness: 833.333. Value: \$0.49 $\frac{1}{4}$.

19. Scudo of Ferdinand IV., 1800, during his sojourn in Sicily. Obverse: Bust of Ferdinand IV. Legend: "FERDINAN. IV. D. G. SICIL ET. IHER. REX." (*Ferdinand IV., by the Grace of God, King of Sicily and Jerusalem*).



SCUDO OF FERDINAND IV., 1800. (*Sicily*.)

Reverse: An eagle, with shield upon his breast, bearing arms of Naples, Castile, Aragon, Parma and Tuscany. Legend: "HISPANIARUM INFANS." Exergue: "1800." Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98 $\frac{1}{2}$.

20. Twelve Carlini of the Neapolitan Republic, 1799–1802. Obverse: A woman with a spear, a cap of liberty in one hand, and supporting the *fusces* with the other. Legend: "REPUBLICA NAPOLITANA" (*Republic of Naples*).



TWELVE CARLINI OF THE REPUBLIC OF NAPLES, 1799–1802.

Reverse: A wreath enclosing the value: "CARLINI DODICI" (*Twelve Carlini*). Legend: "ANNO SETTIMA DELLA LIBERTA" (*Seventh year of liberty*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

21. Six Carlini of the Neapolitan Republic, 1799-1802. Obverse and Legend: Same as No. 20. Reverse: A wreath enclosing the value: "CARLINI SEI." (*Six Carlini*). Legend: Same as No. 20. Weight: 212.287 grains. Fineness: 833.333. Value: \$0.49½.

22. Scudo of 120 grani of Ferdinand IV., of 1805. Obverse: Bust of Ferdinand IV. Legend: "FERDINANDUS IV. D. G. REX." Exergue: "1805."



SCUDO OF FERDINAND IV., 1805.

Reverse: A pointed shield, bearing arms of Naples, Castile, Aragon, Parma and Tuscany, with arms of Anjon, on a shield of pretence. Legend: "VTR. SIC. HIER. HISP. INF." (*Utriusque Siciliae, Hierosolymae, Hispaniarum Infantus*; meaning: *Of both Sicilies, Jerusalem, Infant of Spain*). Exergue: "G 120." The rim of this Scudo, bearing the legends, value and date, is slightly raised above the surface of the field. On the edge is inscribed: "PROVIDENTIA OPTIMI PRINCIPIS" (*The precaution of the best Prince*). Weight: 426.225 grains. Fineness: 833.333. Value: \$0.99½.

22½. Half-Scudo of 60 grani. Obverse, Legend and Exergue: Same as No. 21. Reverse and Legend: Same as No. 21. Exergue: "G 60." Weight: 213.1125 grains. Fineness: 833.333. Value: \$0.49½.

23. Sento of 12 Tari of Ferdinand III., of Sicily, 1810. Obverse: Bust of Ferdinand III. Legend: "FERDINANDUS III. D. G. REX." Exergue: "TARI 12." The Legend and Exergue are on a raised rim. Reverse: An eagle inelosed in an olive wreath. Legend: "UTR. SIC. HIER. INFANS HISP." Exergue: "1810." This coin bears the Legend of Ferdinand III. notwithstanding that a few years previous the same King stamped his coins with Ferdinandus IV. Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98½.

24. Dueato of Joseph Napoleon, 1808. Obverse: Head of Joseph Napoleon. Legend: "JOSEPH. NAPOL. D. G. UTR. SICIL. REX" (*Joseph Napoleon, by the Grace of God, King of both Sicilies*).



DUCATO OF JOSEPH NAPOLEON, 1808.

Reverse: A crowned shield, with two fields; two cornucopias, crossed, and a dolphin in the upper field, and three legs in the lower; a shield of pretence, surmounted by a crown, bearing the French eagle; at either side is a mermaid, one holding an anchor, and the other a paddle or rudder. Legend: "PRINC. GALLIC. MAGN. ELECT. IMP." Exergue: "1808." "G. 120." Around the edge are Six Dolphins, and the inscription: "CUSTUS REGNI DEUS." Weight: 424.883 grains. Fineness: 833.333. Value: \$0.98½.

25. Ducat of Joachim Napoleon, 1809-1810. Obverse: Undraped bust of Joachim Napoleon. Legend: "GIOACCHINO NAPOL. RE DELLE DUE SICILIE" (*Joachim Napoleon, King of*

both Sicilies). Reverse: "DODICI CARLINI 1809 AND 1810;" surrounded by a wreath of laurel and wheat. Legend: "PRINCIPE E GRAN D'AMMI RAGLIO DI FRANCIA" (*Prince and Grand Admiral of France*). Weight: 424.574 grains. Fineness: 833.333. Value: \$0.98.400.

26. Five Lires of Joachim Napoleon, 1813. Obverse: Undraped bust of Joachim Napoleon, facing to the right. Legend: "GIOACCHINO NAPOLEONE." Exergue: "1813." Reverse: Pointed shield, surmounted by a helmet, upon the shield a shield of pretence, with the French eagle; around the shield the chain of the Grand Legion of Honor of France, supported by two nymphs, the one holding a horn of plenty, the other the rudder of Aquarius, the whole displayed upon a mantle of ermine, draped from an imperial crown from above; behind the mantle of ermine two sceptres, saltire. Legend: "REGNO DELLE DUE SICILIE" (*Kingdom of both Sicilies*). Exergue: "5 LIRE." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

27. Two Lires of Joachim Napoleon, 1813. Obverse, Legend, and Exergue: Same as No. 26.



TWO LIRES OF JOACHIM NAPOLEON, 1813.

Reverse: "2 LIRE," surrounded by a wreath of laurel and olive branches, crossed and tied. Legend: "REGNO DELLE DUE SICILIE." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

28. Lira of Joachim Napoleon, 1813. Obverse, Legend, and Exergue: Same as No. 26.



LIRA OF JOACHIM NAPOLEON, 1813.

Reverse: "1 LIRA;" rest same as No. 26. Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

29. Mezza Lira of Joachim Napoleon. Obverse, Legend, and Exergue: Same as No. 26. Reverse: "MEZ LIRA" (*Mezza Lira or Half Lira*); rest same as No. 27. Weight: 38.580 grains. Fineness: 900. Value: \$0.09.650.

29. Scudo of Ferdinand IV. Obverse: Draped bust of Ferdinand IV. Legend: "FERD IV. D. G. VTR. SIC. ET HIER. REX." Exergue: "1816."



SCUDO OF FERDINAND IV., 1816.

Reverse: Crowned round shield, bearing arms of Naples, Castile, Aragon, Parma, and Tuscany, with a shield of pretence, bearing arms of Anjou, surrounded by palm branches. Legend: "HISPANIARUM INFANS." "G. 120." Weight: 424.883 grains. Fineness: 833.333. Value: \$0.98½.

30. Half Scudo of Ferdinand IV. Obverse, Legend, and Exergue: Same as No. 29. Reverse and Legend: Same as No. 29, with the exception of "G 60" taking the place of "G 120." Weight: 212.442 grains. Fineness: 833.333. Value: \$0.49¼.

31. Scudo, 120 Grani of Ferdinand I., 1818. Obverse:

Bust of Ferdinand I. Legend: "FERD. I. D. G. REGNI SICILIARUM ET IHER. REX" (*Ferdinand I, by the Grace of God, King of Sicily and Jerusalem*). Exergue: "1818."



SCUDO OF FERDINAND I., 1818.

Reverse: Crowned shield, bearing arms of Naples, Castile, Aragon, Parma, and Tuscany, with the arms of Anjou on a shield of pretence: from the shield are suspended several order chains and orders. Legend: "HISPANIARVM INFANS," and the value: "G 120." Around the edge: "PROVIDENTIA OPTIMI PRINCIPI" (*The precaution of the best Prince*). Weight: 424.883 grains. Fineness: 833.333. Value: \$0.98½.

32. Half Scudo of Ferdinand I., 1818. Obverse, Legend, and Exergue: Same as No. 31. Reverse and Legend: Same as No. 31, with the exception that "G 60" takes the place of "G 120." Weight: 212.442 grains. Fineness: 833.333. Value: \$0.49¼.

33. Carlino of Ferdinand I., 1818. Obverse, Legend, and Exergue: Same as No. 31. Reverse: A crowned shield, with a stalk of wheat at each side, and bedecked with order chains and badges of the Golden Fleece. Legend: "HISPAN. INFANS." Value quite nominal at 8 cents.

34. Scudo of Francisus I., 1826. Obverse: Bust of Francisco I. Legend: "FRANCISCUS I. DEI GRATIAE REX." Exergue: "1826." Reverse: Shield, crowned, bearing arms of Naples, Castile, Aragon, Parma, and Tuscany, with the arms of Anjou on a shield of pretence, surrounded by laurel

branches, crossed and tied; from the branches are suspended the orders of the Golden Fleece, Malta, and St. George. Legend: "REGNI VTR SIC ET HIER." Exergue: "G 120." Weight: 424.882 grains. Fineness: 833.333. Value: \$0.98½.

35. Half Scudo of Francisus I., 1826. Obverse, Legend, and Exergue: Same as No. 34. Reverse and Legend: Same as No. 34. Exergue: "G 60" (60 *grani*). Weight: 212.441 grains. Fineness: 833.333. Value: \$0.49¼.

36. Scudo of Ferdinand II., 1834. Obverse: Bust of Ferdinand II. Legend: "FERDINANDVS II. DEI GRATIA REX."



SCUDO OF FERDINAND II., 1834.

Reverse: Crowned shield, bearing arms of Naples, Castile, Aragon, Parma and Tuscany, with the arms of Anjou on a shield of pretence. Legend: "REGNI VTR SIC ET HIER." Exergue: "G 120" (120 *grani*). Weight: 424.881 grains. Fineness: 833.333. Value: \$0.98½.

37. Scudo of Ferdinand II., 1856. Obverse: Bust of Ferdinand II., heavier and older in profile than the preceding, side whiskers, and beard under the chin; rest same as No. 36. Weight: 424.881 grains. Fineness: 833.333. Value: \$0.98½.

38. Half-Scudo of Ferdinand II. Obverse, Legend, and Exergue: Same as No. 37. Reverse and Legend: Same as No. 36. Exergue: "G 60." Weight: 212.441 grains. Fineness: 833.333. Value: \$0.49¼.

39. Two Carlini of Ferdinand II., 1856. Obverse, Legend, and Exergue: Same as No. 37. Reverse and Legend: Same as

No. 36. Exergue: "G 20" (20 *grani*). Weight: 70.818 grains. Fineness: 833.333. Value: \$0.16.

40. Seudo of Franciscus II. Obverse: Youthful face of Franciscus II. Legend: "FRANCISCVS II. DEI GRATIA REX." Exergue: "1859." Reverse, Legend, and Exergue: Same as No. 36. Weight: 424.881 grains. Fineness: 833.333. Value: \$0.98½.

41. Half-Seudo of Franciscus II. Obverse, Legend, and Exergue: Same as No. 40. Reverse and Legend: Same as No. 36. Exergue: "G 60" (60 *grani*). Weight: 212.441 grains. Fineness: 833.333. Value: \$0.49¼.

42. Two Carlini of Franciscus II., 1859. Obverse, Legend, and Exergue: Same as No. 40. Reverse and Legend: Same as No. 36. Exergue: "G 20" (20 *grani*). Weight: 70.818 grains. Fineness: 833.333. Value: \$0.16.

43. Carlino of Franciscus II., 1859. Obverse, Legend, and Exergue: Same as No. 40. Reverse and Legend: Same as No. 36. Exergue: "G 10" (10 *grani*). Weight: 37.409 grains. Fineness: 833.333. Value: \$0.08.

44. Half-Carlino of Franciscus II. Obverse, Legend, and Exergue: Same as No. 40. Reverse and Legend: Same as No. 36. Exergue: "G 5" (5 *grani*). Weight: 17.700 grains. Fineness: 833.333. Value: \$0.04.

PARMA.

GOLD COINS.

1. Doppia of Ferdinand I., 1786. Obverse: Head of Ferdinand I. Legend: "FERDINANDUS I. HISPANIAR INFANS." Reverse: Crowned shield, bearing the arms of Parma, with a shield of pretence; and a heart shield, bearing the arms of Spain and Anjou; branches of laurel at either side. Legend: "D. G. PARMA PLAC. ET. VASTAL. DUX, 1786" (*Dei Gratia Parma Placentiæ et Vastaliæ Dux*; meaning: *By the grace of God, Duke of Parma, Placentia and Guastalla*). Weight: 110 grains. Fineness: 913. Value: \$4.17.7079.

2. Doppia of Ferdinand I., 1796. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 110 grains. Fineness: 875. Value: \$4.11.6147.

3. Forty Lires of Maria Louise, 1815. Obverse: Bust of Maria Louise. Legend: "MARIA LUGIA PRINC. IMP. ARCID. D'AUSTRIA" (*Maria Louise Princess Imperial, Archduchess of Austria*). Exergue: "1815." Reverse: Shield, bearing arms of Parma, Piacenza and Guastalla, with the arms of Austria on a shield of pretence, displayed upon a mantle of ermine draped from a crown, and encircled by the order chains and badge of St. George. Legend: "PER LA GR. DI DIO DUCH DI PARMA PIAC E GUAST" (*Per La Gracia Di Dio Duchessa Di Parma Piacenza e Guastalla*; meaning: *By the grace of God Duchess of Parma, Piacenza and Guastalla*). Exergue: "40 LIRE," in sunken letters. On the edge: "DIRIGE ME DOMINE" (*God guides me*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

4. Twenty Lires of Maria Louise, 1815. Obverse, Legend, and Exergue: Same as No. 3. Reverse and Legend: Same as No. 3. Exergue: "20 LIRE;" rest same as No. 3. Weight: 99.562 grains. Fineness: 900. Value: \$3.86.

SILVER COINS.

1. Ducat of Ferdinand I. Obverse: Head of Ferdinand I. Legend: "FERDINANDVS I. HISPANIAR INFANS." Exergue: A star. Reverse: Crowned shield, bearing arms of Parma. Legend: "D. G. PARMÆ PLAC. ET. VASTAL. DUX." (*By the grace of God, Duke of Parma, Piacenza and Guastalla*). Exergue: Date of the year of issue. Weight: 396 grains. Fineness: 915. Value: \$0.98.

2. Half-Ducat of Ferdinand I. Obverse and Legend: Same as No. 1. Reverse: A wreath, inclosing the Value: "LIRE TRE DI PARMA" (*Three Lires of Parma*). Exergue: Date of the year of issue. Weight: 198 grains. Fineness: 915. Value: \$0.49.

3. Two Lires of Ferdinand I. Obverse and Legend: Same

as No. 1. Reverse: A wreath inclosing the Value: "LIRE DUE DI PARMA" (*Two Lires of Parma*); rest same as No. 2. Weight: 132 grains. Fineness: 915. Value: \$0.32½.

4. Lira of Ferdinand I. Obverse and Legend: Same as No. 1. Reverse: A wreath, inclosing the Value: "LIRA UNA DI PARMA" (*One Lira of Parma*). Weight: 66 grains. Fineness: 915. Value: \$0.16.

5. Five Lires of Maria Louise, 1815. Obverse: Bust of Maria Louise. Legend: "MARIA LUGIA PRINC IMP. ARCID. D'AUSTRIA." Exergue: "1815." Reverse: Shield, bearing arms of Parma, Piacenza and Guastalla, with arms of Austria on a shield of pretence, displayed upon a mantle of ermine draped from a crown from above, and encircled by the order chain and badge of St. George. Legend: "PER LA GR. DI DIO DUCH DI PARMA. PIACE. GUAST." (*By the grace of God Duchess of Parma, Piacenza and Guastalla*). Exergue: "5 LIRE." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

6. Two Lires of Maria Louise, 1815. Obverse, Legend, and Exergue: Same as No. 5. Reverse: Same as No. 5. Exergue: "2 LIRE." Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

7. Lira Nuova of Maria Louise, 1815. Obverse, Legend, and Exergue: Same as No. 5.



LIRA NUOVA OF MARIA LOUISE.

Reverse and Legend: Same as No. 5. Exergue: "LIRA NUOVA" (*New Lira*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

8. Half Lira or Ten Soldi of Maria Louise, 1815. Obverse, Legend, and Exergue: Same as No. 5.

Reverse: "ML" in a monogram, surmounted by a crown.



HALF LIRA OR 10 SOLDI OF MARIA LOUISE, 1815.

Legend: Same as No. 5. Exergue: "10 SOLDI." Weight: 38.580 grains. Fineness: 900. Value: \$0.09.650.

9. Quarter Lira or Five Soldi of Maria Louise, 1815. Obverse, Legend, and Exergue: Same as No. 5.



QUARTER LIRA OR 5 SOLDI OF MARIA LOUISE, 1815.

Reverse: Same as No. 8. Legend: Same as No. 5. Exergue: "5 SOLDI." Weight: 19.290 grains. Fineness: 900. Value: \$0.04.875.

PIEDMONT AND SARDINIA.

GOLD COINS.

1. Carlino of 5 Doppia of Victor Amadeus, 1785. Head of Victor Amadeus. Legend: "VIC. AM. D. G. REX SARDINIE." Exergue: Date of the year of issue. Reverse: An eagle crowned, with an esuteheon on its breast, and under it a sceptre and staff. Legend: "PRINC. PEDEM. DVX SABAVD." (*Princeps Pedemontanus Dux-Sabaudiae*; meaning: *Prince of Piedmont, Duke of Savoy*). Weight: 696 grains. Fineness: 900. Value: \$27.31.3231.

2. Double Doppia or Double Pistole of Victor Amadeus, 1785. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 280 grains. Fineness: 904. Value: \$10.80.7685.

3. Doppia or Pistole of Victor Amadeus, 1785. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 140 grains. Fineness: 904. Value: \$5.40.3843.

4. Doppietta of Victor Amadeus, 1785. Obverse, Legend, and Exergue: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 49.250 grains. Fineness: 900. Value: \$1.88.

5. Sequino or Zecchino of Charles Emmanuel IV., 1796. Obverse: A crowned eagle, with an escutcheon on its breast, and under it a sceptre and staff. Legend: "CAROLVS EMMA-NUEL D. G. SARDINIE REX." Reverse: The Annunciation of the Virgin. Weight: 53.750 grains. Fineness: 985. Value: \$2.27.1033.

6. Carlino of Charles Emmanuel IV., 1797. Obverse: Head of Charles Emmanuel IV. Legend: "CAROLUS EMMANUEL IV." Exergue: Date of the year of issue. Reverse: Crowned eagle. Legend: "D. G. REX SAR. CYP ET IER." (*By the grace of God King of Sardinia, Cypria and Jerusalem*). Weight: 247.500 grains. Fineness: 900. Value: \$9.42½.

7. Half-Carlino of Charles Emmanuel IV., 1797. Obverse, Reverse, and Legends. Same as No. 6. Weight: 123.750 grains. Fineness: 900. Value: \$4.71¼.

8. Doppia or Pistole of Charles Emmanuel IV., 1797. Obverse, Reverse, and Legends: Same as No. 6. Weight: 140 grains. Fineness: 900. Value: \$5.40.3843.

9. Doppietta of Charles Emmanuel IV., 1797. Obverse, Reverse, and Legends: Same as No. 6. Weight: 49.250 grains. Fineness: 900. Value: \$1.88.

10. Doppia or Pistole of Victor Emanuel I., 1814. Obverse: Bust of Victor Emanuel, the hair tied in a queue. Legend: "VICTORIVS EMANVEL." Exergue: Date of the year of issue. Reverse: Crowned eagle, with an escutcheon on its breast, bearing the cross of Savoy, under the eagle a sceptre and staff with the collar of the order "*Prophecy of Mary*." Legend: "D. G. REX SARD. CYP. ET IER." Weight: 140.156 grains. Fineness: 905. Value: \$5.45.4535.

11. Doppia of 20 Lires of Charles Felix, 1826. Obverse: Head of Charles Felix. Legend: "CAR. FELIX D. G. REX SAR. CYP ET HIER." (*Charles Felix by the grace of God King of Sardinia, Cypria and Jerusalem*). Exergue: Date of the year of issue.



DOPPIA OF 20 LIRES OF CHARLES ALBERT, 1836.

Reverse: Crowned shield, bearing the arms of Sardinia, Cypria, Jerusalem and Montferrat, with a shield of pretence, bearing an eagle, with the cross of Savoy upon its breast; the whole encircled by the order of chain and the order of "*The Prophecy of Maria*." Legend: "DVX SAB. GENVAE ET MONTISF PRINC PED." (*Duke of Savoy, Genoa and Montferrat, Prince of Piedmont*). Exergue: "L 20" (20 Lires). Weight: 99.569 grains. Fineness: 900. Value: \$3.86.

12. Eighty Lires of Charles Felix, 1829. Obverse and Legend: Same as No. 11.



EIGHTY LIRES OF CHARLES FELIX, 1829.

Reverse: Crowned pointed shield, bearing arms of Sardinia, Cypria, Jerusalem and Montferrat, with a shield of pretence, bearing an eagle, with cross of Savoy on its breast: the collar of the order and order of "*The prophecy of Maria*" suspended from the sides of the shield, the whole inclosed by branches of laurel.

Legend: Same as No. 11. Exergue: "L. 80" (80 *Lires*).
Weight: 398.246 grains. Fineness: 900. Value: \$15.44.

13. Forty Lires of Charles Felix, 1829. Obverse, Legend,
and Exergue: Same as No. 12.



FORTY AND TWENTY LIRES OF CHARLES FELIX, 1829.

Reverse and Legend: Same as No. 12. Exergue: "L. 40"
(40 *Lires*). Weight: 199.123 grains. Fineness: 900. Value:
\$7.72.

14. Twenty Lires of Charles Felix, 1830. Obverse, Le-
gend, and Exergue: Same as No. 12. Reverse and Legend:
Same as No. 12. Exergue: "L. 20" (20 *Lires*). Weight:
99.561 grains. Fineness: 900. Value: \$3.86.

15. Hundred Lires of Charles Albert, 1833. Obverse:
Head of Charles Albert. Legend: "CAR ALBERTVS D. G. REX
SARD. CYP. ET HIER." Exergue: Date of the year of issue.



HUNDRED LIRES OF CHARLES ALBERT, 1833.

Reverse: Crowned shield, bearing arms of Savoy, draped
with the order chain and order of "The Prophecy of Maria,"
inclosed between two branches of laurel, crossed. Legend:
"DVX SAB. GENVAE. ET MONTISF. PRINC PED." Exergue:

"L 100." Weight: 497.816 grains. Fineness: 900. Value: \$19.30.

16. Eighty Lires of Charles Albert, 1834. Obverse, Legend, and Exergue: Same as No. 15. Reverse and Legend: Same as No. 15. Exergue: "L 80" (80 *Lires*). Weight: 398.246 grains. Fineness: 900. Value: \$15.44.

17. Forty Lires of Charles Albert, 1834. Obverse, Legend, and Exergue: Same as No. 15. Reverse and Legend: Same as No. 15. Exergue: "L 40" (40 *Lires*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

18. Twenty Lires of Charles Albert, 1834. Obverse, Legend, and Exergue: Same as No. 15.



TWENTY LIRES OF CHARLES ALBERT, 1834.

Reverse and Legend: Same as No. 15. Exergue: "L 20" (20 *Lires*). Weight: 99.569 grains. Fineness: 900. Value: \$3.86.

19. Ten Lires of Charles Albert, 1834. Obverse, Legend, and Exergue: Same as No. 15.



TEN LIRES OF CHARLES ALBERT, 1834.

Reverse and Legend: Same as No. 15. Exergue: "L 10" (10 *Lires*). Weight: 49.784 grains. Fineness: 900. Value: \$1.93.

20. Hundred Lires of Victor Emanuel II. Obverse: Head of Victor Emanuel II. Legend: "VICTORIVS EMANUEL II."

D. G. REX. SARD. CYP. ET IER." Exergue: Date of the year of issue. Reverse: Crowued shield, bearing arms of Savoy, draped with the order chain of "The Prophecy of Maria;" the whole inclosed between two branches of laurel, crossed and tied. Legend: "DVX SAB. GENVAE ET MONTISF PRINC. PED" (*Duke of Savoy, Genoa, Montferrat, Prince of Piedmont*). Exergue: "L 100." Weight: 497.816 grains. Fineness: 900. Value: \$19.30.

21. Eighty Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "L 80" (80 *Lires*). Weight: 398.246 grains. Fineness: 900. Value: \$15.44.

22. Forty Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "L 40" (40 *Lires*). Weight: 199.123 grains. Fineness: 900. Value: \$7.72.

23. Twenty Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "L 20" (20 *Lires*). Weight: 99.561 grains. Fineness: 900. Value: \$3.86.

24. Ten Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 20. Reverse and Legend: Same as No. 20. Exergue: "L 20" (20 *Lires*). Weight: 49.784 grains. Fineness: 900. Value: \$1.93.

SILVER COINS.

1. Scudo of Charles Emmanuel III., 1765. Obverse: Bust in armor of Charles Emmanuel III. Legend: "CAR. EM D. G. REX. SAR. CYP. ET IER." Exergue: Date of the year of issue.

Reverse: Crowned, round shield, bearing arms of Sardinia, Savoy, Montferrat, and Piedmont. Legend: "DVX SABAVD. ET MONTISFER. PRINC. PEDEM" (*Dux Sabaudiae et Montisferati, Princeps Pedemontii*, meaning: *Duke of Savoy and Montferrat Prince of Piedmont*). Weight: 542 grains. Fineness: 902. Value: \$1.38.

2. Half-Scudo of Three Lires of Charles Emmanuel III. Obverse, Legend, and Exergue: Same as No. 1. Reverse and



SCUDO OF CHARLES EMMANUEL III., 1765.

Legend: Same as No. 1. Weight: 271 grains. Fineness: 902. Value: \$0.69.

3. Two Lires of Charles Emmanuel III. Obverse, Legend, and Exergue: Same as No. 1.



TWO LIRES OF CHARLES EMMANUEL III., 1766.

Reverse and Legend: Same as No. 1. Weight: 180.666 grains. Fineness: 902. Value: \$0.46.

4. Scudo of Victor Amadeus, 1786. Obverse: Head of Victor Amadeus. Legend: "VIC AM. D. G. REX SARDINIE." Reverse: Eagle, crowned, with an escutcheon on his breast, bearing the cross of Savoy; under it a sceptre and staff. Legend: "PRINC. PEDEM. DVX SABAUD" (*Princeps Pedemontii, Dux Sabaudiae*, meaning: *Prince of Piedmont, Duke of Savoy.*)

Weight: 362.500 grains. Fineness: 896. Value: \$0.91-2468.

5. The Half and Quarter Sudo bear the same Devices and Legends, and their Weight, Fineness, and Value in exact proportion.

6. Sudo of Charles Emmanuel IV., 1737. Obverse: Head of Charles Emmanuel IV. Legend: "CAROLUS EMMANUEL IV." Reverse: Same as No. 4. Legend: "D. G. REX SAR. CYP. ET IER" (*Dei Gratia Rex Sardiniae Cypria et Ierosoly-mae*, meaning: *By the Grace of God, King of Sardinia, Cyprus, and Jerusalem*). Weight: 362.500 grains. Fineness: 896. Value: \$0.91-2468.

7. Sudo of 6 Lires of Victor Emmanuel I., 1814. Obverse: Bust of Victor Emmanuel I. Legend: "VIC. EM. D. G. REX. SAR. CYP. ET. IER." Exergue: Date of the year of issue. Reverse: Crowned circular shield, the arms quartered, the arms of Sardinia occupying the first quarter, Cypria the second, Jerusalem the third, and Montferrat the fourth; a shield of pretence, bearing an eagle, with the cross of Savoy upon its breast; the whole encircled by the order chain and the order of "*The Prophecy of Maria*." Legend: "DVX SABAYD. ET. MONTISFER. PRINC. PEDEM." (*Duke of Savoy and Montferrat, Prince of Piedmont*). Weight: 541.364 grains. Fineness: 903. Value: \$1.37-8841.

8. Half-Sudo of Victor Emmanuel I., 1814. Obverse, Legend and Exergue: Same as No. 7. Reverse and Legend: Same as No. 7. Weight: 270.682 grains. Fineness: 903. Value: \$0.68-9420.

9. Sudo of Five Lires of Victor Emmanuel I., 1817. Obverse: Bust of Victor Emmanuel I., facing to the right, his hair tied with ribbon in a queue. Legend: "VIC. EM. D. G. REX SARD. CYP. ET IIER." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing same arms, etc., as upon Reverse of No. 7. Legend: Same as No. 7. Exergue: "L 5" (5 Lires). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

10. Sudo of Five Lires of Charles Felix, 1828. Obverse:



SCUDO OF FIVE LIRES OF VICTOR EMANUEL I., 1817.

Head of Charles Felix. Legend: "CAR. FELIX D. G. REX SAR. CYP. ET. HIER."



SCUDO OF FIVE LIRES OF CHARLES FELIX, 1828.

Reverse: Crowned shield, bearing same arms, etc., as upon Reverse of No. 7. Legend: Same as No. 7. Exergue: "L 5" (5 Lires). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.



SCUDO OF FIVE LIRES OF CHARLES ALBERT, 1833.

11. Scudo of Five Lires of Charles Albert, 1833. Obverse: Head of Charles Albert. Legend: "CAR. ALBERTVS. D. G. REX SARD. CYP ET HIER." Exergue: Date of the year of issue.

Reverse: Crowned shield, bearing same arms, etc., as upon Reverse of No. 7. Legend: Same as No. 7. Exergue: "L 5" (5 Lires). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

12. Scudo of Five Lires of Victor Emanuel II. Obverse: Head of Victor Emanuel II. Legend: "VICTORIVS EMANUEL II D. G. REX SARD. CYP. ET HIER." Exergue: Date of the year of issue.



FIVE LIRES OF VICTOR EMANUEL II., 1851.

Reverse: Crowned shield, bearing arms of Savoy draped from the side by the order chain and order of "The Prophecy of Maria," encircled by two branches of laurel, crossed and tied. Legend: "DVX SAB. GENVAE ET MONTISF. PRINC PED." Exergue: "L 5" (5 Lires). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.



TWO LIRES OF CHARLES FELIX.

13. Two Lires of Charles Felix, 1827. Obverse, Legend, and Exergue: Same as No. 10.

Reverse and Legend: Same as No. 7. Exergue: "L 2" (2 *Lires*). Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

14. Lira of Charles Felix, 1827. Obverse, Legend, and Exergue: Same as No. 10.



LIRA OF CHARLES FELIX, 1827.

Reverse and Legend: Same as No. 7. Exergue: "L 1" (1 *Lira*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

15. Two Lires of Charles Albert, 1833. Obverse, Legend, and Exergue: Same as No. 11. Reverse and Legend: Same as No. 7. Exergue: "L 2" (2 *Lires*). Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

16. Lira of Charles Albert, 1833. Obverse, Legend, and Exergue: Same as No. 11. Reverse and Legend: Same as No. 7. Exergue: "L 1" (1 *Lira*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

17. Two Lires of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 12. Reverse and Legend: Same as No. 12. Exergue: "L 2" (2 *Lires*). Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

18. Two Lires of Victor Emanuel II., 1859. Obverse: Head of Victor Emanuel II. Legend: "VITTORIO EMANUELE II." Exergue: "1859." Reverse: Crowned shield, bearing arms of Savoy, from the upper end of the shield is suspended the collar chain and the order of "*The Prophecy of Maria*," encircled by laurel branches, crossed and tied. Legend: "DIO PROTEGE L'ITALIA" (*God protects Italy*). Exergue: "L 2" (2

Lires). Weight: 154.323 grains. Fineness: 900. Value: \$0.38.600.

19. Lira of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 12. Reverse and Legend: Same as No. 12. Exergue: "L 1" (1 *Lira*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

20. Lira of Victor Emanuel II., 1859. Obverse, Legend, and Exergue: Same as No. 18. Reverse and Legend: Same as No. 18. Exergue: "L 1" (1 *Lira*). Weight: 77.161 grains. Fineness: 900. Value: \$0.19.300.

21. Half-Lira of Victor Emanuel II. Obverse, Legend, and Exergue: Same as No. 12.



HALF LIRA OF FIFTY CENTISIMI OF VICTOR EMANUEL II.

Reverse and Legend: Same as No. 12. Exergue: "c 50." Weight: 19.290 grains. Fineness: 900. Value: \$0.09.650.

ROME.

GOLD COINS.

1. Ten Scudi of Pope Gregorius XVI. Obverse: Bust of Pope Gregorius XVI. Legend: "GREGORIVS. XVI. PON. MAX. ANNO;" then follows the date of the Pontiff's reign in Roman numerals.



TEN SCUDI OF POPE GREGORIUS XVI.

Reverse: Laurel wreath, inclosing the value: "10 SCUDI,"

and below the date of the year of issue. Weight: 267.534 grains. Fineness: 900. Value: \$10.20.

2. Five Scudi of Pope Gregorius XVI. Obverse and Legend: Same as No. 1. Reverse and inscription the same, with the exception that "5" takes the place of "10." Weight: 133.766 grains. Fineness: 900. Value: \$5.10.

3. Two and a Half Scudi of Pope Gregorius XVI. Obverse and Legend: Same as No. 1. Reverse: Laurel wreath, inclosing the value: "SCUDI," below in heavy characters "2.50," still lower the date of the year of issue. Weight: 66.883 grains. Fineness: 900. Value: \$2.55.

4. Scudo of Pope Gregorius XVI. Obverse and Legend: Same as No. 1. Reverse: Laurel wreath, inclosing the value: "1 SCUDO," and the date of the year of issue. Weight: 26.753 grains. Fineness: 900. Value: \$1.02.

5. Doppia of 1846, issued during the interregnum occasioned by the death of Pope Gregorius XVI., by the Cardinal Camerling, who had the sole authority to issue money during that period. The coins thus issued bear always the motto: "SEDE VACANTE" (*The Seat vacant*). Obverse: Full length figure of St. Peter, his right hand uplifted to heaven, in his left two keys; clouds surrounding him and in the background; at his feet a cardinal's hat and tassels, inclosing a pointed shield with three rosettes upon it. Legend: "APOSTOLORVM PRINCEPS" (*Prince Apostle*). Reverse: Round shield, bearing a rosette upon a field azure, two staffs *saltiere* behind the shield, above the shield a cardinal's hat with tassels, two keys *saltiere* above the cardinal's hat. Legend: "SEDE VACANTE" (*The Papal chair vacant*) "MDCCCXXXVI. (1846)." Weight: 84.398 grains. Fineness: 916.667. Value: \$3.325441.

6. Ten Scudi of Pope Pius IX. Obverse: Bust of Pope Pius IX. Legend: "PIVSIX. PONT. MAX. ANNO;" then follows the date of the year of the Pontificate (*Pius IX. Pontifex Maximus*; meaning: *Pius IX. Supreme Pontiff*). Reverse: Laurel wreath, inclosing the value: "10 SCUDI;" and below, the date of the year of issue. Weight: 267.534 grains. Fineness: 900. Value: \$10.20.

7. Five Scudi of Pope Pius IX. Obverse and Legend: Same as No. 6. Reverse: Laurel wreath, inclosing the value: "5 SCUDI;" and below the date of the year of issue. Weight: 133.766 grains. Fineness: 900. Value: \$5.10.

8. Two and a Half Scudi of Pope Pius IX. Obverse and Legend: Same as No. 6. Reverse: Laurel wreath, inclosing the value: "SCUDI," below in heavy character: "2.50," still lower the date of the year of issue. Weight: 66.883 grains. Fineness: 900. Value: \$2.55.

9. Scudo of Pope Pius IX. Obverse and Legend: Same as No. 6. Reverse: Laurel wreath, inclosing the value: "1 SCUDO," and the date of the year of issue. Weight: 26.753 grains. Fineness: 900. Value: \$1.02. The Scudo of Pope Pius IX., of 1853, is smaller in size, but of the same weight.

SILVER COINS.

1. Scudo of Pope Pius VII. Obverse: Arms and Insignia of Pope Pius VII. Legend: "PIVS VII. PON. M. AN.," and the date of the Pontificate in Roman numerals.



SCUDO OF POPE PIUS VII., 1803.

Reverse: The Virgin Mary, seated upon a cloud, holding two keys in her right hand, and a lantern in her left; beneath it, a small shield with the arms of the Pontiff, bedecked with hat and tassels. Legend: "AUXILIUM DE SANCTO" (*Help from*

the Sanctuary). Exergue : Date of the year of issue. Weight : 415 grains. Fineness : 900. Value : \$1.00.

2. Scudo of Pope Leo XII. Obverse : Bust of Pope Leo XII. Legend : "LEO XII. PONT. MAX. ANNO;" and the date of the year of the Pontificate. Reverse : Shield, bearing the arms of the Pope of the family Chiaramonte, with the ensigns of the Pope, the tiara and keys of St. Peter. Weight : 415 grains. Fineness : 900. Value : \$1.00.

3. Scudo of 1830. "Sede Vacante" (*The Papal chair being vacant*). Obverse : A shield, bearing a cock and a star, surmounted by a cross-staff, hat, keys, and tassels. Legend : "SEDE VACANTE. MDCCCXXX." (*The seat vacant, 1830*). Exergue : "ROMA." (*Rome*). Reverse : The Sacred Dove in a glory of rays. Legend : "VENI LUMEN CORDIUM." (*Come Light of Concord*). Weight : 415 grains. Fineness : 900. Value : \$1.00.

4. Testoon of 1830. "Sede Vacante." Obverse, Legend, and Exergue : Same as No. 3.



TESTOON OF 1830.

Reverse and Legend : Same as No. 3. Weight : 130 grains. Fineness : 900. Value : \$0.32½.

5. Scudo of Pope Gregorius XVI., 1834. Obverse : Bust of Pope Gregorius XVI. Legend : "GREGORIVS XVI. PON. MAX. A.;" and the date of the year of the Pontificate. Exergue : "1834." Reverse : The circumcision of Jesus, Simeon receiving the infant Jesus from the hands of his mother, the Virgin Mary. In the background, to the right, is Joseph, carrying a basket, containing two doves. To the left is the prophetess, Anna, with clasped hands, looking upon Jesus.

Legend: "LUMEN AD REVELATIONEM GENTIUM" (*Light to the Revelation of the Nations*). Exergue: "ROMA" (*Rome*). Weight: 415 grains. Fineness: 900. Value: \$1.00.

6. Scudo of Pope Gregorius XVI., 1835-1845. Obverse and Legend: Same as No. 5.



SCUDO OF POPE GREGORIUS XVI., 1835-1845.

Reverse: A laurel wreath inclosing the value: "SCVDO," below the date of the year of issue. Weight: 415 grains. Fineness: 900. Value: \$1.00.

7. Scudo of 1846. "SEDE VACANTE" (*The Papal chair being vacant*). Obverse: The Sacred Dove, wings expanded, surrounded by rays. Legend: "NON RELINQVAM VOS ORPHANOS." Exergue: "SCUDO." Reverse: Shield, bearing a rosette upon a field *azure*, the Grand Cross of the Legion of Honor is suspended from the bottom of the shield; two staffs *saltiere* behind the shield, above the shield a cardinal's hat with tassels, two keys *saltiere* above the cardinal's hat. Legend: "SEDE VACANTE" (*The Papal chair vacant*). "MDCCXXXVI" (1846). Weight: 415 grains. Fineness: 900. Value: \$1.00.

8. Scudo of Pope Pius IX. Obverse: Bust of Pope Pius IX. Legend: "PIVS. IX. PONT. MAX. ANNO," and the date of the year of the Pontificate in Roman numerals. Reverse: A laurel wreath inclosing the Value: "SCVDO," below the date of the year of issue. Weight: 415 grains. Fineness: 900. Value: \$1.00.

9. Half-Scudo of fifty Bajocchi of Pope Pius IX. Obverse

and Legend: Same as No. 8. Reverse: A laurel wreath inclosing the value: "50 BAIOCCHI," below the date of the year of issue. Weight: 207.500 grains. Fineness: 900. Value: \$0.50.

10. Twenty Bajocchi of Pope Pius IX. Obverse and Legend: Same as No. 8. Reverse: A laurel wreath inclosing the Value: "20 BAIOCCHI;" below the date of the year of issue. Weight: 83 grains. Fineness: 900. Value: \$0.20.

11. Ten Bajocchi of Pope Pius IX. Obverse: Shield, bearing arms of Pope Pius IX., of the Ferreti family; the tiara and keys, *saltiere*. Legend: "PIVS IX. PON. MAX. AN.;" and the year of the Pontificate in Roman numerals. Reverse: A laurel wreath inclosing Value: "10 BAIOCCHI;" below the date of the year of issue. Weight: 41.500 grains. Fineness: 900. Value: \$0.10.

12. Five Bajocchi of Pope Pius IX. Obverse and Legend: Same as No. 1. Reverse: laurel wreath inclosing Value: "5 BAIOCCHI;" below the date of the year of issue. Weight: 20.750 grains. Fineness: 900. Value: \$0.05.

13. Two Lires of Pope Pius IX., 1869. Obverse: Bust of Pope Pius IX. Legend: "PIVS. IX. PON. MAX XXIV." (*Pius IX., Pontifex Maximus XXIV.*; meaning: *Pius IX., Supreme Pontiff, twenty-fourth year of his Pontificate*).



TWO LIRES OF POPE PIUS IX., 1869.

Reverse: A heavy wreath inclosing the Value: "2 LIRE, 1869." Legend: "STATO PONTIFICIO" (*Pontifical State*). Weight: 154.323 grains. Fineness: 900. Value: \$0.33.600.

SILVER COINS ISSUED DURING THE RE-
PUBLIC, 1849.

1. Forty Bajocchi, of 1849. Obverse: Eagle perched upon *fascces*, and surrounded by a heavy wreath of oak. Legend: "DIO E POPOLO" (*God and the people*). Reverse: "40 BAIOCCHI;" below a fancy dash, the whole surrounded by a circle of dots. Legend: "REPUBBLICA ROMANA." Exergue: "1849." Weight: 180 grains. Fineness: 739.533. Value: \$0.38½.

2. Sixteen Bajocchi of 1849. Obverse and Legend: Same as No. 1. Reverse: "16 BAIOCCHI;" rest same as No. 1. Legend and Exergue: Same as No. 1. Weight: 72 grains. Fineness: 739.533. Value: \$0.14½.

3. Eight Bajocchi of 1849. Obverse and Legend: Same as No. 1. Reverse: "8 BAIOCCHI;" rest same as No. 1. Weight: 36 grains. Fineness: 739.533. Value: \$0.07¼.

4. Four Bajocchi of 1849. Obverse and Legend: Same as No. 1. Reverse: "4 BAIOCCHI;" rest same as No. 1. Weight: 18 grains. Fineness: 739.533. Value: \$0.03½.

The four coins have now only a historical value, and are mostly deposited in public museums of Europe; the numismatists of Europe have of late years been paying a high premium.

TUSCANY.

Tuscany was seized by the French in March, 1799. Ferdinand III., the grand duke, was dispossessed by France, and his dominions given to Louis, son of the King of Spain, with the title of King of Etruria, February 26, 1801. He died June 30, 1803; and soon afterwards this State was transformed into an appendage to the crown of Italy, but was restored to Austria in 1814. In 1824 the grand duke Leopold, of Austria, ascended the throne of Tuscany. At the present time the grand duchy of Tuscany forms only a part of the kingdom of Italy under King Humbert.

GOLD COINS.

1. Ruspone of Ferdinand IV. Obverse: A lily. Legend:

"FERNDINANDVS III. D. G. A. A. M. D. ETR." (*Ferdinandus IV., Dei Gratia Archidux Austriae, Magnus Dux Etruriae*; meaning: *Ferdinand III., by the Grace of God, Archduke of Austria, Grand Duke of Tuscany*). Reverse: A figure of St. John the Baptist. Legend: "S. JOANNES BAPTISTA" (*St. John the Baptist*). Weight: 161.250 grains. Fineness: 997. Value: \$6.92½.

2. Zecchino or Sequin of Ferdinand III. Obverse and Legend: Same as No. 1. Reverse and Legend: Same as No. 1. Weight: 53.812 grains. Fineness: 997. Value: \$2.31.1587.

3. Ruspone of the Kingdom of Etruria (Tuscany), 1803. Obverse: A lily. Legend: "LUDOVICUS I. D. G. HISP. INF. REX ETRVPIAE." Reverse and Legend: Same as No. 1. Weight: 161.468 grains. Fineness: 999. Value: \$6.95.

4. Ruspone of the Kingdom of Etruria (Tuscany), 1804. Obverse: A lily. Legend: "CAROLVS I. D. G. REX. ET. M ALOYSIA R. RECTRIX." (*Carolus I., Dei Gratia Rex et Maria Aloysia Regina Rectrix*; meaning: *Carolus I., by the Grace of God, King and Maria Louise Queen Regent*). Reverse and Legend: Same as No. 1. Weight: 161.468 grains. Fineness: 999. Value: \$6.95.

5. Eighty Fiorini of 133½ Lire of Leopold II., 1827. Obverse: A lily. Legend: "LEOPOLDVS II. D. G. P. I. A. P. R. II. ET B. A. A., MAGN DVX ETR" (*Leopoldus II. Dei Gratia Princeps Imperii Austriae Princeps Regalis Hungariae et Bohemiae Archidux Austriae Magnus Dux Etruriae*, meaning: *Leopold II., by the Grace of God, Prince Imperial of Austria, Prince Royal of Hungary and Bohemia, Arch of Austria, Grand Duke of Etruria or Tuscany*). Reverse: A pointed shield, suspended upon the Cross of Malta, which is surmounted by a crown and backed by two flag-staffs, saltier-wise, encircled by the order chain and badge of the Golden Fleece and the banners depending from the flag-staffs. Legend: "SUSCEPTOR NOSTER DEUS." Exergue: "K 24" (24 Carats), and the date of the year of issue. Weight: 503.372 grains. Fineness: 1000 (*Pure Gold*). Value: \$21.65.

6. Ruspone of Three Zecchini, or Forty Lires of Leopold II., 1836. . Obverse: A lily. Legend: "LEOPOLDVS II. D. G. A. A. M. D. ETR" (*Leopold II., by the Grace of God, Archduke of Austria, Grand Duke of Tuscany*). Reverse: St. John the Baptist, seated, a cross-staff in his right hand. Legend: "s. JOANNES BAPTISTA." Exergue: "1836." Weight: 161.468 grains. Fineness: 1000 (*Pure Gold*). Value: \$6.95.5089.

7. Zecchino of 13½ Lire of Leopold II. Obverse: A lily. Legend: "LEOPOLDVS II. D. G. A. A. M. D. ETR." Reverse: St. John the Baptist, seated, in his left hand a cross-staff, with his right hand he points upwards. Legend: "s. JOANNES BAPTISTA." Exergue: Date of the year of issue.

SILVER COINS.

1. Leopoldone of Peter Leopold, Archduke of Austria, 1769. Obverse: Bust of Peter Leopold. Legend: "PETRVS LEOPOLDVS D. G. P. R. H. ET B. A. A. M. D. ETRVR" (*Petrus Leopoldus Dei Gratia Princeps Regalii Hungariae et Bohemiae Archidux Austriae Magnus Dux Etruriae*, meaning: *Peter Leopold, by the Grace of God, Prince Royal of Hungary and Bohemia, Archduke of Austria, Grand Duke of Tuscany*).



LEOPOLDONE OF LEOPOLD I., 1769 AND 1789.

Reverse: Crowned shield, backed by the Cross of Malta; arms of Austria, Lotharingia, and Tuscany upon a shield of pretence. Legend: "DIRIGE DOMINE GRESSVS MEOS" (*Lord*

direct my steps). Exergue: "PISIS" (*Mint-mark of Pisa*). Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07½.

2. Scudo of Ferdinand III., 1795. Obverse: Undraped bust of Ferdinand III. Legend: "FERDINANDVS III D. G. P. R. H. ET B. A. A. M. D. ETRUR." Reverse: Crowned shield, backed by the star of Malta, and encircled by the order chain and badge of the Golden Fleece. Legend: "LEX TUA VERITAS" (*Truth thy law*). Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07½.

3. Scudo of the Kingdom of Etruria, Louis I., 1801. Obverse: Undraped bust of Louis I. Legend: "LUDOVICUS I. D. G. HISP. INF. REX ETRURIAE ETC" (*Ludovicus I. Dei Gratia Hispaniarum Infans Rex Etruriae, etc., meaning: Louis I., by the Grace of God, Infant of Spain, King of Etruria or Tuscany, etc.*) Reverse: Crowned shield, backed by the star of Malta, and bedecked with the order chain and badge of the Golden Fleece, and three order stars; a shield of pretence and a heart shield: the first bearing the arms of Spain, and the second those of Anjou and Tuscany. Legend: "VIDEANT PAUPERES ET LÆTENTUR" (*Let the poor see and rejoice*). Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07½.

4. Ten Lires of Charles Louis and Maria Louise, 1807.



TEN LIRES OF CHARLES LOUIS AND MARIA LOUISE, 1807.

Obverse: Busts of Charles and Maria Louise, side by side. Legend: "CAROLVS LVD. D. G. REX ETR ET M ALOYSIA R.

RECTRIX I. I. H. H" (*Carolus Ludovicus Dei Gratia Rex Etruriæ et Maria Aloysia Regina Rectrix Infans Infans Hispaniarum Hispaniarum*, meaning: *Charles Louis, by the Grace of God, King of Etruria, and Maria Louise Queen Regent Infant of Spain, Infant of Spain*).

Reverse: Same as No. 3. Legend: "DOMINE SPES MEA A IUVENTUTE MEA" (*Lord, my hope from my youth*). Exergue: "FLOR" (*Florentiæ, Florence*). "1807." Around the edge: "DIECI LIRE" (*Ten Lires*). Weight: 608.743 grains. Fineness: 958.333. Value: \$1.64 $\frac{1}{4}$.

5. Ten Paoli, of 6 $\frac{2}{3}$ Lire, of Charles Louis and Maria Louise, 1807. Obverse: Busts of Charles Louis to the left, and Maria Louise to the right, face to face. Legend: Same as No. 4. Reverse and Legend: Same as No. 4. Exergue: "PISIS" (*Mint-mark of Pisa*). "1807." Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07 $\frac{1}{2}$. The above two coins have been issued in the same year, and unless seen side by side have often deceived the collectors of coin: their values differ materially.

6. Sudo of Ferdinand III. of 1820. Obverse: Undraped bust of Ferdinand III. Legend: "FERDINAND III. D. G. P. I. A. P. R. H. ET B. A. A. M. D. ETRUR." Reverse: Crowned shield, bearing arms of Austria, Lotharingia, and Tuscany, draped with the order chain and badge of the Golden Fleece, also the order band and star of Maria Theresia, and the order band and star of the Tuscan order of St. Stephen. Legend: "LEX TUA VERITAS" (*Thy law truth*). Exergue: "PISIS" (*Mint-mark of Pisa*). "1820." Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07 $\frac{1}{2}$.

7. Leopoldone of Leopold II. of 1836. Obverse: Bust of Leopold II. Legend: "LEOPOLDVS II. D. G. P. I. A. P. R. H. ET B. A. A. MAGN. DVX ETR." Reverse: Crowned shield, backed by the Star of Malta, upon the shield a shield of pretence with the arms of Tuscany; from the upper ends of the shield is suspended the order chain and badge of the order of the Golden Fleece, at the side of it the Maria Theresia order,

and that of St. Stephen of Tuscany. Legend: "SVSCEPTOR NOSTER DEVS." Exergue: "PISIS. 1836." Weight: 424.528 grains. Fineness: 916.667. Value: \$1.07½.

8. Half Leopoldone of Leopold I., 1777. Obverse: Bust of Leopold I. Legend: "PETRVS LEOPOLDVS D. G. P. R. H. ET B. A. A. M. D. ETRUR." (*Petrus Leopoldus Dei Gratia Princeps Regalii Hungariae et Bohemiae Archidux Austriae, Magnus Dux Etruria*; meaning: *Peter Leopold, by the Grace of God, Prince Royal of Hungary and Bohemia, Archduke of Austria, Grand Duke of Tuscany*).



HALF LEOPOLDONE OF LEOPOLD I., 1777.

Reverse: Crowned shield, bearing arms of Tuscany, backed by the Cross of Malta and draped by the order chain and badge of the order of the Golden Fleece. Legend: "DIRIGE DOMINE GRESSUS MEOS." Exergue: "PISIS, 1777." Weight: 212.271 grains. Fineness: 916.667. Value: \$0.54.

9. Five Lire of Charles Louis and Maria Louise, 1804. Obverse and Legend: Same as No. 4. Reverse, Legend, and Exergue: Same as No. 4. Weight: 303.985 grains. Fineness: 958.333. Value: \$0.82.

10. Five Paoli of Charles Louis and Maria Louise, 1804. Obverse and Legend: Same as No. 5. Reverse, Legend, and Exergue: Same as No. 5. Weight: 212.271 grains. Fineness: 916.667. Value: \$0.54.

10½. Five Paoli of Ferdinand III., 1820-1824. Obverse and Legend: Same as No. 6. Reverse, Legend, and Exergue:

Same as No. 6. Weight: 212.271 grains. Fineness: 916.667. Value: \$0.54.

11. Five Paoli of Leopold II., 1829. Obverse and Legend: Same as No. 7.



FIVE AND TWO PAOLI OF LEOPOLD II., 1829.

Reverse, Legend, and Exergue: Same as No. 7. Weight: 212.271 grains. Fineness: 916.667. Value: \$0.54.

12. Two Paoli of Leopold I. Obverse and Legend: Same as No. 8.

Reverse, Legend, and Exergue: Same as No. 8. Weight: 84.905 grains. Fineness: 916.667. Value: \$0.21½.

13. Fiorino of Ferdinand III., 1823. Obverse: A lily. Legend: "QUATTRINI CENTO, 1823" (*Hundred farthings*). Exergue: "FIORINO."

Reverse: Same as No. 6. Weight: 106.128 grains. Fineness: 916.667. Value: \$0.26.

14. Fiorino of Leopold II., 1847. Obverse: A lily. Legend: "QUATTRINI CENTO, 1847." Exergue: "FIORINO." Reverse: A lion *courant*, in his right paw a banner. Legend: "GOVERNO DELLA TOSCANA" (*Government of Tuscany*). Exergue: Heart-shaped shield. Weight: 106.128 grains. Fineness: 916.667. Value: \$0.26.

15. Fiorino of Leopold II., 1859. Obverse: Bust of Leopold II. Legend: "LEOPOLDO II. A. D' . . GRANDUCA DI TOSCANA." (*Leopoldo II., Archduca Austria, Granduca di Toscana*; meaning: *Leopold II., Archduke of Austria, Grand Duke of Tuscany*). Reverse: A lily, surrounded by a circle of dots.

Legend: "QUATTRINI CENTO, 1859." Exergue: "FIORINO."
 Weight: 106.128 grains. Fineness: 916.667. Value: \$0.26.

VENICE.

GOLD COINS.

1. Hundred Zecchini of Ludovico Manin, the last Doge of the old Republic of Venice, 1797. Obverse: Full length figure of St. Mark, before him the Doge in ducal robes, kneeling upon a cushion, his left hand supporting a cross-staff. To the right of the staff, and parallel with the same: "D V X" on each of the letters, one above the other, a rosette below (*Dux. duke*). To the right of the kneeling Doge the Legend: "LVDOVICVS (a rosette) MANIN." (a rosette). To the left of St. Mark the Legend: "S. (a rosette) M. (a rosette) VENETVS." (a rosette). (*S. M. Venetus; viz.; Sanctus Marcus Venetus; meaning: St. Mark of Venice*). A dotted circle, raised, surrounds the whole, the outer edge escalloped. Reverse: Full length figure of Christ, pointing with his right hand upwards, in his left the orb surmounted by a Coptic Cross; surrounded by thirteen stars ranged oblong, encircled by dots ranged oblong, and pointed at the ends, the whole inclosed by a raised line oblong, and also pointed at the ends. Legend to the right: "SIT (a rosette) T. XPΣ (in Greek characters, meaning: Christ), (a rosette) DAT. (a rosette) Q (a rosette) TVREGIS. (a rosette) ISTE (a rosette) DVCATVM" (*Sit tibi Christe datum, quod tu regis. Iste ducatum; meaning: To Thee, O Christ, be it [this coin] given, because Thou governest [universally]. He [St. Mark] governs the Duchy*).

This Legend on the Reverse is the same as that of the Venetian Ducat of 1280, which is thus explained by *Signor Muratori*, in his *Antiquitates Italice Medii Ævi*, Vol. II., p. 649.

"Sit tibi Christe datum, quod (vel quia) tu regis."

"Iste (ipse) ducatum."

We doubt this interpretation, and suppose that *iste* has been

originally (*ipse*). This Legend is, however, curious, as being both an hexameter and an old monkish rhyme. (Ed.)

Weight: 5379.375 grains. Fineness: 993.056. Value: \$230.04.3505. Its size in diameter is a little over three inches or 77 Millimetres.

2. Sequin or Zecchino of Ludovicus Manin, 1795. Obverse and Legends: Same as No. 1. Reverse: Full length figure of Christ, seventeen stars instead of thirteen, as No. 1; rest same as No. 1. Legend: Same as No. 1, only the words "Duca-tum" is on some abbreviated "DVCA," on others "DUCATVS." Weight: 53.792 grains. Fineness: 993.056. Value: \$2.30.

3. Half Sequin or Zecchino. Obverse and Legends: Same as No. 1. Reverse: Same as No. 1. Legend: "EGO SVM LVX MVN." (*Ego sum lux mundi*; meaning: *I am the light of the world*). Weight: 26.896 grains. Fineness: 993.056. Value: \$1.15.

4. Quarter Sequin or Zecchino. Obverse and Legends: Same as No. 1. Reverse and Legend: Same as No. 3. Weight: 13.448 grains. Fineness: 993.056. Value: \$0.57½.

5. Doppia or Pistole of Ludovicus Manin, 1789. Obverse: A winged lion, holding a book, believed to represent the book of St. Mark, in the New Testament. Legend: "SANTVS MARCVS VENETVS" (*St. Mark of Venice*). Exergue: "s. 2." (*Two Sequins*). Reverse: A cross. Legend: "LVDOVICVS MANIN DVX VENET." (*Ludovicus Manin Doge of Venice*). Weight: 104 grains. Fineness: 906. Value: \$4.05.

6. Scudo D'Oro or Gold Crown of Francesco Contareno. Obverse: A winged lion, holding a book. Legend: "SANCTVS MARCVS VENETVS." Exergue: "140." (140 *Lires*). Reverse: "FRANC. CONTARENO DVX VENET." (*Francis Contareno Doge of Venice*). Weight: 647 grains. Fineness: 995. Value: \$26.76.

7. Half Scudo D'Oro or Half Gold Crown of Francesco Contareno. Obverse and Legend: Same as No. 6. Exergue: "70" (70 *Lires*). Reverse and Legend: Same as No. 6. Weight: 323.500 grains. Fineness: 995. Value: \$13.38.

8. Osello D'Oro of Pauli Raineri. Obverse: A woman sitting. Legend: "PIETAS OPTIMI PRINCIPIS." (*The piety of the best Prince*). Reverse: A wreath within the Doge's name: "PAVLI RAINERI PRINC. MUNUS ANNO V." (*The gift of Paul Raineri, Prince, the year V. of his reign*). Weight: 215.500 grains. Fineness: 995. Value: \$9.23.6108.

This Osello D'Oro has mostly been used for presents on high church days, hence the allusion: "The gift of Paul Raineri, etc."

9. Ducato D'Oro or Gold Ducat. Obverse: A man sitting, holding a standard, and another kneeling. Legend: "S. M. VEN. LEON. DONAT." (*St. Mark of Venice gives a lion*). Reverse: A winged lion with a book. Legend: "DVCATVS REIPVB." (*Ducat of the Republic*). Weight: 33.500 grains. Fineness: 995. Value: \$1.43.

10. Twenty Lire of the Republic of Venice of 1848. Obverse: Winged lion, holding a book, standing upon a pedestal upon which is inscribed "XI. Agosto MDCCCXLVIII." (*11th August, 1848*). Legend: "INDIPENDENZA ITALIANA." (*Italian Independence*). Reverse: A laurel wreath, within the value: "20 LIRE." Legend: "ALLEANZA DEI POPOLI LIBRE." (*Alliance of a free people*). Exergue: "1848." Weight: 99.569 grains. Fineness: 900. Value: \$3.86.

SILVER COINS.

1. Scudo Della Croce, Scudo of the cross of Lodovicus



SCUDO DELLA CROCE, OF LUDOVICUS MANIN, 1789.

Manin, last Doge of Venice, 1789. Obverse: A winged lion, holding a book. Legend: "LUDOVICO MANIN DUCE." (*Ludovicus Manin Doge*). Exergue: "1789."

Reverse: A cross. Legend: "SANCTVS MARCVS VENETVS." (*St. Mark of Venice*). Weight: 484.500 grains. Fineness: 945. Value: \$1.29.

2. Giustina (*Justina*). Obverse: A winged lion, holding a book, before it a figure holding a standard. Legend: "LUDOVICVS MANIN DUCE." Reverse: A woman holding a palm branch, with a circle over her head, a sword on her shoulder; in the background a view of the sea with ships. Legend: "MEMOR. ERO. TVI. JUSTINA. VIRG." (*I shall remember Thee, Virgin Justina*). Exergue: "124." (124 *Soldi*). Weight: 420 grains. Fineness: 945. Value: \$1.05.

3. Ducato. Obverse: A winged lion, holding a book. Legend: "DVCATVS VENETVS." (*Ducat of Venice*). Reverse: A figure sitting, another kneeling and receiving a standard from him. Legend: "S. M. V." (*St. Mark of Venice*), "PAVL. RAINERIVS D." (*Paul Raineri Doge*). Weight: 342 grains. Fineness: 833. Value: \$0.72.

4. Half Ducato. Obverse: Same as No. 3. Legend: "MED. DVCAT. VENET." (*Half Ducat of Venice*). Reverse and Legend: Same as No. 3. Weight: 171 grains. Fineness: 833. Value: \$0.36.

5. Quarter Ducato. Obverse: Same as No. 3. Legend: "QVAR DVCAT. VENET." (*Quarter Ducat of Venice*). Reverse and Legend: Same as No. 3. Weight: 85.500 grains. Fineness: 833. Value: \$0.18.

6. Lirazza, piece of 30 Soldi. Obverse: St. Mark, before the Doge, kneeling, holding a cross-staff; above the head of the Doge, and parallel with the cross-staff, "DVX.," one letter above the other; meaning: Doge. Legend to the right of the Doge: "LVDVICVS MANIN." To the left of St. Mark the Legend: "S. M. VENETUS." (*St. Mark of Venice*). Reverse: A woman holding a pair of scales, with a lion by her side. Legend: "JUSTITIAM DILIGITE" (*Love justice*). Weight: 114 grains. Billon. Value, nominally 12 cents.

7. Tallaro of Paulo Raineri. Obverse: Head of a woman. Legend: "REPUBLICA VENETA." (*Republic of Venice*). Reverse: A winged lion, holding a book. Legend: "PAULO RAINERIO DUCE." (*Paul Raineri Doge*). Weight: 442.750 grains. Fineness: 833. Value: \$1.02½.

8. Half Tallaro of Paulo Raineri. Obverse and Legend: Same as No. 7. Reverse and Legend: Same as No. 7. Weight: 221.375 grains. Fineness: 833. Value: \$0.51½.

9. Osello of Ludovicus Manin, 1796. Obverse: A woman sitting. Reverse: A wreath, inclosing the inscription: "LUDOVICI MANIN. PRINCIPIS MUNUS AN VIII., 1796." (*The gift of Ludovicus Manin, Prince, the year 8th of his reign, 1796*). The Obverse on the Osello silver has often been changed in a single year; this coin was used for presents, especially on high church holidays, of which there were several in a year, and as often the Obverse was changed. Weight: 150.750 grains. Fineness: 943. Value: \$0.40.

10. Piece of Ten Lires of the New Republic, 1797. Obverse: A woman, holding in one hand a cap of liberty on a lance, and the other resting on *fusces*. Legend: "LIBERTA, EGUALIANZA." (*Liberty, Equality*). Exergue: "z. v." or "ZECCA v." (*Mint of Venice*). Reverse: A wreath, inclosing the value: "LIRE DIECI VENETE." (*Ten Lires of Venice*). Legend: "ANNO I. DELLA LIBERTA ITALIANA." (*The first year of Italian liberty*). Weight: 442.750 grains. Fineness: 830. Value: \$1.00.

11. Two Lires Provincial money of Francis II. of Austria, 1801. Obverse: Two headed Austrian eagle, with the letters "F. II." (*Francis II.*) on its breast. Legend: "MONETA PROVINCIALE IMP. VENETA." (*Imperial provincial coin of Venice*). Reverse: "DUE LIRE," encircled by palm and laurel branches. Weight: 133.500 grains. Billon. Value, nominal, \$0.09.

12. Lira of Francis II., 1801. Obverse and Legend: Same as No. 11. Reverse: "UNA LIRA." (*One Lira*). Rest same as No. 11. Weight: 62.750 grains. Billon. Value: \$0.04½.

13. Two Lires of Francis II., 1802. Obverse: Same as No. 11. Legend: "FRANCISCUS II. D. G. R. I. S. A. G. H. II. B. REX. D. VENET." (*Francis II., Dei Gratia Romanus Imperator, Semper Augustus, Germaniae, Hierosolymae, Hungariae Bohemiae Rex Dux Venetiae*; meaning: *Francis II., by the Grace of God, Roman Emperor, Ever August, King of Germany, Jerusalem, Hungary, and Bohemia, Duke of Venice*). Reverse and Legend: Same as No. 11. Weight: 126 grains. Billon. Value: \$0.08½.

14. Lira of Francis II., 1802. Obverse and Legend: Same as No. 13. Reverse: Same as No. 12. Weight: 63 grains. Billon. Value: \$0.04¼.

15. Five Lires of the Republic, 1848. Obverse: Winged lion, holding a book. Legend: "REPUBBLICA VENETA." (*Republic of Venice*). Exergue: "22 MARZO, 1848" (22d March; 1848). Reverse: Laurel and oak wreath, inclosing the value: "5." "LIRE." Legend: "UNIONE ITALIANA." (*Italian Union*). Exergue: "v." (*Venice Mint-mark*). Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

16. Five Lire of the Republic of Venice, 1848. Legend: Winged lion, holding a book, and standing upon a square pedestal, upon which is inscribed: "XI AGOSTO," and beneath "MDCCCLXVIII." (11th of August, 1848). Legend: "INDEPENDENZA ITALIANA." (*Independence of Italy*). Exergue: "VENEZIA" (*Venice*). Reverse: A heavy oak wreath, inclosing the value: "5." "LIRE." Legend: "ALLEANZA DEI POPOLI LIBERI." (*Alliance of a free people*). Exergue: "1848." Weight: 385.808 grains. Fineness: 900. Value: \$0.96½.

EMPIRE OF JAPAN.

Population 33,000,000.

Using both the gold and silver standard as legal tender.

The records of Japan show that during the sixth and seventh centuries, the treasury of the Empire consisted of imperial store-

houses and granaries filled with rice, and that money was not then in general use.

Rice was then the standard and current value, and all taxes were paid in that grain.

The unit of value about that period was the "Man-Kokf," which again was divided into ten thousand "Kokfs," and the "Kokf" or "Koku" was in volume about 4.933 U. S. bushels. The "Kokf" or "Koku" was again divided into three sacks or bales, and weighing from eighty-two to eighty-three Katties, or somewhat more than one hundred of our pounds, avoirdupois.

In 1629 the "Kokf," "Koku" or "Kokien" of rice was valued in silver ingots, nine hundred twenty five, about ten guilders Dutch, equal to about four U. S. dollars, which would make the "Man-Kokf" equal to forty thousand dollars, or one hundred thousand Dutch guilders, or what the Dutch called one ton of gold.

Silver was always known to the Japanese, but no coin from it was struck until the fifteenth century. Up to that time and for a considerable time after, lumps of silver, of irregular shape, stamped at the mints to certify their fineness, but passing by weight, which average about five ounces to the lump, were current. The Dutch in the seventeenth century named these lumps of silver "Shnet." These silver ingots were eleven-twelfths fine, and in some instances of seven ounces weight.

From 1509 to 1635 two kinds of Taels, silver, were coined, and were known to the Portuguese and Dutch as heavy and light Taels. Both kinds were carried to account without distinction down to the year 1635, at the rate of sixty-two and a half Stivers (Dutch value), or one dollar fourteen cents of our money.

Gold was discovered in Japan A. D. 749; but, as Japan was closed to the world, the gold remained in the country and augmented every year. Its abundance was thus no test of the relative wealth of the country.

The relative value of gold to silver was, until 1860, as six to one.

In 1535, and for more than one hundred years after, their payment of money was very primitive, for the Japanese having had great stores of gold and silver in ingots, observed a custom to receive their lumps of gold and silver without telling, or even seeing it. The mint master put the stamped gold ingots in papers, which contained the value of eight hundred to one thousand Taels (equal to about one thousand to twelve hundred and fifty dollars); these, sealed up, passed from one to another without being questioned. They also used little wooden boxes, in which they put twenty sealed papers of gold ingots, which was as much as a man could conveniently carry; every box was worth about twenty thousand dollars or more.

Silver ingots to the value of fifty Taels (sixty-two and a half dollars) were put in paper by the coiners at the mint, and twenty such papers were inclosed in a box and sealed like the gold boxes with the coiner's official seal. Strange as it may seem, never any deceit was found in that blind way of paying and receiving money.



KOBANG OF JAPAN, VALUE \$5.78.

In 1609 the gold "Kobang" was struck; it weighed forty-seven Kandareens; that is, two hundred seventy-four grains Troy, which was sixteen grains more than the American Eagle; but if superior in weight, the Kobang of 1609 was inferior in fineness, containing of pure gold only two hundred and twenty-four grains, while our Eagle contains two hundred and thirty-two grains.

It passed in Japan and was purchased by the Dutch for six Taels (= to \$7.50) in silver, which enabled them to dispose of it to good advantage on the coast of Coromandel, where the relative value of gold was much higher. In the two years 1670 and 1671 more than one hundred thousand Kobangs were exported by the Dutch Company from Japan, at a profit of one million florins or forty thousand dollars gold.



KOBANG OF JAPAN, VALUE \$4.44.

In the year 1696 a new kind of Kobang appeared. The old Kobang of 1609 was twenty carats eight and a half and even ten grains fine; that is, supposing it divided into twenty-four

parts, twenty parts and a half were fine gold. The new Kobang of 1696 was thirteen carats sixty-seven grains fine, containing, consequently, only two-thirds as much gold as the old one, and yet the Dutch Company was required to receive it at the same rate of sixty-eight Mas of silver.

In 1710 the Japanese government made a still more serious change in their gold coin, by reducing the weight of Kobang to twenty-five Kandareens, equal to one hundred forty-six grains, which, as the Dutch were still obliged to receive these new Kobangs at the rate of sixty-eight Mas of silver, it caused to them a loss of from thirty-four to thirty-six per cent.

From 1712 the old Kobang of 1609 passed as Double Kobang, being reckoned at twice their former weight.

This degradation of the Japanese coins was the natural result of the immense export of the precious metal, which in the course of two hundred years, from 1540 to 1740, had drained Japan of specie to the value of two hundred million dollars, and, as the mines of Japan were by no means so productive as to be able to withstand the constant drain, the government had to resort to that expedient. In 1740 the export of specie was prohibited, and the new Kobang of 1730, at an increased weight of five per cent., was put in circulation.

This Kobang was an oblong coin rounded at the ends; the surface on one side marked with four rows of indented lines, and bearing at each end the symbols of the Dairi, the spiritual ruler of Japan, and between them a mark showing the value and the signature of the master of the mint. The other side was smooth, and had only the stamp of the inspector-general of gold and silver money.

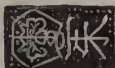


GOLD ITSIBO, VALUE \$1.11.

In 1729 the Itsibo was coined; it was also an oblong coin and of gold, and was of the value of one-quarter of the Kobang coined in 1730.

The Obang of 1627 was coined up to 1729, but soon after that time became very scarce; it was just ten times the weight and value of the Kobang of 1609. It was seldom used in commerce, and was more of the nature of a medal for merit than a coin of circulation.

The Obang of to-day, also a gold piece, is only used for Imperial presents; its weight, five ounces, six pennyweights, and ten grains, of six hundred, sixty-five fineness, and of seventy-six dollars, United States value.



GOLD HALF INCHIBU.

The Ni-Shoo, a half Inchibu, was a coin partly of gold and partly of silver weighing 28.164 grains, and of five hundred and nine fineness.

Notwithstanding the coinage of money by the government, the Japanese traders kept their accounts in silver ingots, which they obtained from the mint. These silver ingots or tokens were in general very simple, struck plain, and the greatest part of them without any rim round the margin, and most of them without any determined value. For this reason they were always and are even up to this day still weighed by the merchants, who put their "Chop" or stamp upon them to signify that the ingot was unadulterated. They therefore had to keep their accounts not in Kobangs or Inchibus but in Taels of 583 grains, valued at \$1.25, United States money. This Tael was again divided into 10 Mas or Mace of 58.30 grains = $12\frac{1}{2}$ cents, and the Mas was further divided into 10 Kandareens of 5.830 grains = 01.25 cent, and the Kandareen into 10 Kas of 0.5830 grains = 00.125 cent.

This same term Kas, frequently written *Cash* and sometimes in the plural *Casses*, is also applied to coins of copper and iron still current in the interior of Japan. The corresponding term now used is *Seni*, sometimes *P'senny*, and the Dutch call them *Pitjes*.

As the United States Gold Dollar contains about 70 Kanda-reens of fine silver, it should represent 700 of these Kas or Kasses.

At the beginning of this century and up to 1870 the following coins were in general circulation throughout Japan, viz.:

1. The Kobang, gold, weighing 200 grains, 652 fineness, varying in United States value from \$5.62½ to \$6.00 in gold.

2. The Half-Kobang, gold, weighing 100.464 grains, but of only 509 fineness, and of only \$2.25 United States value in gold.

These Kobangs are oblong, rounded at the ends, and very flat and thin, of a pale yellow color; the die on one side consists of several cross lines stamped; and at both ends there is a rectangular figure, with raised letters on it, besides a moon-like figure, with a flower on it in relief. On the Reverse side a circular stamp with raised letter on it; within the margin, toward one end, two smaller sunk stamps with raised letters.

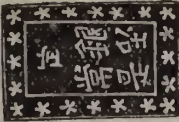
3. The Itjib or Gold Itzebu, also called the golden bean, is made of pale gold of a parallelogramical shape and flat, rather thicker than the Kobang, with many raised letters on one side and two figures or flowers in relief on the other: the value is about \$1.12½. The few old Itjibs, rather scarce, were thicker than the above, and in value about \$1.32½ to \$1.40, United States value.

4. The Ni-Shoo, a mixed coin of gold and silver, similar to the old Ni-Shoo, but of so unreliable weight and fineness as to make it evidently of a secret standard, and forced, fictitious value.

5. The Nandio-Guin, silver, a parallelogramical flat coin, one inch long and half inch broad, of 916 fineness. The edge is stamped with stars, and within the edges are raised dots: one side is marked all over with raised letters, and at the same time exhibits a double moon-like figure. Its value is equal to 7 Mas or Mace and 5 Kandareens, valued at about \$1.05, United States value.

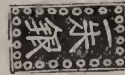
6. Silver Itzebu, square pieces, valued at 37 cents.

7. Half Silver Itzebu, square pieces, valued at 18½ cents.

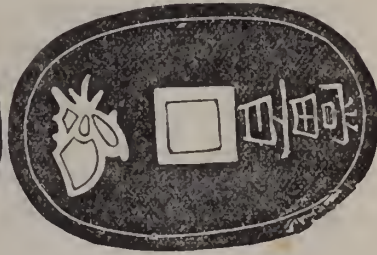
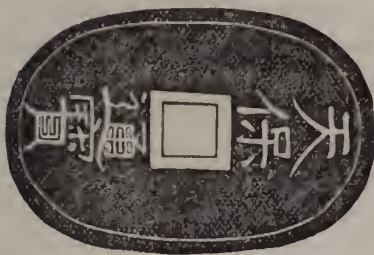


SILVER ITZEBU.

8. Quarter Silver Itzebu, square pieces, valued at 9¼ cents.

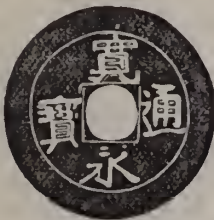


SILVER QUARTER ITZEBU.



TEMPO OF JAPAN.

9. Hundred P'Seni, copper coin, oval shaped, about the size and shape of the longitudinal section of an egg, weighing only as much as seven of the old Kas. This overvaluation has of course driven the old Kas out of circulation. Its value is fictitious.



P'SENI OF JAPAN.

10. Sjumon-Seni, of the value of four common Seni, made of brass, and very thin.

11. Doosa-Seni, a cast-iron coin, but so brittle that it is easily broken, if dropped on the ground.

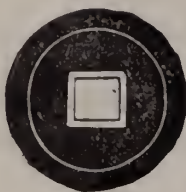
12. P'Seni, copper and brass, round. with a square hole in the middle.



IRON CASH.

13. Iron cash, round, with a square hole in the middle.

People who travel on horseback tie strings of P'Senis and Iron cash behind them, to one of the sashes of their seats. Foot travellers carry them in a basket. This brass, copper, and iron coin is the best medium to buy what necessaries are wanted on the road, being more handy than silver, which must be weighed. They have all a forced and fictitious value.



COPPER P'SENI.

In 1869 to 1870 a new era for coining of money was inaugurated in Japan. The Mint in Ozaka, a series of fine and substantial buildings, was finished, and work commenced to coin the "Yen" and "Sen." The Mint is in the Roman style of architecture, equipped with twelve first class English coining-presses, thirty-seven melting surfaces, and a sulphuric and nitric acid manufactory. The Mint makes its own tools, cuts

its own dies, and performs the usual bullion, assaying, refining, and analyzing business. The force employed in it consists of 380 Japanese and several Englishmen.

The coins minted are gold, silver, and copper, and of the same weight, fineness, denomination, and decimal system as the United States coinage. They are round, with milled edges; stamped with the devices of the rising sun, coiled dragons, legend of date and denomination, in Chinese and Roman numerals, chrysanthemums, leaves and flowers.

The Japanese have a prejudice of stamping the Mikado's image on their coins. They also object to any foreign money that has the figure of a cross, saint, beads, or any religious emblems or mottoes upon it. The average metal money now in circulation is nearly two dollars per head of the population, and of gold about seven-eighths of that sum per capita.

Besides this metal money of the "Yen," the "Itagone" and "Kodama" are denominations by which various lumps of silver, without form or fashion, are known, which are neither of the same size, shape, nor value. The "Itagone" are oblong, and the "Kodama" roundish, for the most part thick; but sometimes, though seldom, flat. These pass in trade, but are always in payment from one individual to another, and have a dull leaden appearance.

Silver and gold in ingots are valued by the old Tael weight, and also by the "Kwamme," equal to eight and one-eighth pounds of silver, which is worth 150 Yens per "Kwamme," and gold 2,500 Yens per "Kwamme."



GOLD TWENTY YEN.

The right to work gold, silver, and copper mines does not belong to the owner of the soil; for in Japan possession of the surface does not carry with it the right to the mineral wealth below. That belongs by law to the government, which exacts from the worker of the ores a varying royalty.



GOLD YEN.



SILVER YEN.



SILVER TEN SEN.

MEXICO.

GOLD COINS OF MEXICO.

The earliest gold money of Mexico minted in that country was known as the "Cob Money;" consisting of the Doubloon

and its fractions, the Half Doubloon, the Quarter Doubloon, the Pistole, the Eighth or Eseudo and the Sixteenth or Dollar. They are of uniform fineness of 895 thousandths, and the weight of the Doubloon is 418 grains; that of the smaller pieces in proportion. They are rough and unsightly in appearance, giving evidence of the work of the hammer, with which they were made. The first figure of the date is always omitted—for example 1738 reading 738. They are not often found much below the standard weight, although their rude character suggests a temptation to use the file. They are stamped with the arms of Spain and were emitted from 1690 to 1770. The next Mexican gold coins were those of Iturbide.

1. Half Doubloon of Iturbide. Bust of the Emperor, with the Legend: "AUGUSTINUS DEI PROVIDENTIA;" with the date 1822 or 1823, and mint-mark. Reverse: A shield bearing the Mexican eagle; beneath are the emblems of authority. Legend: "MEX I IMPERATOR CONSTIT." The value in esudos is at the end. Value: \$7.75.

2. Doubloon of the Republic. An open book, inscribed "LEY." A hand rests upon it, grasping a staff surmounted with a liberty-cap. Legend: "LA LIBERTAD EN LA LEY." Beneath is inscribed, "8 E" (*seudo*). "GO" (Guanaxuato); (date), (mint-mark). "21 Q" (*uילות*). Value: \$15.71.



DOUBLOON OF THE REPUBLIC.

Reverse: An eagle on a cactus holding a serpent between its beak and one talon; beneath are branches of oak and laurel. Legend: "REPUBLICA MEXICANA."

3. Half Doubloon. Similar to the last, excepting the substitution of "4 E" (*scudos*) on the Obverse. Value: \$7.85.

4. Quarter Doubloon. Similar to No. 2, excepting the substitution of "2 E" (*scudos*) on the Obverse. Value: \$3.92½.



QUARTER DOUBLOON OR PISTOLE OF THE REPUBLIC.

5. Eighth Doubloon. Similar to No. 2, excepting the substitution of "1 E" (*scudo*) on the Obverse. Value: \$1.96.

6. Sixteenths Doubloon. Similar to No. 2, excepting the substitution of "½ E" (*scudo*) on the Obverse. Value: 98 cents.



SIXTEENTH OF A DOUBLOON.

7. Twenty Pesos of Maximilian. Head of Maximilian with the inscription: "MAXIMILIANO EMPERADOR."



TWENTY PESOS OF MAXIMILIAN.

Reverse : The arms of Maximilian, above which is inscribed : "IMPERIO MEXICANO." Beneath, "20 PESOS 1866 MO" (Mexico). Value about \$19.44.

8. Twenty Pesos of the Republic. The Obverse of this coin is similar to the Reverse of No. 2 ; but has the date below.



TWENTY PESOS OF THE REPUBLIC.

Reverse a pair of scales with a scroll beneath it inscribed "LEY," and a sword behind it surmounted with a liberty cap inscribed "LIBERTAD" and surmounted with rays. Inscription : "GO. S. VEINTE PESOS 875" (*fine*). Value : \$19.44.

9. Ten Pesos of the Republic. Similar to the Twenty Pesos with the change of size and denomination, *Diez Pesos*.

10. Five Pesos of the Republic. Similar to the Twenty Pesos, with change of size and denomination.



FIVE PESOS OF THE REPUBLIC.

11. Two Pesos and Fifty Centavos. Obverse : Same as No. 8. Reverse : "2½ PESOS," inclosed by a wreath. Legend : "M 875 MO."



TWO AND A HALF PESOS.

12. One Peso. Similar to No. 11, with change of size and denomination.

SILVER COINS OF MEXICO.

The *Cob* series, comprising the Dollar, Half, Quarter and Eighth, correspond in general style to the Cob gold, being rude in shape and stamped with the arms of Spain. Both series have long since ceased to pass current as money. The *hammered dollars* were coined the latter part of 1810 and later. The planchets were prepared by hand and the impression made with a hammer. They are much inferior to the regular coinage, from which they are easily distinguished by their rude appearance. The *cast dollars* are said to have been made at Chihuahua from 1811 to 1813. Many of them bear the effigy of Charles IV. of Spain; some are dated as early as 1804, and some bear the mint-mark of Mexico (Mo.) They are very irregular in weight and fineness, averaging about 916 thousandths. In value they range from 94 to 127 cents of our money.

The Dollars of General Vargas were made on planchets of old Spanish Dollars; the Obverse being stamped "VARGAS," and date, and the Reverse, "R. CAXA DE SOMBRERETE," his headquarters. They appeared in 1811-12. The next year, 1813, General Morelos issued a Cast Dollar, Half Dollar, Quarter Dollar and Eighth of a Dollar, having a bow and arrow within branches, with the word "SUD" below—indicating the money of the South. On the Reverse are the value and date within a wreath, also the mint-mark.

After the execution of Morelos, in 1815, Spain reasserted her authority until, in 1821, Iturbide proclaimed Mexico inde-

pendent. The next year he was proclaimed Emperor, under the title of Augustine I., but he abdicated in less than one year, rather than allow his country to plunge into civil war. The Republic coined money from 1824 to 1865 inclusive, when Maximilian assumed the government. After his overthrow and execution, in 1867, the Republic was again re-established.

1. Dollar of Iturbide. Portrait of Iturbide or Augustin I. Legend: "AUGUST DEI PROV." Below "MO 1822."



DOLLAR OF ITURBIDE.

Reverse: An eagle crowned, with expanded wings on a cactus. Legend: "MEX. I. IMPERATOR. CONSTITUT." "8 R" (*eals*), "I. M." Value: \$1.04.



REVERSE OF DOLLAR OF ITURBIDE.

Reverse second: An eagle crowned standing on a cactus. Legend: "MEX. I. IMPERATOR CONSTITUT." Exergue: "8 R" (*eals*), "J. M."

2. Half Dollar of Iturbide. Similar to the last, with reduced size and "4 R" in place of "8 R."



QUARTER DOLLAR OF ITURBIDE.

3. Quarter Dollar of Iturbide. Similar to No. 1, with the size reduced and "2 R" in place of "8 R."



EIGHTH OF A DOLLAR OF ITURBIDE.

4. Eighth of a Dollar of Iturbide. Similar to No. 1, with the size reduced and "1 R" in place of "8 R."

5. Sixteenth of a Dollar of Iturbide. Similar to No. 1, with the size reduced and "8 R" omitted.



SIXTEENTH OF A DOLLAR OF ITURBIDE.

6. Dollar of the Republic. A liberty cap inscribed "LIBERTAD," surrounded with rays. Beneath it "8 R. (cals) DO. (Durango) 1824, R. L. 10 D. (incros) 20 G. (ranos)."

Reverse: An eagle, with the wings raised, looking toward



DOLLAR OF THE REPUBLIC, 1824.

the left, with a snake in the beak and right talon. Legend: "REPUBLICA MEXICANA."

7. Half Dollar. Similar to No. 6, with the size reduced, and "4 R" in place of "8 R."

8. Quarter Dollar. Similar to No. 6, with the size reduced, and "2 R" in place of "8 R."



QUARTER DOLLAR OF 1824.

9. Eighth of a Dollar. Similar to No. 6, with the size reduced, and "1 R." in place of "8 R."

10. Sixteenth of a Dollar. Similar to No. 6, with the size reduced, and " $\frac{1}{2}$ R." in place of "8 R."



SIXTEENTH OF A DOLLAR OF 1824.

11. Dollar of 1844 and since. Similar to Obverse of No. 6. The Reverse differs in the position of the eagle, who is displayed and looking toward the right.



DOLLAR OF 1844.

12. Half Dollar. Obverse: Similar to No. 7. Reverse: With the eagle, as in No. 11.



HALF DOLLAR OF 1843.

13. Quarter Dollar. Obverse: Similar to No. 8, with the eagle as in No. 11.



QUARTER DOLLAR OF 1844.

14. Eighth of a Dollar. Obverse: Similar to No. 9. Reverse: With the eagle as in No. 11.



EIGHTH OF A DOLLAR OF 1844.

15. Sixteenth of a Dollar. Obverse: Similar to No. 10. Reverse: With the eagle as in No. 11.



SIXTEENTH OF A DOLLAR OF 1844.

16. Quarter Real or Three Cents. Obverse: Head of Liberty, without any Legend. Reverse: " $\frac{1}{4}$," surrounded with the Legend: "REPUBLICA MEXICANA," and the date of issue.



QUARTER REAL OF MEXICO.

17. Dollar of Maximilian. The Obverse is similar to that of the 20 Pesos, described in the Gold Coins of Mexico.



DOLLAR OF MAXIMILIAN.

Reverse: Only differs from the Reverse of the 20 Pesos piece in the substitution of "1 PESO" for "20 PESOS."

18. The Half-Dollar, Dime, and Half-Dime of Maximilian correspond in value with their respective denomination, and differ so slightly from the Dollar as not to require particular description, their value being expressed in multiples of the Centavo.

19. Dollar of 1869 and since. An eagle displayed on a cactus, the beak and talon rending a snake. Legend: "REPUBLICA MEXICANA." Exergue: The date of issue.



DOLLAR OF 1869.

Reverse: A pair of scales with a scroll beneath it inscribed "LEY," and a sword behind it, surmounted with a liberty cap, inscribed: "LIBERTAD," and surrounded with rays. Inscription: "UN PESO MO C 902.7" (*fine*).

20. Half-Dollar. Similar to No. 19; reduced in size, and with "FIFTY CENTAVOS" in place of "UN PESO."

21. Quarter-Dollar. Similar to No. 19; reduced in size, and correspondingly changed in value.



HALF-DIME OF 1872.

22. Dime or Ten Centavos. Similar to No. 19; reduced in size, and correspondingly changed in value.

23. Half-Dime or Five Centavos. Similar to No. 19; reduced in size, and correspondingly changed in value.

COPPER COINS OF MEXICO.

For many years several of the Mexican States, including Chihuahua, Sinaloa, and others, issued copper Centavos, with different devices. The Emperor Maximilian did the same during his short-lived reign. They bear his arms with the Legend: "IMPERIO MEXICANO." Since his death the Republic has coined a copper Centavo, which is thus described: The Obverse has the words "UN CENTAVO" in two lines, below which is the date and Mint-mark; the whole being surrounded with a wreath of laurel and oak.

Reverse: An eagle on a cactus, rending a snake with his beak and talon. "REPUBLICA MEXICANA."

The names of Mints of Mexico, with the abbreviations used on the money, and their date of establishment, are as follows:

Mexico, M ^o ., 1535.	Gnadalaxara, G ^a ., 1814.
Zacatecus, Z ^s ., 1810.	San Luis Potosi, P ^l ., 1829.
Durango, D ^o ., 1811.	Tlaepau, M. E. (not known).*
Guanaxnato, G ^o ., 1812.	Guadalupe Y Calao, G. C., 1844.
Chihuahua, C ^a ., 1811 to 1814; recommenced 1832.	Culicau, C., 1846.

NORWAY.

The earliest coins of Norway are those bearing the name of Oulaf, 1066, with the title, sometimes, of *Dux*. Norway was annexed to Denmark near the close of the fourteenth century. The coins issued for Norway had on the Obverse the portrait of the kings of Denmark, with their titles, and on the Reverse

* Appears to have been discontinued and revived again in 1829.

the arms of Norway (a lion, rampant, holding a battle axe). In the Exergue, usually, are two hammers, crossed, the Norwegian mint-mark, which refer to the Konigsberg mines. Up to the year 1818 the coins closely resemble those of Denmark, and since that time they are distinguished from the Swedish series by the name of Norway preceding that of Sweden in the Legend. On those of Sweden the name of that country precedes that of Norway. For the earlier money struck for Norway see the article on Denmark.

SILVER AND BASE COINS OF NORWAY.

1. Eight Skillings of Charles XIV. "8 SKILLING SPECIES 18-17, I. C. P.," the date separated by crossed hammers.



EIGHT SKILLINGS.

Reverse: Arms of Norway on a shield, crowned. Legend: "CARL XIV JOHAN NORGES SVER. G. OG. V. KONGE." Weight: 52 grains, Troy. Fineness: 500. Value: \$0.07.

2. Four Skillings of Charles XIV. "4 SKILLING SPECIES 18-25 I M K.," the date separated by crossed hammers. Reverse: Precisely like No. 1. Weight and Value: one-half that of the 8 Skilling piece. Fineness: 500.



FOUR SKILLINGS.

3. Half Species Daler of Charles XIV. Bust enveloped in

a Roman mantle. "CARL XIV JOHAN NORGES SVER. G. OG. V. KONGE."



HALF A SPECIES DALER.

Reverse: Arms of Norway on a shield, crowned. " $\frac{1}{2}$ SPS. 60 SH" in the field. Below, " $18\frac{1}{2}$ ST. I. MK. FS." ($18\frac{1}{2}$ to one mark of fine silver). The date separated by crossed hammers. Weight: 223 grains, Troy. Fineness: 875. Value: \$0.44.4.
4. Twenty-four Skillings. Obverse: Similar to No. 3.



TWENTY-FOUR SKILLINGS.

Reverse: Arms of Norway on a shield, crowned. "24 SK" (*illings*) in the field. Date below, separated by crossed hammers. Weight: 113 grains, Troy. Fineness: 687.5. Value: \$0.21.4.

5. One-fourth of a Riks Daler. Obverse: Similar to No. 3.



FOURTH OF A RIKS DALER.

Reverse: A crowned shield, encircled by a chain, and bearing three crowns. "FOLKETS KARLEK MIN BELONING" (*The people's love is my recompense*). Below $\frac{1}{4}$ R. S. P., separated by the initial letters, and the date separated by a star. Weight: 132 grains, Troy. Fineness: 750. Value: \$0.22.3.

6. One-eighth of a Rix Daler. Obverse: Similar to No. 3.



EIGHTH OF A RIKS DALER.

Reverse: Similar to No. 5: substituting " $\frac{1}{8}$ " for " $\frac{1}{4}$." Weight: 65.6 grains, Troy. Fineness: 750. Value: \$0.11.

7. Specie Daler, 1844. Bust of the King, draped. "CARL XIV JOHAN NORGES SVER. G. OG. V. KONGE."



SPECIE DALER OF NORWAY.

Reverse: Arms of Norway on a shield, crowned: branches of oak on either side. Above, " $9\frac{1}{2}$ ST I M. K. F. S." In the field, "1 SPS." Below, the date separated by crossed hammers. Weight: 445.9 grains, Troy. Fineness: 875. Value: \$0.90.8.

8. Half Specie Daler. Similar to No. 7: substituting " $\frac{1}{2}$ SPS" for "1 SPS." Weight: 223 grains, Troy. Fineness: 875. Value: \$0.45.4.



HALF SPECIE DALER.

9. Twelve Skillings. Obverse: Similar to No. 3.



TWELVE SKILLINGS.

Reverse: Arms on a shield, crowned, with branches of oak on either side. Above, "12 SK." Exergue: the date separated by crossed hammers. Weight: 44.5 grains, Troy. Fineness: 875. Value: \$0.09.

Of the Copper coins of Norway there is a 2 Skilling Species piece and a 2 Skilling Courant. They have the arms with the name of the King abbreviated, or the latter without the arms on the Reverse. The value, date, and crossed hammers being on the Obverse.

PARAGUAY.

Paraguay was discovered by Sebastian Cabot in 1530. The first Spanish colony was established under the direction and auspices of Pedro de Mendoza, whose lieutenant, Juan de Ayolas, founded Asuncion about 1537. Previous to 1620 its territory comprised the entire basin of the Plata, but between

that time and 1776 two distinct governments, Paraguay and Buenos Ayres, were established by royal decree. In the latter year they were again united under the separate vice-royalty of Buenos Ayres. In 1811 Paraguay took steps that resulted in her independence of Spain.

COPPER COINS OF PARAGUAY.

1. One-Twelfth of a Real. Upon a circle, crossed by horizontal bars in the centre, is the fraction $\frac{1}{12}$. Legend: "REPUBLICA DEL PARAGUAY." Date below, 1845. Reverse: A lion, sejant, guarding a liberty pole with cap, the latter surrounded by rays. Two half-wreaths connected with a ribbon below. Weight: 97 grains, Troy. Value: one cent.

2. Four Centesimos. In the centre a figure 4 is within a circle crossed with horizontal bars. Above, and resting on the circle, the word "CENTESIMOS," on a label. A wreath surrounds the exterior, excepting a space for the date, 1870. Reverse: A star, from which rays issue, occupies the centre; two half-wreaths, one of palm and one of oak, are fastened below by a ribbon. Legend: "REPUBLICA DEL PARAGUAY." Weight: 304 grains. Value: four cents.

3. Two Centesimos. Precisely similar to the last, with reduction in size and the figure 2 in place of 4. Weight: 152 grains. Value: two cents.

4. One Centesimo. Precisely similar to the last, with reduction in size and "1 CENTESIMO" in place of "2 CENTESIMOS." Weight: 76 grains. Value: one cent.

PERU.

This country declared itself independent of Spain in the year 1821, and in 1822 it issued money. It was not, however, until 1824 that the mother country acknowledged the separation.

During the revolt the Spanish monarch continued to issue coins, and in some instances actually restruck those of the Republic. In 1836 a division occurred into the nations of North Peru and South Peru. This was for some time exhibited on the coinage, but afterward entirely disappeared. There were three Mints: those of Lima, Cuzco and Arequipa. The mark of Lima is sometimes in a monogram; those of the other Mints are abbreviated to *Cuz* and *Areq.* (*Caps*). The early gold money of Peru, after the Spanish standard, consists of the Doubloon, Half-Doubloon, Pistole, Escudo, and Sixteenth Doubloon. Up to 1851 the silver money embraced the Peso, Half and Quarter, or Two Reals, Real and Half-Real. In that year the gold money was made to embrace the Sol, weighing 569 grains, of 900 fineness, and valued at \$20.00. The "Half-Sol," "Doblin," "Escudo," and "Half-Escudo," being of proportional decimal value. The silver was to consist of the Dollar, Half-Dollar, Peseta (20 cents), Dinero, and Half-Dinero. The Dollar was to weigh 475 Spanish grains, 900 fine. One hundred Centavos of copper were to be equal in value to the Dollar.

GOLD COINS OF PERU.

1. Doubloon. The goddess of liberty in a Roman helmet, supporting a staff with cap with one hand, and a shield bearing the inscription "LIBERTAD," with the other. Legend: "FIRME Y. FELIZ POR LA UNION."



DOUBLOON OF PERU.

Reverse: The arms of the Republic upon a shield, and resting upon flags crossed. Above is a wreath of oak. Legend: "REPUBLICA PERUANA I. M." Date below. "8 E." (*scudos*), in the field. Weight: 416.5 grains. Fineness: 870. Value: \$15.55.

2. Quarter-Doubloon or Pistole. Obverse: Same as No. 1.



PISTOLE OF PERU.

Reverse: Same as No. 1, with the substitution of "2 E" for "8 E." Weight: 103.8 grains. Fineness: 870. Value: \$3.88.

SILVER COINS OF PERU.

1. Dollar or Peso of 1822. Arms and ensigns of the Republic. "PERU LIBRE. M. 8 R (*euls*) J. P." Date below.



PESO OF 1822.

Reverse: A pillar encircled with a scroll. Upon one side is Virtue, with a branch of olive, upon the other is Justice, with scales and a sword. Legend: "POR LA VIRTUD Y LA JUSTICIA." Value: \$0.85.

2. Dollar or Piso of 1831. The goddess of liberty standing

with staff, surmounted by liberty cap, in her right hand, and the left supporting a shield inscribed with the word "LIBERTAD." Legend: "FIRME Y FELIZ POR LA UNION."



PESO OF 1831.

Reverse: The arms of the Republic upon a shield, between branches of palm and laurel; a wreath of oak above, the date below. Legend: "REPUB. PERUANA. CUZCO. 8 R. G." Date below. Value: \$0.85.

3. Half-Peso, 1836. Obverse: The same as No. 2.



HALF-PESO, 1836.

Reverse: Similar to the last, substituting "4 R. B." for "8 R. G.;" and changing the date to 1836. Value: \$0.375.

4. Two Reals, 1845. Obverse: The same as No. 2.

Reverse: Similar to No. 2, changing the date to 1845, and the inscription to "REP. PERUANA. M. 2 R (eals) 10 D (ineros) 20 G (ranos)." Value: \$0.187.



TWO REALS, 1845.

5. One Real, 1828. Obverse: The same as No. 2.



ONE REAL, 1828.

Reverse: Similar to No. 2, changing the date to 1828, and the inscription to "REPUB. PERUANA. M. 1 R (*cal*) J. M." Value about \$0.10.

6. Half-Real, 1823. Obverse: The same as No. 2.

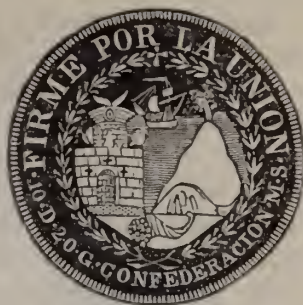


HALF-REAL, 1823.

Reverse: Similar to No. 2, changing the date to 1823, and the inscription to "REPUB. PERUANA. C. B." Value: \$0.05.

7. Dollar or Peso of North Peru, 1836. Obverse: Same as No. 2. Reverse: Same as No. 2, excepting the Legend, which reads: "EST NOR PERUANA. M. 8 R T M."

8. Dollar or Peso of South Peru, 1838. Obverse: A sun with five stars above. "REPUB. SUD PERUANA. 8 R (*cal*) Cuzco, 1838."



PESO OF SOUTH PERU, CUZCO.

Reverse: A volcano, castle, and cornucopia, with water in the background, and a ship in the distance; the whole inclosed with a laurel wreath. Legend: "FIRME POR LA UNION." "10 D (*ineros*) 20 G (*ranos*) CONFEDERACION M. S." Value: Same as No. 2.

9. Half-Dollar or Peso of South Peru, 1838. Obverse: Similar to No. 8, substituting for the value and Mint-mark, "4 R. AREQ."



HALF-PESO OF SOUTH PERU, AREQUIPA.

Reverse: Design and first inscription the same as No. 8. The second inscription reads "CONFEDERACION M. V." Value: \$0.425.

10. Quarter of a Real, 1840. Obverse: A lama.



QUARTER OF A REAL.

Reverse: The fraction $\frac{1}{2}$; the word "LIMA" above it, and the date, 1840, below. Value: \$0.03.

11. Sol of 1874. The goddess of liberty seated, looking toward the right; her left hand rests upon a shield bearing a sun, her right hand holds a staff surmounted with a liberty cap. Before her is an altar bearing an oak wreath, and encircled with a band inscribed "LIBERTAD." Below is the value: "UN SOL." Reverse: Arms, etc., similar to No. 2, with the Legend: "REPUBLICA PERUANA LIMA 9 DECIMOS FINO Y. J." Date below. Weight: 385 grains Troy. Fineness: 900. Value: \$0.83.25.

12. Five Pesetas or Dollar, 1880. A head of liberty bound with a wreath of cereals, with a large round ear-ring, and a necklace of pearls. Reverse: The arms of Peru, similar to No. 2. Legend: "REPUBLICA PERUANA LIMA 9 DECIMOS FINO B. F." Exergue: "CINCO PESETAS." Weight: 385 grains. Fineness: 900. Value: \$0.83.25.

13. One Peseta, 1880. Obverse: Similar to No. 12. Reverse: Differs from the Reverse of No. 12, in the substitution of "UNA PESETA," for Cinco Pesetas, and the abbreviation of Decimos to Dec. Value about \$0.16.6.

COPPER COINS OF PERU.

1. Centime, 1855. A sun. Legend: "REPUBLICA PERUANA." Reverse: "UN CENTIMO," in two straight lines, inclosed in an oval wreath. Above it, "LIMA;" below, "1855." Weight: 180 grains. Value: 1 cent.

2. Half-Centime, 1855. Precisely similar to No. 1, with the substitution of "MEDIO CENTIMO" for Un Centimo. Weight: 60 grains. Value: $\frac{1}{2}$ cent.

3. Two Centavos, 1864. A sun. Legend: "REPUBLICA PERUANA." Date, 1864. Reverse: "DOS CENTAVOS," between branches of cereals. Weight: 142 grains. Value: 2 cents.

4. One Centavo, 1864. Obverse: Same as No. 3. Reverse: "UN CENTAVO," between wreath of cereals. Weight: 71 grains. Value: 1 cent.

NICKEL COINS OF PERU.

1. Two Centavos, 1864. From the same dies as No. 3 of the copper series. Composition: 12 parts nickel, 88 parts copper. Weight: 140 grains. Value: 2 cents.



TWO CENTAVOS OF PERU.

2. One Centavo, 1864. From the same dies as No. 4 of the copper series. Same composition as the nickel Two Centavos. Weight: 70 grains. Value: 1 cent.



ONE CENTAVO OF PERU.

3. Ten Centavos, 1879. A sun. "REPUBLICA PERUANA, 1879." "DIEZ CENTAVOS." Reverse: "10" inclosed in a circle; above, "MONEDA PROVISIONAL." Below, "CENTAVOS." Weight: 76 grains Troy. Composition: 25 parts nickel, 75 parts copper. Value: 10 cents.

4. Five Centavos, 1879. A sun. "REPUBLICA PERUANA, 1879." "CINCO CENTAVOS." Reverse: "5," inclosed in a circle; above, "MONEDA PROVISIONAL." Below, "CENTAVOS." Weight: 38 grains. Composition: Same as the nickel Ten Centavos. Value: 5 cents.

POLAND.

This is one of the oldest European countries whose history has come down to us. The people being of a warlike character, she became involved in internal dissensions, and a prey to her neighbors, until she finally had her territory divided among her allied adversaries. In 1573 she became an elective monarchy, and selected Henry of Valois for her ruler. But after receiving the crown of France the next year, Henry abandoned that of Poland. The first partition of Poland by Austria, Russia and Prussia divided nearly one-fourth of her territory between them. In 1793 the second partition took place, and in 1795 the third and last was made by the same powers. In 1807



FLORIN OF POLAND.

Napoleon formed the Duchy of Warsaw, but in 1815 this under the name of the Kingdom of Poland was given to Russia by the bond of a personal union.



5 ZLOTE OF POLAND.

In 1830 the Poles revolted and re-established the Kingdom of Poland, declaring their independence. The revolt was soon suppressed, but some coins were issued, of which a few are here illustrated.



2 ZŁOTE.



1 ZŁOT.

The Russian government in 1832 issued a series of coins for circulation in Poland, in which their value was stated in Russian and Roman letters. Several of these are described under the coins of Russia.

PORTUGAL.

This country was originally a part of Spain, and was established as a separate monarchy in 1092. Henry of Burgundy, grandson of Robert of France, enlisted in the cause of Alphonso of Spain against the Moors, and was so successful that Alphonso bestowed upon him his daughter Theresa, and created him Count of that part of Portugal where the city of Oporto is situated, from which the whole country derives its name.

The reputation of the gold coins of Portugal are equal to those of any other country. The "Joe" and "Half Joe" are familiar names all over the world. The discovery in the year 1500 of Brazil by Cabral furnished the material from which the gold currency became enormously increased. Since the independence of Brazil, the gold coinage has diminished very greatly, while the silver coins were never very abundant outside of her own limit.

GOLD COINS OF PORTUGAL.

The first system of gold coinage consisted of the Dobrao of 20,000 reis, the Half Dobrao of 10,000 reis, the Moeda D'ouro or Moidore of 4000 reis, and the Half, Quarter and Tenth Moidore. The latter, consisting of 400 reis, is also known as the Cruzado. They were all 917 thousandths fine, and the Dobrao weighed 830 grains Troy.



MOIDORE OF ALPHONSUS VI., 1656.

MOIDORE OF JOHN V.

The second or Joannese series appeared in 1722, and was discontinued in 1835. It comprised the Joannese or Dobra of 12,800 reis; the Half of 6400 reis; the Quarter of 3200 reis; the Escudo of Sixteen Tostoes, or 1600 reis; the Quartinho, or Quarter Moidore of 1200 reis; the Half Escudo of 800, and the Cruzado of 400 reis. The Dobra weighed 442.8 grains.



HALF JOANNESE, OR "JOE." VALUE \$8.81.

Under Maria II. the third series of gold coins was instituted. They comprised the Coroa D'ouro, or Gold Crown of 5000 reis, and its half. Like their predecessors they were of 917 thousandths fine, the crown weighing 147.6 grains.



GOLD CROWNS OF PORTUGAL. VALUE \$5.39.

SILVER COINS OF PORTUGAL.

Previous to 1835 the silver pieces of Portugal were the Cruzado of 400 reis; the half, of Twelve Vintens; the piece of Six Vintens; the Testoon, of 100 reis, and its half. Originally they were 917 thousandths fine, but for many years they were coined at 899 thousandths. The Cruzado weighed 226.6 grains. In 1835 the Millreis was established as the unit, and the silver series consisted of the Coroa, or Crown, or Millrei of 1000 reis; the Half Crown of 500 reis, and the pieces of 200 and 100 reis. The Fineness is 917, and the Millreis weighs 148 grains.

1. 80 Reis of John V. "LXXX" beneath a crown.
 "JOANNES V. D. G. PORT (*ugalie*) ET ALG (*arbiorum*) REX."
 Reverse: A cross potent. Legend: "IN HOC SIGNO VINCES."



80 REIS OF JOHN V.

2. 400 Reis of John V. Crowned shield, bearing the arms of Portugal; 400 (value) to the left, and 1750 (date) to the right. Legend: "JOANNES V. D. G PORT (*ugalie*) ET ALG (*arbiorum*) REX."

Reverse: A cross with roses in the angles. Legend: "IN HOC SIGNO VINCES." Value, about \$0.47.5.



400 REIS OF JOHN V.

3. 200 Reis of Maria I. Obverse: Similar to No. 2, changing the value to 200, and the date to 1780.



200 REIS OF MARIA I.

Reverse: Similar to No. 2. Value, about \$0.24.

4. 500 Reis of Maria II. Portrait of the Queen with the date below. Legend: "MARIA II. PORTUG (alia) ET ALGARB (iorum) REGINA."



500 REIS OF MARIA II.

Reverse: Arms of Portugal, crowned and draped. "500 REIS" below. Value about \$0.40.

5. 500 Reis of Louis I. Obverse: Portrait of Louis. Legend: "LUDOVICUS I. PORTUG (*aliæ*) ET ALGARB (*iorum*) REX." Date 1871.



500 REIS OF LOUIS I.

Reverse: Arms of Portugal, crowned, inclosed with branches of palm. Value, "500 REIS," below. Same value as the last.

6. 200 Reis. Portrait and titles as in the two foregoing coins.



200 REIS OF PORTUGAL.

Reverse: "200 REIS" inclosed between branches. Value: \$0.16.

Silver coins of Portugal coined for Brazil are mentioned under the coins of the latter-named country. There were also pieces of 12, 10, 8, 6, 4 and 2 macutas issued for the colonies of the west coast of Africa. They are similar in design, and a description of two of them will give an idea of their character and value.

1. Four Macutas of Joseph I. A crowned shield, bearing the arms of Portugal. Legend: "JOSEPHUS I. D. G. REX P ET D. GUINEA." Reverse: "MACUTAS 4" inclosed in a wreath. Legend: "AFRICA PORTUGUEZA, 1762." Value: \$0.20.

2. Twelve Macutas of Maria I. and Peter III. Crowned

shield. "MARIA I. E. PETRUS III. D. G. REGES P. E. D. GUINEA."
Reverse: Same as the preceding. Value: \$0.60.

COPPER COINS OF PORTUGAL.

These are similar to the silver coins in design, and in value are of the denominations of 40 reis, 20 reis, 10 reis, 5 reis and 3 reis. They were also coined for Brazil. For the Portuguese possessions in Africa, there were coined pieces of one and of one-half Macuta.

RUSSIA.

The early history of this great country is involved in much obscurity. It seems to be agreed that about the year 862 A. D. Rurick was "Prince of all Russia." But his successors for about seven generations are so much in dispute as to cause them to be omitted by many chronologers. The Princes of Wladimir commenced with the accession of Andrew I. in 1157. Ivan Basilowitz IV., in 1534, added to the title of his predecessors, "Great Prince," that of "Tsar" or "Czar," Cæsar or King. It was Peter the Great who first assumed the appellation of Emperor, in the year 1721. The house of Romanow continued from 1613 to 1762. The house of Holstein succeeded in the person of Peter III. After six months this Prince was succeeded by his widow Catherine II., who reigned until 1796; Paul I. from 1796 to 1801; Alexander I. from 1801 to 1825; Nicholas from 1825 to 1855; Alexander II. from 1855 to 1881; Alexander III. is the present incumbent.

The old gold coins of Russia comprised the Imperial, which was equal to ten roubles, the Half Imperial of five roubles, the three roubles, the rouble and the half rouble, or poltina. The silver coins were the rouble and its subdivisions, of 50, 25, 20, 15, 10 and 5 Kopeks. The copper coins comprised the 10, 5, 2, 1 and $\frac{1}{2}$ Kopeks; one hundred of the Kopeks being valued

at one rouble. There were also coins of 12, 6 and 3 roubles in platinum, which were coined between the years 1828 and 1845. This metal, though answering the conditions which are desirable for metallic money—that is, hardness and scarcity—was objectionable on account of its requiring to be welded, through its insensibility to furnace heat. It was found also to be of fluctuating value, and no other nation adopted it after the experiment of the Russian government.

In the year 1832, after the revolt of Poland had been suppressed, silver money was coined by Russia for circulation in that part of her dominion, having the value in both languages upon them. The principal of these was that of $1\frac{1}{2}$ roubles Russian value and 10 Zloty Polish, a relation that had long existed.

GOLD COINS OF RUSSIA.

1. Two Roubles of Elizabeth I. Bust of the Empress. Legend: "BY THE GRACE OF GOD, ELIZABETH I., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: The imperial Russian eagle, with a shield upon its breast, bearing the arms. Legend: "COIN: VALUE OF TWO ROUBLES, 1756." Value: \$1.97.

2. Imperial of Catherine II. Bust of the Empress crowned with laurel. Legend: "BY THE GRACE OF GOD, CATHARINE II., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: A circular shield, bearing the imperial Russian eagle, with four other shields, each surmounted by a crown, arranged around the first, in the form of a cross. The angles of this cross contain the numerals composing the date, and four roses. Legend: "IMPERIAL RUSSIAN COIN OF TEN ROUBLES." Value: \$7.84.

3. Rouble of Catharine II. Bust of the Empress crowned with laurel. Legend: "BY THE GRACE OF GOD, CATHARINE II., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: The imperial Russian eagle, bearing a shield upon its breast. Legend: "MONEY: ROUBLE," and the date. Value about \$0.75.

4. Poltina of Catharine II. Bust of the Empress. "CATHARINE II., EMP." Reverse: The letters "E. A." interlaced and surmounted by a crown. "POLTINA" and date. Value: \$0.38.

5. Five Roubles (old). The double or imperial eagle of Russia with the date.



FIVE ROUBLES (OLD).

Reverse: "PURE GOLD, ONE ZOLOTIK 39 DOLIA," in four straight lines. Initials of mint-master below the inscription, the whole inclosed with a wreath and a crown above. Weight: 99.5 grains. Fineness: 918. Value: \$3.93.

6. Five Roubles (new). The Imperial Russian eagle.



FIVE ROUBLES (NEW).

Reverse: "5 ROUBLES," with the date and the initials of the mint-master, surrounded with a circle, exterior to which is the Legend: "PURE GOLD, ONE ZOLOTIK 39 DOLIA." Weight, Fineness and Value: Same as the last.

7. Three Roubles, or Twenty Zlot, of Nicholas, for circulation in Poland. The Imperial eagles with the initials "P. D." Reverse: "PURE GOLD 81 DOLIA." "3 ROUBLES" in Russian and "20 ZLOTYEB" in Roman characters. Date "1838," and the initials "S. P. B." Weight: 59.7 grains. Fineness: 918. Value: \$2.36.

PLATINUM COINS OF RUSSIA.

1. Twelve Roubles. The Imperial eagle of Russia, with a shield upon its breast, bearing the arms, encircled by the order chain and badge of the military order of Saint Andrew. On

each wing of the eagle are three small shields. Reverse: "12 ROUBLES SILVER" in three straight lines, below which is the date and initials, "S. P. B." Legend: "9 ZOL (*otik*) 68 DOL (*ia*) OF PURE URAL PLATINA." Weight: 640 grains. Value about \$9.56; but fluctuating with the price of platinum. Very rare.

2. Six Roubles. Obverse: Similar to the twelve roubles. Reverse: "6 ROUBLES SILVER." "4 ZOL (*otik*) 82 DOL (*ia*) OF PURE URAL PLATINA." Weight: 320 grains. Value about \$4.78, but varying with the price of platinum.

3. Three Roubles. Obverse: Similar to the twelve roubles. Reverse: "3 ROUBLES SILVER." "2 ZOL (*otik*) 41 DOL (*ia*) OF PURE URAL PLATINA." Weight: 160 grains. Value about \$2.39, but varying with the price of platinum.

SILVER COINS OF RUSSIA.

1. Rouble of Peter the Great. Bust in armor partially enveloped in a military mantle, laureated. Legend: "TSAR PETER ALEKSAIEVICH, AUTOCRAT OF ALL THE RUSSIAS." Reverse: The imperial eagle surmounted by a crown and grasping a sceptre in the dexter, and the imperial globe in the sinister talon. Legend: "NEW COIN: VALUE OF ONE ROUBLE." Value: \$0.72.

2. Double Rouble of Peter the Great. Bust in armor. Legend: "PETER A (*leksaievich*), EMPEROR AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: Four Russian P's and four crowns arranged in a cross, with 1's in the angles; the date, 1722. Legend: "NEW COIN: VALUE OF TWO ROUBLES." Value: \$1.44.

3. Rouble of Peter the Great, 1725. Bust in armor. Legend: "PETER A (*leksaievich*), EMPEROR AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: Similar to that of the Double Rouble. Legend: "NEW COIN: VALUE OF ONE ROUBLE." Value: \$0.72.

4. Rouble of Anna. Bust of the empress, surmounted with a small crown. Legend: "BY THE GRACE OF GOD, ANNA, EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS."



ROUBLE OF ANNA.

Reverse: The Imperial Russian eagle, with a shield upon its breast, bearing the arms—St. George and the dragon. Legend: "MONEY; ROUBLE, 1732." Weight: 398.5 grains. Fineness: 800. Value: \$0.72.

5. Ten Kopecs or Grevenneek of Anna. The imperial eagle. Reverse: Ten pellets and "GREVENNEEK." Beneath a sectional line, "1735." The pellets on the coins of Russia of small denomination were to enable the serfs, who were unable to read, to count the value of the piece by the number of pellets.

6. Rouble of Elizabeth I. Bust of the Empress. Legend: "BY THE GRACE OF GOD, ELIZABETH I., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: The Imperial eagle, with a shield upon its breast, bearing the arms. Legend: "MONEY; ROUBLE, 1752." Value: \$0.72.

7. Rouble of Peter III. Bust in armor. Legend: "PETER III., BY THE GRACE OF GOD, EMPEROR AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: Four Russian P's and four crowns, arranged as a cross, with 1's in the angles; the date, 1762. Legend: "NEW COIN: VALUE OF ONE ROUBLE." Value: \$0.72.

8. Quarter Rouble of Catherine II. Bust of the Empress. Legend: "BY THE GRACE OF GOD, CATHERINE II., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS." Reverse: The Imperial eagle; above is the date, and beneath is the name of the coin: "POLUPOLTINICK."

9. Grevenneek of Catherine II. Bust of the Empress. Le-

gend: "BY THE GRACE OF GOD, CATHERINE II., EMPRESS AND AUTOCRAT OF ALL THE RUSSIAS."



GREVENNEEK OF CATHERINE II.

Reverse: "GREVENNEEK 1794." A crown above, and the whole inclosed between sprigs of laurel. Value: \$0.08.

10. Half Rouble of Paul I. Four Russian P's and four crowns, arranged as a cross, with the numeral I. in the centre. Legend: "COIN: VALUE OF HALF A ROUBLE." Date, 1798.



HALF ROUBLE OF PAUL I.

Reverse: A square shield, decorated, bearing the inscription: Legend: "NOT UNTO US, NOT UNTO US, BUT TO THY NAME." Weight: 162 grains. Fineness: 871. Value: \$0.32.

11. Rouble of Alexander I., 1807. Bust in uniform. Le-



ROUBLE OF ALEXANDER I., 1807.

gend: "BY THE GRACE OF GOD, ALEXANDER I., EMPEROR AND AUTOCRAT OF ALL THE RUSSIAS."

Reverse: "ROUBLE—1807." Legend: "IMPERIAL RUSSIAN COIN." Weight: 324 grains. Fineness: 871. Value: \$0.65.

12. Rouble of Alexander I., 1813. The Imperial Russian eagle with a shield upon its breast. Beneath are the letters P. G. and the date, 1813. Legend: "MONEY ROUBLE."



ROUBLE OF ALEXANDER I., 1813.

Reverse: "OF PURE SILVER 4 ZOLOTNIK 21 DOLIA," in four straight lines, with a crown above, and "S. P. B.," separated by a dash line, below. The whole inclosed with branches of oak and laurel, crossed. Weight: 320 grains. Fineness: 868. Value: \$0.63.

13. Twenty Kopeks of Nicholas. The Imperial eagle with a pointed shield upon its breast. Below, the letters "И. П.," and "1826, YEAR."



TWENTY KOPEKS OF NICHOLAS.

Reverse: "10 KOPEKS," and beneath a dash the letters "S. P. B." Weight: 64 grains. Fineness: 868. Value: \$0.13.

14. Twenty-five Kopeks of Nicholas. The Imperial eagle of Russia as in the platinum coins.



TWENTY-FIVE KOPEKS OF NICHOLAS.

Reverse: "25 KOPEKS, 1835, S. P. B.," with a crown above, and oak and laurel wreaths inclosing them.

15. Ten Kopeks of Nicholas. Obverse: Similar to the last.



TEN KOPEKS OF NICHOLAS.

Reverse: Similar; but substituting "10" for "25."

16. Five Kopeks of Nicholas. Obverse: Similar to the last.



FIVE KOPEKS OF NICHOLAS.

Reverse: Similar to the last, substituting "5" for "10."

17. Rouble of Nicholas. The Imperial eagle, as in the preceding pieces. Legend: "PURE SILVER, 4 ZOLOTNIK, 21 DOLIA."



ROUBLE OF NICHOLAS.

Reverse: "MONEY ROUBLE, 1838, s. p. v.," a crown above, with branches of oak and laurel. Weight: 320 grains. Fineness: 868. Value: \$0.63.

18. Half-Rouble of Nicholas. The Imperial eagle of Russia. "2 ZOLOTNIK, 10½ DOLIA OF PURE SILVER."



HALF-ROUBLE OF NICHOLAS.

Reverse: "MONEY PLOTINA, 1848, s. p. v.," with crown, and wreaths of oak and laurel. Weight: 160 grains. Fineness: 868. Value: \$0.37.5.

19. One and a Half Roubles for Poland, equal to 10 Zlotych. Obverse: Similar to the Half-Rouble. Legend: "6 ZOLOTNIK, 31½ DOLIA."



1½ ROUBLES. 10 ZLOTYCH.

Reverse: "1½ ROUBLES. 10 ZLOT, 1835," inclosed in branches of oak and laurel. Weight: 480 grains. Fineness: 868. Value: \$0.95.

20. ¾ Rouble or 5 Zlotych. Obverse: Similar to the Half-Rouble. Legend: "3 ZOLOTNIK, 15 DOLIA."



$\frac{3}{4}$ ROUBLE. 5 ZLOTYCH.

Reverse: Similar to the $1\frac{1}{2}$ Roubles, with the change of value.
 “ $\frac{3}{4}$ ROUBLE, 5 ZLOT.”

21. Quarter-Rouble. The Imperial eagle of Russia. “1 ZOLOTNIK, $5\frac{1}{2}$ DOLIA OF PURE SILVER.”



QUARTER-ROUBLE.

22. Thirty Kopeks, 2 Zlot. Obverse: Same as the preceding. Value: \$0.16.



30 KOPEKS, 2 ZLOTE.

Reverse: “PURE SILVER, 1 ZOL (*otnik*), $25\frac{1}{2}$ DOL (*ia*).” “30 KOPEKS, 2 ZLOTE, 1838.” Value: \$0.19.

23. Fifteen Kopeks, 1 Zloty. Obverse: Same as the preceding. Value: \$0.08.

24. Rouble of Alexandria II. Russian Imperial eagle



15 KOPEKS, 1 ZLOTY.

similar to the Rouble of Nicholas. Reverse: "ROUBLE," date, etc., similar to the Rouble of Nicholas.

COPPER COINS OF RUSSIA.

These consist of the 10, 5, 3, 2, 1, $\frac{1}{2}$, and $\frac{1}{4}$ Kopek. The old 10 Kopek piece of Catharine II. weighed 780 grains, at present the same coin weighs 100 grains less. And so of the fractions of the 10 Kopek. They usually have the Imperial eagle, as on the gold, silver, and platinum coins, with the value and date; and in some cases the old coppers have the initials of the sovereign crowned. Catharine II. coined a set of this money for Siberia, having her initials crowned and inclosed in branches of oak and palm. The Reverse had two wolves standing on their hind feet, and resting their fore feet upon a shield, bearing a crown, and inscribed with the value and the date.

FINLAND MONEY.

In the year 1864, the Russian Government issued money for Finland, in gold, silver, and copper. The Markka is worth about 20 cents of our money. The gold set comprised the 5, 10, 25, and 50 Markkaa. The silver, of 25 and 50 Pennia, and 1, 2, and 5 Markkaa. The copper, of the 1 Penni, and the 5 and 10 Pennia.

SPAIN.

Prior to the year 1853 the gold coins of Spain and her colonies were the *Doblon*, valued at sixteen dollars, the half

doblon, quarter doblon or *pistole*, eighth doblon or *escudo* and the sixteenth, called *veinten*, *coronilla* or *dollar*. Before the year 1772 they were of 917 thousandths fineness. From 1772 to 1785 they were reduced to 896 thousandths, and since 1785 to 875 thousandths—the doubloon all the time weighing 418 Troy grains; its fractions their proper proportion of that weight. Since the year 1853 the only gold coin has been the Doubloon of 100 reals, of 900 thousandths fineness and weighing 129 Troy grains.

The unit of the silver money is the *real*. Twenty of these are equivalent to the dollar, and one of them is equal in value to one hundred copper centimos. Before 1853 the silver coins were the Dollar, its half, quarter, eighth and sixteenth. Since 1853 the silver coins are the Dollar, half, peseta, half peseta and real—the peseta being equal to four reals.

The copper coins comprise the quarter real of twenty-five centimos, tenth of a real of ten centimos, and twentieth of a real of five centimos. In old time they were the *two-cuarto* piece of eight maravedis; the *one-cuarto* piece of four maravedis; and the *ochavos* of two maravedis. Spain has three mints: at Madrid, Seville and Barcelona.

GOLD COINS OF SPAIN.

1. Half Pistole of Philip V., 1740. Bust. "PHILIP V. D. G. HISPAN (iarum) ET IND (iarum) REX 1740." Reverse: A crowned shield, bearing the royal arms. "INITIUM SAPIENTIAE TIMOR DOM." Value: \$2.00.

2. Quarter Pistole of Ferdinand VI., 1750. Bust. "FERDINANDUS VI. D. G.—1750." Reverse: A crowned shield, bearing the arms of Spain. "HISPANIARUM REX." Value: \$1.00.

3. Doubloon of Charles III., 1802. Bust. "CAROL III. D. G. HISP. ET IND. R." Exergue: Date of the year of issue.

Reverse: Crowned shield, hung with the order chain and badge of the order of the golden fleece, bearing the royal arms with the arms of Spain on a shield of pretence, and Anjou on a



DOUBLOON OF CHARLES IV.

heart-shaped shield. "IN UTROQ. FELIX AUSPICE DEO." "8-s" and mint-mark. Value: \$15.72.

4. Half Doubloon of Charles III., 1792. Same as the doubloon on both sides, excepting that "4-s" takes the place of "8-s." Value: \$7.86.

5. Pistole of Charles IV. Same as the doubloon with the substitution of "2-s" for "8-s." Value: \$3.92.

6. Escudo of Charles IV. Similar to the doubloon, but the Legend is abbreviated, and "8-s" is replaced by "2-s." Value: \$1.95.

7. Half Escudo of Charles IV. Obverse: Bust of Charles. "CAROLUS REX." Reverse: Arms of Spain crowned. "HISPANIARUM REX." Below, "J. S. V." Value: \$0.98.

8. Eighty Reals of Joseph Napoleon, 1811. Bust. "JOSEPHI NAP. D. G. HISP. ET IND. R—1811." Reverse: Crowned shield, hung with the order chain and badge of the golden fleece. "IN UTROQ. FELIX AUSPICE DEO." Value: \$3.90.

9. 100 Reals of Isabella, 1857. Bust laureated; "ISABEL 2^a POR LA G. DE DIOS Y LA CONST.," 1857. Reverse: An oval shield, bearing the royal arms, surmounted by a crown; arms of Spain on a shield of pretence, and the arms of Anjou on a heart-shaped shield. Beneath are two palm branches crossed; the denomination, "100 R^s." Value: \$4.96.

10. Twenty-five Pesetas of Alphonso XII., 1876. Bust. "ALFONSO XII POR LA G DE DIOS." Date 1876.

Reverse: Arms of Spain, crowned and decorated. "REY



TWENTY-FIVE PESETAS OF ALPHONSO XII.

CONST^t DE ESPANA." Below, "DB 25 PESETAS M." Value: \$4.96.

SILVER COINS OF SPAIN.

1. In the year 1513 Charles, Duke of Austria and of Burgundy, exercised sovereign authority in consequence of the insanity of his mother Johanna, who was the Queen regnant. Both of their names appear on the coinage.



DOUBLE REAL OF CHARLES AND JOHANNA, 1513.

2. Crown Dollar of Charles II., 1672. Bust. "CAROL II. D. G. HISP. ET INDIAR. REX, 1672." Reverse: A crowned shield, supported by two lions; "ARCHID. AUST. DUX BURG. CO. FLAN." (*Archduke of Austria, Duke of Burgundy and Count of Flanders*). Struck for Belgium. Fineness: 875. Value: \$0.82.

3. One Real of Philip V., 1708. Crowned shield, bearing the arms of Spain. "1-R." "PHILIPPUS V. D. G. HISPANIAR. REX." Reverse: Royal cypher crowned, "DEXTERA D (*ominus*) EXALTAVIT ME, 1708."



CROWN DOLLAR OF PHILIP III.



PISTAREENS OF PHILIP V. VALUE \$0.218.

4. Two Reals of Philip V., 1735. Crowned shield, bearing the royal arms; arms of Anjou (three *fleurs-de-lis*) on a shield of pretence. "PHILIPPUS V. D. G." Fineness: 916.6. Value: \$0.22. Reverse: Arms of Spain. "HISPANIARUM REX," and date.

5. One Real of Philip V., 1735. Similar to the two reals. Fineness: 916.6. Value: \$0.11.



ONE REAL OF PHILIP V.

6. Eight Reals of Philip V., 1735. Similar to the one and two real pieces of the same date. Fineness: 916.6. Value: \$0.87.



EIGHT REALS OF PHILIP V.

7. Two Reals of Charles III., 1771. Crowned shield, bearing the royal arms, a shield of pretence bearing the arms of Spain and Anjou. "CAROLUS III. D. G."



TWO REALS OF CHARLES III.

Reverse: Arms of Spain. "HISPANIARUM REX." Finesness: 916.6. Value: \$0.22.

8. Pistareen of Charles III., 1759. "CAROLVS" in a monogram, with III. below, and a crown above. "HISPANIARUM REX., 1759."



PISTAREEN OF CHARLES III.

Reverse: Arms of Spain, crowned. "HISPANIARUM REX."
In the field: "R 2," "M A J." Fineness: 916.6. Value: \$0.22.

9. Four Reals of Charles III., 1761. Crowned shield, bearing the royal arms, a shield of pretence bearing the arms of Spain and Anjou. "CAROLUS III. D. G."



FOUR REALS OF CHARLES III.

Reverse: Arms of Spain. "HISPANIARUM REX., 1761."
Fineness: 916.6. Value: \$0.41.6.

10. Globe Dollar of Charles III., 1768. Two globes, representing the Old World and the New; under a crown and between two crowned pillars (of Hercules) "VTRA QUE VNUM." Date below, 1768.



GLOBE DOLLAR OF CHARLES III.

Reverse: Arms of Spain, etc., on a shield crowned. "HISPANIARUM REX." In the field "R 8." "S C J." Value: \$0.87.

11. Eight Reals of Charles IV., 1792. Bust. "CAROLUS III. DEI G. 1792." Reverse: "HISPANIARUM REX.," with a

crowned shield bearing the arms of Spain and Anjou. In the field "R 8" "M F A." Value: \$0.87.

12. Four Reals of Charles IV. Bust. "CAROLUS IIII. DEI G." Exergue: Date of issue.



FOUR REALS OF CHARLES IV.

Reverse: Arms of Spain and Anjou on a shield, crowned. "HISPANIARUM REX." In the field "R 4" "M F A." Value: \$0.43.

13. Real of Charles IV. Obverse: Similar to the Four Reals.



ONE REAL OF CHARLES IV.

Reverse: Similar to the Four Reals, excepting "R 1" "S I B" take the place of "R 4" "M F A." in the field. Fineness: 902.7. Value: \$0.10.7.



PILLAR HALF-DOLLAR OF CHARLES IV.

14. Pillar Dollar of Charles IV. Obverse: Similar to the Four Reals, before described. Reverse: Arms of Spain crowned, between two pillars, one encircled by a scroll inscribed "PLUS," and the other with a scroll inscribed "ULTRA." "HISPAN. ET IND. REX M. 8 R. F. F." Fineness: 902.7. Value: \$0.86.

15. Pillar Half-Dollar of Charles IV. Obverse: Similar to the Dollar.

16. Twenty Reals of Joseph Napoleon, 1809. Undraped bust. Legend: "JOSEPH NAP. DEI GRATIA, 1809."



TWENTY REALS OF JOSEPH NAPOLEON.

Reverse: "HISPANIARUM ET IND. REX. M. A. I." Arms of Spain on a shield. Fineness: 916.6. Value: \$0.87.

17. Five Pesetas of Barcelona, 1810. "5 PESETAS," beneath which are palm branches, crossed, inclosed in a wreath. Legend: "EN BARCELONA, 1810."



FIVE PESETAS OF BARCELONA.

Reverse: A diamond-shaped shield, inclosed in a wreath. Fineness: 900. Value: \$0.79.

18. Peseta of Barcelona, 1811. Similar to the last, substituting "PESETA" for "5 PESETAS," and the date, 1811, for 1810. Fineness: 900. Value: \$0.16.



PESETA OF BARCELONA.

The Peseta pieces of Barcelona appeared between the years 1809 and 1812. They were struck apparently without authority, during the period of trouble the country underwent at the time they are dated.

19. Eight Reals of Ferdinand VII. Bust. "FERDINANDUS VII. DEI GRATIA, 1813."



EIGHT REALS OF FERDINAND VII.

Reverse: Arms of Spain and Anjou on a shield, crowned, and between pillars with scrolls labelled "PLUS" and "ULTRA." "HISPAN. ET IND. REX. M. 8 R. T. II." Fineness: 902.7. Value: \$0.86.

20. Ten Reals of Ferdinand VII., 1821. Undraped bust

inclosed in a double circle. "FERN. 7^o. POR LA G. DE DIOS Y. LA CONST., 1821."



TEN REALS DE VELLON OF FERDINAND VII.

Reverse: "RESELLADO" (recoined), "10 R^s," inclosed in a wreath of two laurel branches. "REY DE LAS ESPAÑAS." Fineness: 902.7. Value: \$0.43.

21. Four Reals of Caraccas, 1819. Two pillars standing on a straight line and crossed by two other lines parallel to the first. A fourth line passes below the pillars, also a parallel. The figure 4 is between the pillars and above the lines; then follows between the lines: "PLV—SVL—TRA B.—1819—S. CARACAS." A branch fills up the Exergue.



DOUBLE PISTAREEN OF FERDINAND VII.

Reverse: Arms of Spain quartered by a cross; the figure 4 at either end of the perpendicular, and F and 7 at the ends of the horizontal. Weight: 208.8 grains, Troy. Fineness: 902.7. Value: \$0.43.

22. Two Reals of Caraccas, 1819. Similar to the Four Reals piece, with the substitution of the figure 2 on the former where



PISTAREEN OF FERDINAND VII.

the figure 4 is found on the latter. Weight: 104.4 grains. Fineness: 902.7. Value: \$0.21.

23. Twenty Reals of Ferdinand VII. Bust: "FERNANDO 7º POR LA GRACIA DE DIOS Y LA CONSTITUCION—1822."



TWENTY REALS OF FERDINAND VII.

Reverse: A crowned shield, bearing the arms of Spain and Anjou, between two pillars, around which is a scroll with "PLUS ULTRA." Legend: "REY DE LAS ESPANAS." Below: "M—s r" and "20 Rº." Weight: 417.6 grains, Troy. Fineness: 902.7. Value: \$0.86.



FIVE PESETAS OF THE BELEARIC ISLANDS.

24. Five Pesetas of Ferdinand were coined for the Belearic Islands. They are of exactly the same weight and fineness, and consequently of the same value, as the piece of twenty Reals.

25. Twenty Reals of Isabella II., 1861. Bust. "ISABEL 2^A POR LA G. DE DIOS Y LA CONST.—1861."



TWENTY REALS OF ISABELLA II.

Reverse: Arms of Spain and Anjou, crowned, between pillars which have a scroll around them inscribed: "PLUS ULTRA." Legend: "REINA DE LAS ESPANAS." Exergue: "20 REALES." Weight, value, and fineness: Same as No. 22.

26. Four Piasters of Isabella for the Philippine Islands, 1861. Bust. "ISABEL 2^A POR LA G. DE DIOS Y LA CONST.—1861."



FOUR PIASTERS, PHILIPPINE ISLANDS.

Reverse: Arms of Spain, etc., between pillars. "REINA DE LAS ESPANAS." Exergue: "4—P" "FILIPINAS."

27. Five Pesetas of the Republic, 1870. Liberty, with a crown on her head, is reclining, with an olive branch in her right hand, which is extended. Legend: "ESPANA," and the date, 1870.



FIVE PESETAS OF THE REPUBLIC.

Reverse: Arms of Spain, etc., with a turreted crown surmounting, and pillars on either side, with a scroll around them, inscribed: "PLUS ULTRA." Legend: "LEY 900 MILESIMAS



FIVE PESETAS OF AMADEUS.

40 PIEZAS EN KILOG." Exergue: "S. N.—5 PESETAS—M." Value and fineness the same as the Twenty Reals of Isabella.



FIVE PESETAS OF ALPHONSO XII.

28. Five Pesetas of Amadeus I., 1871. Bust. Legend: "AMADEO I REY DE ESPAÑA." Date, 1871.

Reverse: Similar to that of the Five Pesetas of the Republic, excepting that the crown is not turreted. Value and fineness the same as the corresponding coin of the Republic.

29. Five Pesetas of Alphonso XII., 1875. Bust. "ALFONSO XII REY DE ESPAÑA." Date, 1875.

Reverse: Same as the corresponding piece of Amadeus I. Value and fineness: Same as the corresponding coin of the Republic.

SWEDEN.

Sweden was formerly a part of Denmark, from which it became a separate kingdom in 1528, Gustavus Vasa being crowned King at Stockholm in that year. In 1813 Norway was annexed to the Swedish crown. The unit of money was the Riksdaler of 48 schillings. It was formerly of 878 thousandths fineness, and weighed 451.7 grains, Troy. It had its subdivisions, of pieces of two-thirds and one-third of the same, and of one-sixth, one-twelfth, and one-twenty-fourth of a lower standard. In 1830 the Riksdaler was made to weigh 528 Troy grains, and 750 thousandths fineness. The lower denominations are of the same standard of fineness. The gold money consists of the Four, Two, and One Ducat.

GOLD COINS OF SWEDEN.

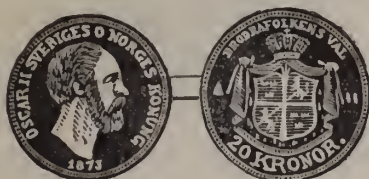
1. Ducat of Gustavus Adolphus, 1633. Bust in armor at three-quarter face, laureated. "GUSTAV. ADOLPH. D. G. SVEGO (rum) VANDALO. REX. MAG" (nus). Reverse: A crowned shield, bearing the arms of Sweden and Gothland, quartered, with the arms of Vandalia on a shield of pretence, inclosed between branches of laurel, crossed. "PRINC (eps) FINLAND DUX ETHO. CAR. DOM (inus) ING."

2. Four Ducats of Charles XIV. Undraped bust. "CARL. XIV. SVERIGES NORR. G. OCH. V. KONUNG." Reverse: The three crowns of Sweden upon an oval shield, encircled by the order chain and badge of the order of the Seraphim, and displayed upon a mantle draped from a crown. Beneath are the initials "A. G.," and date. "FOLKETS. KARLEK MIN BELONING." (*The people's love is my recompense*). Value: \$9.03.

3. Two Ducats of Charles XIV. Same type as the last. Value: \$4.51½.

4. One Ducat of Charles XIV. Same type as the last. Value: \$2.26.

5. Twenty Kronor of Sweden of Osear II. Bust. "OSCAR II SVERIGES O NORGES KONUNG." Date, 1873.



TWENTY KRONOR OF SWEDEN.

Reverse: Arms of Sweden and Norway on a shield, quartered, with a crown above, and draped. Legend: "BRODRAFOLKENS VAL." Below is the value: "20 KRONOR." Value: \$5.25.

SILVER COINS OF SWEDEN.

1. Four Marks of Gustavus Adolphus. Bust in armor, laureated. Above is a glory containing the Hebrew word "Jehovah." "GUSTAVUS ADOLF. D. G. REX SVETICIAE PRINCEPS HAER," and in an inner circle, "GLORIA ALTISSEMO SUORUM REFUGIO." Reverse: Three shields beneath a crown, one bearing the arms of Sweden, another of Gothland, and the third of Vandalia. Legend: "III SVENSKE MARKR, 1617."

2. Two Marks of Gustavus Adolphus. Portrait profile of the king, attired in robes of state, holding a baton in the right, and an Imperial globe in the left hand. Above is a glory con-

taining the Hebrew word "Jehovah." "D. G. GUSTAVUS ADOLPHUS SVE (*ciac*) GOT (*horum*) VAN (*dalorum*) REX." Reverse: A crowned shield, bearing the arms of Sweden and Gothland, quartered, with the arms of Vandalia on a shield of pretence, inclosed between branches of laurel, crossed. Above is inscribed "GOTT MIT UNS."

3. Riksdaler of Christiana. Full face bust of the queen. "CHRISTINA. D. G. SVE. GOT. WAN (*dalorum*) Q. DE REGE ILE." Reverse: An image of Christ, with the Imperial globe. To the left of the field is a crowned shield, bearing the arms of Sweden, Gothland, and Vandalia, in three fields. Legend: "SALVATOR MUNDI SALVANOS MDCXLII."

4. Riksdaler of Charles XI., 1695. Bust in armor, with a military mantle. "CAROLUS XI D. G. REX SVE." Reverse: Crowned shield, bearing the arms of Sweden. At one side is the numeral 8, and at the other the letter M. "DOMINUS PROTECTOR MEUS, 1695." On the edge is inscribed "MANIBUS * NE * * * * LAEDAR * AVARIS."

5. One Mark of Charles XII., 1701. Bust as in the coins of Charles XI. "CAROLUS XII. D. G. REX SVE." Reverse: The three golden crowns of Sweden, with the date, 17—01, and the denomination, "1—M."

6. Riksdaler of Gustavus III., 1781. Undraped bust. "GUSTAVUS III. D. G. REX SVETICAE." Reverse: The arms of Sweden upon a circular shield, surmounted by a crown, and encircled with the order chain and badge of the order of Seraphim. "1 R^d." Beneath are the letters, "O L," and the date. Above is inscribed "FADEMES LANDET" (*The land of our fathers*).



ONE-SIXTH RIKSDALER OF GUSTAVUS IV.

7. One-Sixth Riksdaler of Gustavus IV., 1805. Bust in armor, bedecked with the order band. Legend: "GUSTAF IV. ADOLPH. SV. G. OCH R. V. KONUNG."

Reverse: Arms of Sweden, as in the last. Above is the inscription "GUD OCH FOLKET" (*God and the people*).

8. Riksdaler species of Charles XIV., 1838. Obverse: Same type as the Ducat.



RIKSDALER SPECIES OF CHARLES XIV.

Reverse: A crowned shield, encircled by the order chain and badge of the order of the Seraphim, and bearing the arms of Sweden, Norway, and Gothland, in three fields, with a shield of pretence, bearing the arms of Vandalia and Bernadotte. Beneath is the denomination: "1 R—SP;" the initials "A. G.," and the date, 1838. "FOLKETS KARLEK MIN BELÖNING." On the edge is inscribed "75—100 DELAV FIN SILFVER."



RIKSDALER OF OSCAR.

9. Riksdaler of Oscar, 1844. Undraped bust. Legend: "OSCAR SVERIGES NORR. GOTH. OCH. VEND. KONUNG."

Reverse: A crowned shield, supported by two lions, and bearing the arms of Sweden and Gothland, quartered, with a shield of pretence, bearing the arms of Vandalia and Bernadotte. On the base, which supports the shield, is the date, 1846, and the denomination: "1 R—SP." Beneath are the initials "A. G." Above is inscribed "RATT. OCH. SANNING," and on the edge "75—100 DELAV FIN SILFVER."

10. Riksdaler of Charles XV., 1870. Undraped bust. "CARL XV SVERIGES NORR. GOTH. OCH. VEND. KONUNG."



RIKSDALER OF CHARLES XV.

Reverse: Arms similar to the foregoing. Beneath them, "4 RD RIKSM," with the date, and the letters, "E. T." Above is the inscription "LAND SKALL MED LAG BYGGAS."



OLD RIKSDALER OF SWEDEN.

SWITZERLAND.

The Republic of Switzerland, previous to the year 1798, consisted of a Confederacy of nineteen States, or Cantons. But in that year they were united under one government called the Helvetian Republic. In the year 1803 the French Republic dissolved the constitution and held the Cantons by a kind of French protectorate, which continued until 1815, when the Congress of Vienna re-established the old Confederacy and added the Cantons of Geneva, Valais and Neuchâtel. The names of the others are, Berne, Zurich, Vaud, Lucerne, St. Gall, Ticino, Basel, Friburg, Soleure, Uri, Schwitz, Grisons, Aargau, Unterwalden, Glarus, Thurgau, Schaffhausen, Appenzell and Zug. Previous to 1798 each Canton exercised the right to coin money. From 1798 to 1803 the money was issued in the name of the Helvetian Republic. In 1803 the Cantons resumed the separate privilege of coinage, which they exercised until the formation in 1847-8, of the Federal constitution.

The gold coinage seems to have been all executed previous to 1798. The pistole followed the *louis d'or* of the law of 1785, being 916.7 thousandths in fineness, and weighing 118 grains Troy. The ducat was rare, irregular in value, but approached to the German standard. We give a sample of a ducat of Berne. Obverse: Arms of the Canton. Legend: "MON. AUR. REIP. BERNENSIS. 1741."



DUCAT OF BERNE.

Reverse: "BENE DICTUS SIT IEHOVA DEUS I DUCI;" inclosed between two wreaths. Weight: 47 grains Troy. Fineness: 458.72. Value: \$1.97.

The silver coins were the *ecu* or crown of four Swiss francs, the half crown, the franc of ten batzen, the five, the two and a half, the one and the half batzen. The smaller pieces are usually quite base. Forty batzen were estimated to be equal in value to the crown. After the formation of the Helvetic Republic, a uniform currency was agreed upon, making the Swiss franc of ten batzen, or ten rappen, the unit. After 1803 the right of coinage being restored to the sovereign Cantons, subject to the regulations of the Senate as to fineness, there was a want of uniformity that was only fully corrected by the new Federal organization in 1847-8. Some time being required for the redemption of the old coinages, it was not until 1852 that the new law was established in full force. Under this law the silver pieces comprise the 5, 2, 1 and $\frac{1}{2}$ francs of 900 thousandths fineness.

1. *Ecu* of Zurich. A lion rampant, his left paw resting upon a shield, the right holding a sword. Legend: "MONETA REIPUBLICÆ TIGURINÆ."



ECU OF ZURICH.

Reverse: The city of Zurich; above is the Legend: "DOMINE CONSERVA NOS IN PACE." Beneath is a small oval, upon which is the date, "1781." Weight: 390 grains. Fineness: 844. Value: \$0.93.

2. Florin of Zurich. Arms of the Canton. Legend: "MONETA REIPUBLICÆ TVRICENSIS." Weight: 125 grains. Fineness: 815. Value: \$0.23.



FLORIN OF ZURICH.

3. Two and a Half Batzen of Zurich. Arms of the Canton, with the Legend: "CANTON ZURICH."



2½ BATZEN OF ZURICH.

Reverse: "2½ BATZ:" surrounded with a wreath. Legend: "DOMINE CONSERVA NOS IN PACE." Weight: 37 grains. Fineness: 775. Value: \$0.064.

4. Half Crown of Berne. Arms of the Canton on a shield, crowned. Legend: "RESPUBLICA BERNENSIS."



HALF CROWN OF BERNE.

Reverse: A Swiss soldier standing holding a sword. Legend:

"DOMINUS PROVIDEBIT." Date, "1796." Weight: 227 grains.
Fineness: 896. Value \$0.45.

5. Patagon or Crown of Berne. Similar to the last.



CROWN OF BERNE, 1823.

Reverse: Similar to the half crown, but the soldier is in an oval, and the date is 1823. Weight: 454 grains. Fineness: 896. Value: \$0.90.

6. Ten Batzen of Berne. Arms of the Canton, crowned.
Legend: "MONETA REIPUB: BERNENSIS 1774."



TEN BATZEN OF BERNE.

Reverse: Eight B's interlaced and arranged as a cross.
"DOMINUS PROVIDEBIT." Weight: 223 grains. Fineness: 833. Value: \$0.23.

7. Five Batzen of St. Gall. Arms of the Canton on a shield resting upon two crossed branches of oak. Legend: "CANTON ST. GALLEN."

Reverse: "5 BATZ;" within two wreaths. Legend: "DO-



FIVE BATZEN OF ST. GALL.

MINE CONSERVA NOS IN PACE." Weight: 74 grains. Finess: 775. Value: \$0.134.



TEN BATZEN OF ST. GALL.

8. Five Batzen of Aargau. A shield bearing the arms of the Canton, between branches of laurel and palm, crossed, "CANTON AARGAU 1826." Below, "5 BATZ."



5 BATZEN OF AARGAU.

Reverse: A cross, with the letter "C." in the centre, inclosed in a wreath of laurel. Legend: "DIE CONCORDIER CANTONE DER SCHWEIZ."

9. Four Franken of Lucerne. Arms of the Canton upon a crowned shield, between branches of palm. Legend: "CANTON LUZERN." Date, 1814.



FOUR FRANKEN OF LUCERNE.

Reverse: A Swiss soldier, standing, holding a spear in his right hand; the left rests on a shield inscribed: "XIX CANT." Beneath is the denomination: "4 FRANKEN." Legend: "SCHWEIZER EIDSGENOSSEN." Weight: $416\frac{1}{2}$ grains. Fineness: 865. Value: \$0.82.

5 BATZEN AND $2\frac{1}{2}$ BATZEN OF LUCERNE.

10. Crown of Geneva. Arms of the Canton surrounded by a wreath of palm. Legend: "GENEVE REPUBLIQUE L. AN. IV. DEL. EGALITE."



CROWN OF GENEVA.

Reverse. Legend: "POST TENEBRAS LUX." Weight: 417 grains. Fineness: 842. Value: \$0.80.

11. Quarter Ecu of Geneva. Arms of the Canton with the Legend: "POST TENEBRAS LUX."



QUARTER ECU OF GENEVA.

Reverse. Legend: "REP: ET CANT. DE GENEVE:" the denomination and date.

12. Franc of the Republic of 1799. A Swiss soldier, carrying a standard. Legend: "HELVETISCHE REPUBLIK." Date, 1799.



FRANC OF THE REPUBLIC OF 1799.

Reverse: The denomination and mint-mark "10 BATZEN—B (*erne*)," inscribed within a harp, entwined with oak. Value: \$0.28.

13. Five Francs of the Confederation of 1848. The figure of Helvetia is seated looking and pointing toward the left: a shield is supported by her left hand, etc. Legend: "HELVETIA."

Reverse: "5 FR. 1851;" surrounded by a wreath of oak. Weight: 383 grains, Troy. Value: \$0.87.

14. Two Francs. Similar to the last, with the substitution

on the Reverse of "2 FR." for "5 FR." Weight: 150 grains, Troy. Value: \$0.34.



FIVE FRANCS OF HELVETIA.

15. One Franc. Similar to the last, with the substitution on the Reverse of "1 FR." for "2 FR." Weight: 75 grains, Troy. Value: \$0.17.

16. Half-Franc. Similar to the last, with the substitution on the Reverse of " $\frac{1}{2}$ FR." for "1 FR." Weight: 37.5 grains, Troy. Value: \$0.08.5.

In the year 1874, a set of the 5, 2, 1, and $\frac{1}{2}$ franc of the Republic were coined of the same weight and fineness as those just described. The Obverse has a female representing Helvetia, standing, a staff in her right hand, and the left resting upon a shield: the name Helvetia being below. Around the edge are twenty-two stars representing the Cantons. The Reverse is similar to that of the preceding issue.



TWO FRANCS OF 1874.

17. Twenty Centimes. The Swiss cross on a shield, resting

upon branches of oak and laurel, or sometimes upon branches with flowers, and sometimes upon stalks of wheat. Legend: "HELVETIA" above; the date below. Reverse: "20" within a wreath of oak leaves. Composition: $\frac{20}{100}$ gram of silver, with copper, nickel, and zinc in proportions not stated by law. Weight: $3\frac{1}{4}$ grains.

18. Ten Centimes. Similar to the preceding, "10" being substituted for "20" on the Reverse. Composition: $\frac{10}{100}$ gram of silver, with nickel, copper, and zinc. Weight: $2\frac{1}{2}$ grains.

19. Five Centimes. Similar to the preceding, "5" being substituted for "10" on the Reverse. Composition: $\frac{5}{100}$ gram of silver, with nickel, copper, and zinc. Weight: $1\frac{3}{8}$ grains.

BRONZE COINS OF THE REPUBLIC.

1. Two Centimes. Similar to the Five Centimes piece above described, with the substitution of "2" for "5" on the Reverse. Weight: 38 grains.

2. One Centime. Similar to the Five Centimes piece above described, with the substitution of "1" for "5" on the Reverse. Weight: 22 grains.

EMPIRE OF TURKEY.

The Turkish Piaster is called, in Arabic, Gersh; plural, Grush. The Piaster is divided in 40 Paras, and the Para in 3 Aspers. The Para is called in Turkey "*Actshe*," and in Egypt "*Fadda*." In accounts with foreign lands the Piaster is divided into 100 Aspers or Minas.

No monetary unit of any country has met with such a rapid decline in value as the Turkish Gersh or Piaster. During the reign of Mahomet V., 1730-1754, the Piaster was worth about 70 cents of our money; during the reign of Osman II., 1754-1757, about 66 cents; during Mustapha III's reign, 1757-1774, it declined to 60 cents; but in the reign of Achmet IV.,

its value was barely 40 cents. Selim III., in 1785, reduced it further, to 34 cents; and when Mustapha IV. ascended the Turkish throne in 1807, the Piaster was hardly worth 25 cents. During the reign of Mahmoud-Khan, 1808-1818, it fell to 19 cents; 1819-1823 to 18 cents; 1827-1831 its value was just 6 cents; and when he died, in 1839, it was worth only 3 cents. Since June 27, 1839, Abdul-Medjid-Khan raised the value to 4.39 cents in gold, and 3.85 cents in silver. To-day the intrinsic value of the Turkish Piaster—gold, the legal standard—is worth \$0.04.393 United States gold. The value of the silver Piaster, assuming as hitherto the ratio of value of gold to silver to be 15 $\frac{3}{4}$ to 1, is \$0.04.312. Therefore, \$1 United States gold is equal to 22.76 legal Turkish Piasters of gold coin, and 23.19 Turkish Piasters of silver coin.

The Mahometan religion forbids the making of any likeness for any purpose; therefore, the coins of Turkey bear only the "Toghra" or monogram of the Sultan. Inscriptions in "*Taleek*" or "*Niskhee*" Arabic letters and Turkish numerals.

The Silver Piaster is called "*Bir-Gersh.*" The Two Piaster piece "*Iklick.*" The Five Piaster piece "*Beshlik*" or "*Vejas-Beshlik,*" which means White or Silver Piaster. The Ten Piaster piece "*Onlik*" or "*Vejas Onlik;*" and the Twenty Piaster piece "*Jirmilik*" or "*Vejas Jirmilik.*" In Egypt this Twenty Piaster piece is commonly called "*Guimuh.*" In Turkish Asia they call the piece of Twenty Paras "*Jirmi,*" which means, translated into Turkish, "*Jirmi-Para.*"

The Twenty-five Piaster piece in gold is called "*Jirmibeshlik.*" The Fifty Piaster piece "*Ellilik.*" The Hundred Piaster piece or Lira Turca (L. T.) is called "*Juslik,*" also "*Sarre Juslik,*" or Yellow Juslik, to distinguish it from the "*Vejas Juslik,*" or White Juslik of Hundred Paras silver, or Two and a Half Piasters. The Lira Turca is also called "*Medjidie,*" in honor of the originator of the more modern Turkish coins. In former years all Turkish money was called by the natives "*Medjidie;*" but by order of a Firman of Abdul-Medjid-Khan, the practice was legally abolished.

The "*Hirk Para*" is the name given to the copper Piaster, an illustration of which will be found on page 1055; its literal meaning implies Forty (*Hirk*) Paras.

The Turkish "*Kis*," plural "*Keser*," denotes a purse of 500 Piasters.

The "*Kitze*," or "*Chise*"—only for awards or presents made by the Sultan—is reckoned at 30,000 Piasters. By a "*Juk*, *Juik* or *Juz*," is commonly understood in Turkey of Europe 100,000 Aspers, or $833\frac{1}{3}$ Piasters; while in Asiatic Turkey the sum of 12 Purse or "*Keser*" of silver, equal to 6,000 Turkish Piasters, is meant.

Payment of large sums is usually made in "*Beshliks*," or 5 Piaster pieces, and is called "Good Money;" while if in "*Kaimch*," notes of the Ottoman Bank, or in foreign coins, it is called paying debts in "Abusive or Inferior Money."

The Turkish Mints are located as follows: 1. In Constantinople, stamped with "*Kostantiue*." 2. Cairo, Egypt, bearing stamp "*Misrh*." 3. Tripoli, stamp "*Trahbluos*." 4. Tunis, stamp "*Tunis*." This last Mint has not coined money within the past twenty years. The Mint at Algiers, bearing the stamp "*Jesair*," was abolished December 22d, 1847.

Smyrna has the privilege of issuing money; but little is coined by that Assay office or branch Mint. On some of the more ancient Turkish coins the mark of the Constantinople or principal Mint of Turkey is changed from "*Kostantiue*" to "*Islamboul*." True, Constantinople is also known by the word "*Stamboul*," an easy corruption of the original Greek name; still it appears that the Turks intended a play upon this word, and at the same time to commend the Mahometan religion, by stamping on their coins "*Islamboul*," which translated means "*The fullness of the true faith*." All the Sultans of Turkey, from Ottman, or Ottoman I., A. D. 1296, down to Selim III., A. D. 1789, used the title "*Islamboul*" in connection with the other titles of Turkish royalty.

The floating debt of Turkey amounts to over \$260,000,000 gold. The foreign loans about £182,900,750, equal to about \$888,897,645, gold.

The interest on this debt and the other expenditures of the government are covered by taxes most burdensome and excessive.

The taxes of a district are sold out to speculators, who supply the needed funds to the government. These are known as "Contractors of the Revenue," and not infrequently each of these sells again to one or more parties, who in turn do the same, until there are often half a dozen profits made on what the people pay for the support of the government. The principal taxes are:

"Ashir," or tithes. This covers the agricultural products of all arable lands, such as the cereals, cotton, tobacco, grapes, figs, olives, opium, etc. On grain the tax is paid in kind; but on most of the other products in money on an estimated cash value.

"Bedel," a tax for exemption from military duty. The Christians, and other non-Mahometan population, pay a compensation of 5,000 Piasters, about \$216.50 in gold, for each recruit. The Mahometans have to pay from 5,000 to 10,000 Piasters, according to rank.

"Sayme," or tithes of sheep, goats, and cattle in general, is a substitute for the "Ashir," and when paid in kind is every tenth sheep, goat, etc.; but is usually paid in money on the basis of one-tenth the average cash valuation.

"Verghee" is the property tax, and is divided in "Temrak-Verghee," or tax on real estate, and "Timetouh-Verghee," or income tax. The "Temrak-Verghee" is collected, first, four-tenths of one per cent. of the estimated fee-simple of all houses and lands; six times the annual produce is assumed to represent the fee-simple of an estate, and four per cent. of all the rent if sublet and not subject to tithes. The "Timetouh-Verghee" or income tax is three per cent. on all gross profits from invested capital.

Besides the treasury where all these taxes are paid, the government is the owner of the Sacred Treasury of Islam, and the treasury of the Seraglio.

The Sacred Treasury of Islam is one of the most important

institutions of the Great Mosque, or the house of God. Each Mahometan pilgrim makes a cash offering for the defence of Islam or Holy Faith, amounting in the aggregate about 70 to 75,000,000 Piasters = to about \$3,000,000 annually. This Sacred Treasury consists of three immense treasury chests, the first of which was opened and used in defence of the Holy Faith during the Russo-Tureo war of 1828-1829; the second chest was opened during the Crimean war of 1854-1856; but the third chest remains unopened, and is believed to contain about \$450,000,000 to \$500,000,000, the accumulation of about five hundred years. The "Sheik-ul-Islam," or supreme ecclesiastical chief of Mahometanism, has ordered the delegation of the "Ulema or Learned" to visit Mecca for the purpose of obtaining the contents of that third offertory chest; but the true amount it really contains, provided it has not been interviewed on the sly, will never be known, for their religion forbids them to let the world know of the heavenly treasures. The treasury of the Seraglio is a dazzling array of precious stones and jewels, of untold value. The collection embraces pearls, many of them as large as sparrow eggs; a throne of pure massive gold, inlaid with real pearls; draperies embroidered with rubies, sapphires, and pearls; a massive gold cradle, studded with precious stones; inlaid armor, jeweled helmets, sword hilts decorated with diamonds; coffee trays of ebony, with a double row of large diamonds, set close together; tshoobooks or pipe stems, sword belts, caskets, and bushels of necklaces of the most splendid description, huddled together in glass-cases, and flashing like fire-flies in the dark.

The most costly article in the treasury is a toilet table of Lapis Lazuli, a blue stone of great value, and other valuable material, richly inlaid with precious stones of every description. The pillars that support the mirror are set with diamonds; the stem and claws of the table are covered with diamonds, emeralds, rubies, carbuncles, sapphires and opals; along the edge of the table hangs a deep fringe of diamonds, with immense solitaires. The next costly treasure is the sword of the Sultan, worn on

gala-days; it is of the finest Damascus steel, heavily mounted in solid gold, decorated with fifteen solitaire diamonds, each one as large as the top of a man's thumb, surrounded by precious stones of almost every description. This "Serai" or Seraglio containing these countless treasures was erected by Mahomet II. between A. D. 1455 and 1480; and is situated in the heart of Constantinople. This "Serai" or Seraglio (meaning palace) is the chief residence of the Sultan, and stands in a triangular inclosure surrounded by a strong wall, on a point of land with the Bosphorus to the east, and the Golden Horn to the north. The wall is about three miles long, and the water frontage is two-thirds of the entire length. Within the inclosure are several public edifices, including the Mint, Treasury and Arsenal; besides several Mosques, private dwellings and offices of the ministers of war and treasury.

GOLD COINS OF TURKEY.

The gold coins of the Empire of Turkey still in circulation are as follows:

1. Lira Turea (L. T.), or Turkish Lira, coined at Constantinople in 1839. Weight: 111.359 grains; 916 Fineness. Value: \$4.40.0127 U. S. gold.

2. 50 Piasters Piece, or "Ellilik," coined at Cairo, Egypt, in 1839. Weight: 66 grains; 874 Fineness. Value: \$2.48-.3943 U. S. gold.

3. 50 Piasters Piece, or "Ellilik," coined at Constantinople in 1839. Weight: 55.679 grains; 916 Fineness. Value: \$2.20.0064 U. S. gold.

4. 20 Piasters Piece, or "Jirmibeshlik," coined at Constantinople in 1807. Weight: 25.417 grains; 835 Fineness. Value: \$0.93.2745 U. S. gold.

5. 20 Piasters Piece, or "Jirmibeshlik," coined at Constantinople in 1839. Weight: 22.271 grains; 916 Fineness. Value: \$0.89.2191 U. S. gold.

6. 10 Piasters Piece, or "Onlik," coined at Constantinople in 1788. This gold coin is often called a Quarter Sequin or Ducat.

Weight: 12.208 grains; 835 Fineness. Value: \$0.44.6095 U. S. gold.

7. 5 Piasters Piece, or "Beshlik," coined at Constantinople in 1807. Weight: 6.203 grains; 835 Fineness. Value: \$0.22.2948 U. S. gold.

The Obverse of these gold coins bear the "Toghra" or monogram of the reigning Sultan, an involution of the letters of his name; but so fancifully and artistically entwined that even most of his subjects cannot disentangle them.

The Reverse contains: "Struck at Constantinople or Cairo," the date of the Hegira, which commenced July 16th, 622 A. D.; also the year of the happy reign of the Sultan. To enable the reader to get at the correct date of the Turkish era, it must be borne in mind that their year is 11 days shorter than ours, and that for every 33 years of theirs one year of ours must be added to the sum total.

In 1845 a new Lira Turca (L. T.) of 100 Gersh or Piasters made its first appearance; officially it was promulgated to be of 22 carats fine or equal 916.6 Fineness; but the actual assay proved it only 915 fine. Its Weight: 111 grains, and its Value: \$4.37.4 U. S. gold.

In 1846 a new 50 Piasters piece was coined for the first time. Its Weight: 55.5 grains; 915 Fineness. Value: \$2.18.7 U. S. gold.

The Turkish gold coins are of so variable a standard, and the temptations so great to adulterate, that very little reliance can be placed on their real value. The flood of unredeemable paper currency of all kinds, the great financial distress, and the excessive burdens of taxation, have driven gold out of general circulation among the natives. The bankers and merchants make their payments usually in English exchange or in Austrian silver money.

SILVER COINS OF TURKEY.

The 20 Piasters Piece, of which we give an illustration, was coined in 1839 under Abdul-Medjid-Khan. Its Obverse

bears the Toghra of the reigning Sultan ; to the right a fanciful scroll bearing a twig, with blossom, which is the mint-mark of Constantinople. Exergue bears the Turkish figures 24, meaning the 24th year of the happy reign of the Sultan. Legend: 12 stars, surrounded by 12 scrolls, shape of a crescent and outside of it 12 rosettes.



20 PIASTERS OF CONSTANTINOPLE.

Reverse: Struck in Kostantinie, meaning Constantinople. Exergue in Turkish numerals 1255 of the Hegira, and which corresponds with A. D. 1839. Legend: Same as on the Obverse. Its Weight: 371.225 grains. Fineness: 830. Value: \$0.87.4224 U. S. gold.

In A. D. 1860-1861 a new device was adopted for the 20 Piasters Piece; the twig and blossom on the Obverse was removed, and the Exergue bore the Turkish figure 1, meaning the first happy year of the reigning Sultan Abdul-Aziz. The Reverse remained unchanged with the exception of the Exergue, which bears the Turkish figures 1277 of the Hegira, corresponding to our period A. D. 1861.

The 10 Piasters Piece bears the same devices as the 20 Piasters Piece, only in reduced proportion. Its Weight: 185.612 grains. Fineness: 830. Value: \$0.43.7112 U. S. gold.

The 5 Piasters Piece or "Vejas Beshlik," same devices as the 20 and 10 Piasters pieces, only reduced in proportion. Weight: 92.806 grains; 830 fine. Value: \$0.21.8556 U. S. gold.

The 2 Piasters Piece or "Iklik," same devices as the three aforementioned silver coins and in proportion. Weight: 37.114 grains; 830 Fineness. Value: \$0.09.3780 U. S. gold.

The 1 Piaster Piece or "Bir Gersh," sometimes called in Asiatic Turkey "Altmiehlük," devices same as the foregoing, with due proportions. Weight according to legal standard: 18.557 grains; but usually varying a few grains. Fineness professed 830; but often only 820 and 825 fine. Value quite nominal at \$0.04.393 down to \$0.03.85 U. S. gold.

COPPER MONEY OF TURKEY.

The 2½ Piasters Piece, or 100 Paras piece, of which we give an illustration, was coined in Constantinople and Cairo in 1187 of the Hegira, under the reign of Mustapha III., corresponding to A. D. 1774.



100 PARAS OF CONSTANTINOPLE.

The Obverse bears the Toghra of the Sultan Mustapha III., the mint-mark and imprint, Kostantinie (Constantinople). Exergue: "1187."

The Reverse bears four lines of inscriptions: 1. Sultan of two lands. 2. Sultan of two seas. 3. Sultan by inheritance, and in the left corner the Turkish numerals 20, meaning the 20th happy year of his reign. 4. Son of a Sultan. Value about 10 cents, but often worth only 9.7 cents.

The Piaster, or Gersh, or 40 Paras, was coined in Constantinople.

The Obverse bears the Toghra, the mint-mark and imprint. The Reverse: Inscription 40 in Turkish numerals. Legend:

The Sultan, son of a Sultan, Servant of the Praised One; may God continue his kingdom. Value quite nominal, varying from 4 to $4\frac{1}{2}$ cents U. S. gold.

The date on the Turkish coins is always that of the Hegira, or Mahometan Era, and is expressed with the following signs:

س	۵	۴	۳	۲	۱	۰	۹	۸	۷	۶	۵	۴	۳	۲	۱	۰
1.	2.	3.	4.	5.	6.	7.	8.	9.	0.							

All the inscriptions on the coins read from right to left; but the numerals run in the opposite direction.

The method of arriving at the date on the coins of Turkey—for most of them bear two dates, that of the Hegira and of the Sultan's reign—is somewhat less lucid to the casual observer. A table giving a key to the same is hereby appended:

Mahmud I.	Anno Hegira	1143.	A. D.	1730.
Othman III.	“	1168.	“	1754.
Mustapha III.	“	1171.	“	1757.
Abd-UI-Hamed I.	“	1187.	“	1774.
Selim III.	“	1203.	“	1789.
Mustapha IV.	“	1222.	“	1807.
Mahmud II.	“	1223.	“	1808.
Abd-UI-Medjid I.	“	1255.	“	1839.
Abd-UI-Aziz I.	“	1277.	“	1861.
Amrath V.	“	1293.	“	1876.
Abd-UI-Hamed II.	“	1293.	“	1876.

Coins bearing the twig and blossom-mark on the Obverse of the Ottoman coins, guarantee the real value of the money. Coins without this mint-mark are of great irregularity in the weight and fineness; and the latter is, in the silver coin especially, exceedingly low. This accounts also for the somewhat large size of silver piasters, yet of so little value.

Quite in contrast with the debasement of coin is the native honesty of the Turkish people. It does not seem to occur to them that any desirable end can be attained by lying or misrepresentation. In trade their fidelity to every verbal agreement is as remarkable as it is creditable. If a Turk promises to de-

liver a commodity on a certain day, in a given place, at a stated price, the goods will be on hand, entirely irrespective of the profit or loss that may acerue from the transaction. Neither note nor bond will enhance his punctuality or precision.



TURKISH COINS.

UNITED STATES OF COLOMBIA.

In the year 1819 New Grenada, Venezuela, and Quito were united into an independent government under the name of the United States of Colombia. This union was dissolved in 1829 by the withdrawal of Venezuela, and in 1830 Ecnador, formerly Quito, also withdrew. In 1831 the Republic of New Grenada was organized, bnt continued to coin money with the name of Colombia up to 1836. There were two mints in operation, one at Bogota and the other at Popayan: the name in full being usnally given on the coins, although Bogota is sometimes abbreviated to B^A. In 1860 a revolution broke out which resulted in the adoption of a constitntion, in 1863, by which the several States were united under the name of the United States of Colombia. These States are: Antioquia, Bolivar, Boyaca, Cauca, Cundinamarea, Magdalena, Panama, Santander, and Tolima.

The system of money is the same as that of Spain: the gold being the Doubloon and its fractions, the silver the Real and its multiples, and the nickel the multiple of the Centavo. Much of the early money, from the mint of Popayan especially, is below the Bogota standard.

GOLD COINS OF COLOMBIA AND NEW
GRENADA.

1. Doubloon, 1823-36. A female bust of Liberty; the hair confined by a band on which is inscribed "LIBERTAD," Legend: "REPUBLICA DE COLOMBIA," and the date in the Exergue.



DOUBLOON OF COLOMBIA (*Popayan mint*).

Reverse: A fasces in pale, crossed by a bow and arrows, *saltiere*, between two cornucopias. Above, the name of the mint. Below: "8 E (*scudos*) U. R" (initials of the mint officer). Weight: 416.5 grains. Fineness: 870. Value: about \$15.50, but varying in different years.

2. The Half Doubloon, Quarter, Eighth, and Sixteenth of a Doubloon are similar, only varying in size and each having the abbreviated value in Eseudos.



ESCUDO OF POPAYAN.

3. Doubloon of 1837. A female bust enveloped in a Roman mantle; the hair confined by a band inscribed "LIBERTAD." Legend: "REPUBLICA DE LA NUEVA GRANADA," and the date.

Reverse: A pointed shield bearing the arms. Above is a condor and a scroll inscribed "LIBERTAD L ORDEN." Legend:



DOUBLOON OF BOGOTA, 1837.

DIEZ I SEIS PESOS. BOGOTA. R. S." Weight: 416.5 grains.
Fineness: 870. Value: \$15.58.

4. Doubloon of 1849 and later. A head of Liberty looking left, with the band inscribed "LIBERTAD." Legend: "REPUBLICA DE LA NUEVA GRANADA," and the date.



DOUBLOON OF NEW GRANADA, 1849.

Reverse: The arms upon a pointed shield, suspended upon four standards. Upon the top of the shield is perched a Condor. Beneath the Condor is a scroll inscribed "LIBERTAD L ORDEN." Legend: "BOGOTA PESO 25,8064 G. (*rammes*) LEI 0.900." Weight: 398.2 grains. Fineness: 900. Value: \$15.31.

SILVER COINS OF COLOMBIA AND NEW GRANADA.

1. Peso of 1819. Bust of an Indian chief, surmounted by a double crown of feathers. "LIBERTAD AMERICANA." Below: 1819. Reverse: A pomegranate, "8 R" in the field, one either

side of it, and "NUEVA GRANADA." Weight: 362.9 grains. Fineness: 750. Value: \$0.74.

2. Peso of Cundinamarca. Obverse: Same as No. 1, excepting the Legend, which is "REPUBLICA DE COLOMBIA," and the date, which is 1821.



PESO OF CUNDINAMARCA.

Reverse: Like the reverse of No. 1, excepting that the Legend reads: "CUNDINAMARCA," a mint-mark of B^A. Weight, Value, and Fineness the same as No. 1.

3. Real of Cundinamarca. The designs are exactly the same on this piece as the preceding, only the denomination "1 R (*cal*)" is substituted for "8 R."



REAL OF CUNDINAMARCA.

4. Eight Reals of 1827. A fasces in pale, crossed by a bow and arrows, *saltiere*, between cornucopias. Legend: "REPUBLICA DE COLOMBIA," the date below.

Reverse: "B^A COLOMBIANO OCHO REALES R. S." in four straight lines, inclosed with a wreath. Above, the word "LIBERTAD," appears on a scroll. Weight, Value, and Fineness the same as No. 1.



EIGHT REALS OF COLOMBIA.

5. Eight Reals of 1837. A pointed shield bearing the arms. Legend: "REPUBLICA DE LA NUEVA GRANADA," with the date below.



EIGHT REALS OF NEW GRANADA.

Reverse: "8 REALES" in two straight lines, surrounded with a wreath. Legend: "BOGOTA" above and "R. S." below. Weight, Value, and Fineness the same as No. 1.



EIGHT REALS OF 1839.

6. Eight Reals of 1839. A cornucopia, above which is a condor holding in his beak a scroll inscribed, "LIBERTAD L ORDEN." Legend: "REPUBLICA DE LA NUEVA GRANADA." Exergue: "1839."

Reverse: "LEI OCHO DINEROS," inscribed in a wreath of laurel. Around the edge, "VALE OCHO REALES," "BOGOTA." Weight, Value, and Fineness the same as No. 1.

7. Ten Reals of New Granada. A shield suspended upon four standards and surmounted by a condor with expanded wings. "REPUBLICA DE LA NUEVA GRANADA," and the date.



TEN REALS OF NEW GRANADA.

Reverse: "DIEZ REALES" in two straight lines, surrounded with wreaths of laurel. Legend: "BOGOTA." Exergue: "LEI 0900." Weight: 398.2 grains. Fineness: 900. Value: 88 cents.

8. Two reals of New Granada. A shield, bearing the arms, between branches of laurel crossed. Legend: "REPUBLICA DE LA NUEVA GRANADA," and the date.



TWO REALS OF NEW GRANADA.

Reverse: "DOS REALES" in two straight lines, inclosed in a

heavy wreath of laurel, intertwined in a scroll or ribbon. Above is inscribed "BOGOTA," and beneath "LEY 0,900."

NICKEL COINS OF UNITED STATES OF COLOMBIA.

1. Two and a Half Centavos. " $2\frac{1}{2}$ c" inscribed in a circle. Legend: "DOS Y MEDIO CENTAVOS." Below is the date, 1831. Reverse: A liberty cap in a circle. Legend: "ESTADOS UNIDOS DE COLOMBIA." Below the cap is an arch of nine stars. Composition three parts copper and one part nickel. Weight: 17 grains. Value: $2\frac{1}{2}$ cents.

2. One Centavo and a Quarter. "c $1\frac{1}{4}$ " inscribed in a circle. "UN CENTAVO I CUARTO," 1874. Reverse: Exactly like the two and a half Centavos. Weight: 23 grains ($1\frac{1}{2}$ grammes). Composition same as the last. Value: $1\frac{1}{4}$ cent.

The anomaly is here shown of two coins of the same alloy, issued by a government and given such a fictitious value as to make the lighter piece have a purchasing capacity of just double that of the heavier.

URUGUAY.

By a treaty made between Brazil and Buenos Ayres in 1825, the territory bordering upon the Rio de la Plata and Uruguay rivers, and lying at the southernmost extremity of the Brazilian empire, was erected into an independent Republic, with its capital the seaport city of Montevideo.

SILVER COINS OF URUGUAY.

1. Dollar of Montevideo, 1844. Arms of the Republic inclosed between two branches of oak, crossed. Legend: "REPUBLICA ORIENTAL DEL URUGUAY." Date, 1844. Reverse: "UN PESO FUERTE" in two straight lines, surrounded by stars, and this by the Legend: "SITIO DE MONTEVIDEO." Below: " $10\frac{1}{2}$ D^s."

2. Peso of Uruguay, 1877. "1 PESO" inclosed in a wreath.

Legend: "LIBRE Y CONSTITUIDA." Date, 1877. Reverse: Arms of Uruguay. Legend: "REPUBLICA ORIENTAL DEL URUGUAY." Weight: 380 grains. Fineness: 900. Value: \$0.87.

COPPER COINS OF URUGUAY.

1. Forty Centesimos of 1857. The number 40 on a circular shield, with "CENTESIMOS" on a scroll resting on its upper border. The whole inclosed between two branches of maize, crossed. Weight: 536 grains. Value: four cents.

2. Twenty Centesimos of 1857. Exactly like the last, reduced in size, and with the substitution of 20 for 40. Weight: 268 grains. Value: two cents.

3. Five Centesimos of 1857. Exactly like the first, reduced in size, and with the substitution of 5 for 40. Weight: 67 grains. Value: half cent.

4. Four Centesimos of 1869. Exactly like the first, excepting in size, and the substitution of 4 for 40. Weight: 308 grains. Value: four cents.

5. Two Centesimos of 1869. Exactly like the first, excepting in size and the substitution of 2 for 40. Weight: 154 grains. Value: two cents.

6. One Centesimo of 1869. Exactly like the first, excepting in size, and the substitution of "1 CENTESIMO" for "40 CENTESIMOS." Weight: 77 grains. Value: one cent.

VENEZUELA.

The island of Marguerita, on the coast of Venezuela, was discovered by Columbus in 1498. The next year Ojeda and Vespucci entered Lake Maracaybo, where they found an Indian village constructed on piles over the water, and called it Venezuela—Little Venice. This name was eventually applied to the whole country.

BILLON COINS OF VENEZUELA.

1. Five Rials. Head of Liberty with a band inscribed

"LIBERTAD." Date below, 1858. Reverse: the arms of Venezuela with the Legend: "REPUBLICA DE VENEZUELA." Below: "5 R^{LS} 11.50 G^S" (*Grammes*). Weight: 177.491 grains, Troy. Fineness: 750. Value: \$0.37.518.

2. Two Rials. Obverse: Similar to the five Rials. Reverse: Similar to the five Rials, substituting below: "2 R^{LS} 4.60 G^S" Weight: 70.988 grains, Troy. Fineness: 750. Value: \$0.14.955.

3. One Rial. Obverse: Similar to the five Rials. Reverse: Similar to the five Rials, substituting below: "1 R^{LS} 2.30 G^S" Weight: 34.494 grains, Troy. Fineness: 750. Value: \$0.07.349.

4. Half Rial. Obverse: Similar to the five Rials. Reverse: Similar to the five Reals, substituting below: " $\frac{1}{2}$ R^{LS} 1.15 G^S." Weight: 17.746 grains, Troy. Fineness: 750. Value: \$0.03.549.

COPPER COINS OF VENEZUELA.

1. Centavo. Head of Liberty with a cap and fillet inscribed "LIBERTAD." Legend: "REPUBLICA DE VENEZUELA." Reverse: "1 CENTAVO 1843" in three straight lines, the whole surrounded with a laurel wreath. Weight: 190 grains, Troy. Value: one cent.

2. Half-Centavo. Precisely similar to the Centavo, excepting that " $\frac{1}{2}$ " takes the place of the "1." Weight: 95 grains. Value: a half cent.

3. Quarter Centavo. Precisely similar to the Centavo, excepting that " $\frac{1}{4}$ " takes the place of the "1." Weight: 47 $\frac{1}{2}$ grains. Value: one-fourth of a cent.

Several years after the issue of the foregoing, the Centavo was reduced in weight to 166 grains, and its fractions were discontinued. In 1876 the copper Centavo was superseded by the

NICKEL COINS OF VENEZUELA.

1. Two and a half Centavos. The arms of Venezuela with the Legend: "ESTADOS UNIDOS DE VENEZUELA." The date, 1876, below.



TWO AND ONE-HALF CENTAVOS OF VENEZUELA.

Reverse: "DOS Y MEDIO CENTAVOS" in three lines, surrounded with a wreath of laurel. Composition: nickel, 20 parts; copper, 65; zinc, 15. Weight: 76 grains, Troy. Value: $2\frac{1}{2}$ cents.

2. One Centavo. Obverse: Similar to the two and a half Centavos.



UN CENTAVO OF VENEZUELA.

Reverse: "UN CENTAVO" in two lines, surrounded with a wreath of laurel. Composition: Same as the two and a half Centavos. Weight: 76 grains, Troy. Value: one cent.

1. Silver Half Peso of Venezuela, 1873. Bust of Simon Bolivar: Legend: "BOLIVAR LIBERTADOR."



HALF PESO OF VENEZUELA.

Reverse: Arms of Venezuela. Legend: "ESTADOS UNIDOS DE VENEZUELA." Below: "G (rammes) 12,500, 1873. LEI 835." Weight: 197 grains, Troy. Fineness: 835. Value: \$0.46.

UNITED STATES OF AMERICA.

HISTORY OF THE MINTS.

On the 28th day of January, 1791, a resolution was offered in the House of Representatives in Philadelphia assembled, for the establishment of a United States Mint, which was finally passed on the 3d day of March, 1791. It read as follows :

CONGRESS OF THE UNITED STATES.

AT THE THIRD SESSION.

Begun and held at the City of Philadelphia, on Monday the sixth day of December, one thousand seven hundred and ninety.

RESOLVED by the SENATE and HOUSE OF REPRESENTATIVES of the United States of America in Congress assembled, That a mint shall be established under such regulations as shall be directed by law.

Resolved, That the President of the United States be, and he is hereby authorized to cause to be engaged, such principal artists as shall be necessary to carry the preceding resolution into effect, and to stipulate the terms and conditions of their service, and also to cause to be produced such apparatus as shall be requisite for the same purpose.

FREDERICK AUGUSTUS MUILENBERG,

Speaker of the House of Representatives.

JOHN ADAMS,

Vice-President of the United States and President of the Senate.

Approved March the third, 1791.

GEORGE WASHINGTON, *President of the United States.*

DEPOSITED among the ROLLS in the OFFICE OF THE SECRETARY OF STATE.

TH: JEFFERSON, *Secretary of State.*

A lot of ground was purchased on Seventh street opposite Filbert street, between Market and Arch streets, in Philadelphia, Pa., occupied at that time by an old still-house and a

frame tenement building.* Washington appointed, on the first day of July, 1791, David Rittenhouse to be the Director of the Mint. A code of laws for the government of the Mint was enacted on the 2d of April, 1792. The foundation of the first Mint of the United States was laid on Thursday, the 31st day of July, 1792, at ten o'clock in the forenoon, by David Rittenhouse.

As soon as the ceremony of laying the corner-stone was ac-



FIRST MINT OF THE UNITED STATES. ERECTED 1792.

complished, the work upon the foundation commenced. The foundation was completed, ready for the superstructure, on Saturday, the 25th day of August, 1792, and the framework was raised in the afternoon of that day.

The coin-presses, three in number, were imported from abroad

* This Mint is still standing.

and arrived at the mint on Friday, the 21st day of September, 1792, were put in operation the 9th day of October following, and first used for striking the pattern half-dimes of 1792.

The first purchase of copper by the United States government was made on Tuesday, the 11th day of September, 1792, and comprised six pounds of old copper.

The first deposit of silver bullion for coinage took place on the 18th day of July, 1794. The deposit was made by the Bank of Maryland, and consisted of coins of France amounting to \$80,715.73.

The first return of silver coins from the chief coiner to the treasurer was made on the 15th day of October, 1794, and comprized \$1,758.

The first deposit of gold bullion for coinage at the United States Mint took place on the 12th day of February, 1795. The deposit was made by Moses Brown, merchant of Boston, Mass., and consisted of gold ingots amounting to \$2,276.22.

The first return of gold coins from the chief coiner was on the 31st day of July, 1795, and consisted of 744 half-eagles.

The first delivery of Eagles was on the 22d day of September, 1795, and consisted of 400 pieces.

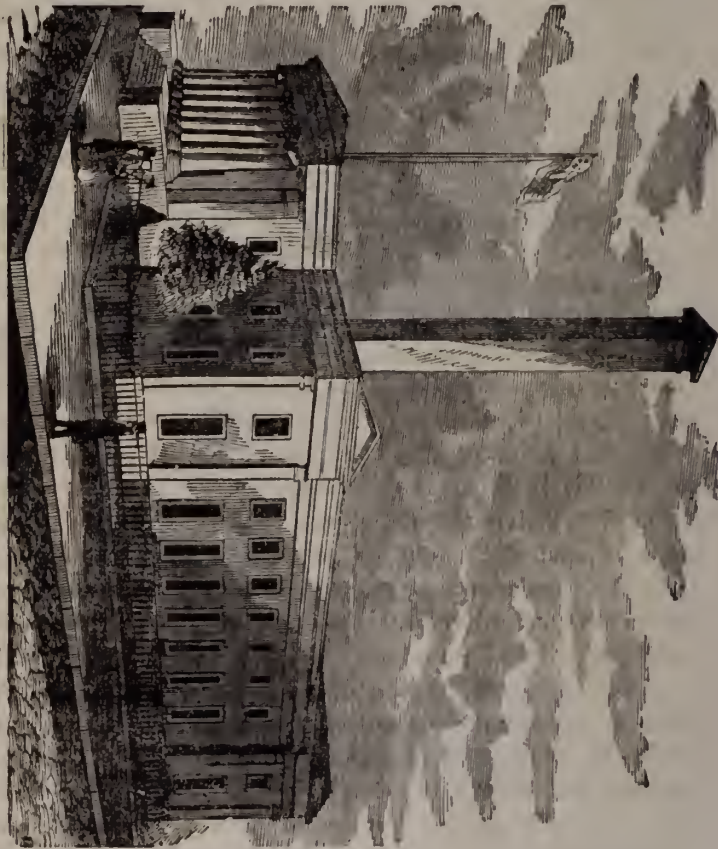
As the population and trade of the Colonies had increased, foreign gold and silver had been introduced and had become a part of the circulating medium. These were chiefly the Guinea, the Joe and its half, the Doubloon and Pistole, in gold; the Mexican Dollar and its parts, the Pistareen and its parts, and the British Shilling and Six-pence in silver. French Crowns were not known until the Revolution, when they became common. But of the specie currency no piece was so well known as the Spanish Dollar, which, as already noted, became, by the act of Congress in 1785, the effective standard or unit of our moneys.

The Pound of the Colonies was at first the same as the Pound Sterling of England, being simply a money of account.

THE MINT IN PHILADELPHIA, PA.

On the 19th day of May, 1828, Congress approved an act locating the United States Mint at its present site on Chestnut

THE MINT IN PHILADELPHIA. ERRECTED, 1829-1833.



street in the city of Philadelphia, and in 1829-1830 the provisions of the law were carried into effect.

This Mint commenced operations in 1838, and at the present day, with its improved machinery and appendages, is as complete and efficient as can be desired. A valuable collection of over 8,000 coins of the different nations is also kept there on

exhibition. The coins minted in Philadelphia bear no Mint-mark. This Mint commenced operation in 1832. The building was made fire-proof, 1853-1856.

THE MINT IN CHARLOTTE, N. C.

By Act of Congress, March 3d, 1835, a Mint was ordered to be erected at Charlotte, in Mecklenburg county, N. C., for the coinage of gold only.



BRANCH MINT IN CHARLOTTE, N. C. ERECTED, 1836-1837.

The Mint-mark of the Charlotte Mint is the letter "C," which appears on all the coins minted there. Since 1862 no coinage has been done there, and by Act of Congress in 1873, it was transformed from a regular Mint to an assay office. This Mint was built in 1836-1837, and commenced operation in 1838; burned down in 1844, was re-built in 1845-1846.

THE MINT IN DAHLONEGA, GA.

Congress, in 1835, also provided for a Branch Mint in Dahlonega, in Lumpkin county, Ga., and for the coinage of gold



BRANCH MINT IN DAHLONEGA, GA.

only. The productions of the Georgia gold mines made this a necessity, and Congress relieved this much felt want by enacting a law providing this Branch Mint.

The discovery of gold in California, and the events of war

in 1862 in Georgia, induced the United States Government to close this Mint.

On all coinages of the Dahlonega Mint the initial "D" appears as a Mint-mark, on the Obverse of the coin. The first coinage of gold at this Mint was made in 1838.

THE MINT IN NEW ORLEANS, LA.

On the 3d of March, 1835, a supplementary Act was passed



BRANCH MINT IN NEW ORLEANS, LA. ERECTED, 1836-1837.

and approved for the establishment of a Branch Mint in New Orleans, La. This Mint commenced operation in 1838.

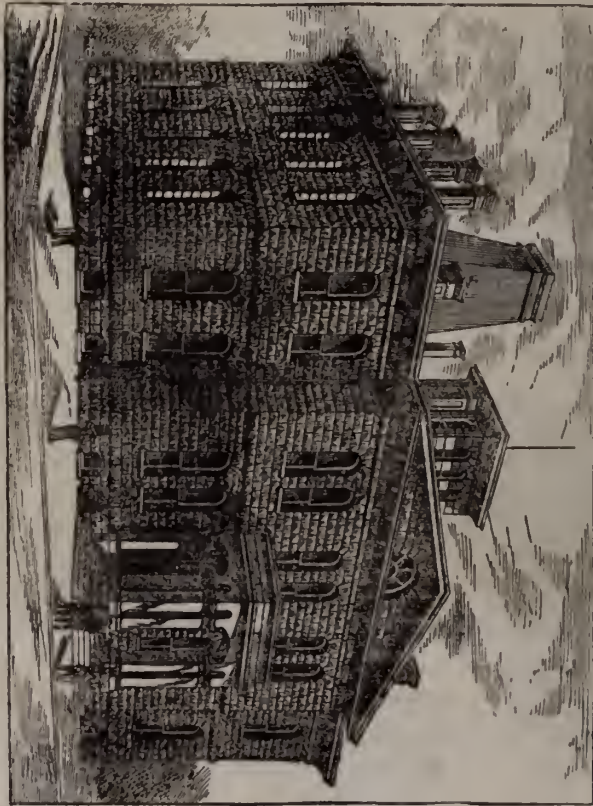
This Mint is also furnished with the latest improvements for the coinage of gold and silver. The initial of the New Orleans Mint, "O," is on all of this Mint's coinages.

The Carson City Mint is provided with the latest improve-

ments for the mintage of money. On all the coinages of this Mint the initials "C. C." appear as a Mint-mark.

On the 4th day of July, 1864, a bill was passed and approved for the establishment of a Mint at Dalles City, in Oregon, for the coinage of gold and silver money.

BRANCH MINT IN CARSON CITY, NEV. COMPLETED, 1870.

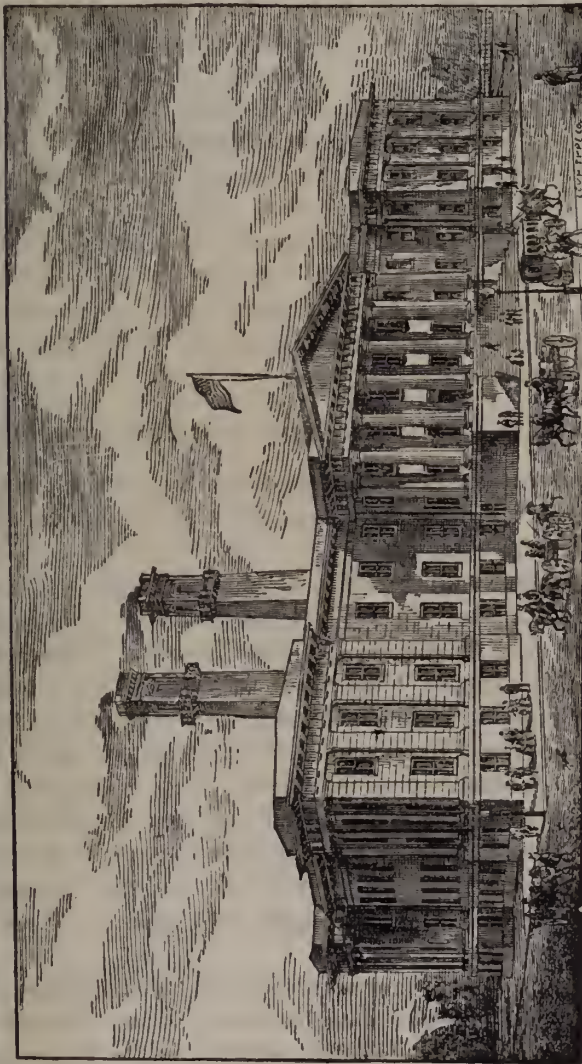


On the 2d day of April, 1862, Congress ordered an assay office at Denver, Colorado. A building was purchased in 1863, and operations commenced in 1864. This establishment was styled a Mint, in the Coinage Act of 1873.

This Mint is in operation at the present time.

THE MINT IN SAN FRANCISCO, CAL.

In July, 1852, an Act was passed and approved for the



BRANCH MINT IN SAN FRANCISCO, CAL. COMPLETED, 1854.

establishment of a Branch Mint in San Francisco, Cal., for the
coinage of gold and silver money.

Having been established since the discovery of gold in California, and the vast production of precious metals on the Pacific slope, the Mint at San Francisco, which commenced operation in 1854, has, since the legalized suspension of specie payments in 1861, and up to the full resumption of the same in 1878, coined much the greater part of all the vast sums of gold and silver money minted in the United States, which never ceased to circulate in the far West, and along the shore of the Pacific Ocean. This Mint provided about twenty-nine millions of Trade Dollars for export to China and Japan, and in 1875 was doing about four-fifths of all the coinage of the United States.

On all coinages of the San Francisco Mint, the initial "S" appears as a Mint-mark, generally on the Obverse, but sometimes on the Reverse of the coins.

GOLD COINAGE OF THE UNITED STATES.

In 1849 the first Double Eagle coinage of the United States was struck; this single piece was placed in the Cabinet of the Mint at Philadelphia.

The first issue to the public took place in 1850.

Obverse: Bust of liberty; hair looped up in a roll behind; stray curls hang loosely upon the neck; upon the forehead a tiara, with "LIBERTY" inscribed; around the edge thirteen stars. Exergue: "1849." Reverse: A very small eagle, its body hidden by the United States shield; from the eagle's beak depends an ornamented scroll, upon which is inscribed "E PLURIBUS UNUM"; in left talon three arrows, in right an olive branch; above, a circle of thirteen stars, crossed by diverging rays of the sun. Legend: "UNITED STATES OF AMERICA." Exergue: "TWENTY D." Weight: 516 grains. Fineness: 900.

The Double Eagles have been coined in great numbers, year after year, the successive dates appearing in the Exergue on the Obverse. In 1866 a change was made on the Reverse, the oval of stars was changed in form, and the motto: "IN GOD WE TRUST," inscribed within it. In 1877 the Legend:

“TWENTY D.” in the Exergue on the Reverse, was changed to
 “TWENTY DOLLARS.” No other changes have been made.



DOUBLE EAGLE OF TWENTY DOLLARS.

The Double Eagle of Twenty Dollars, gold, is equal in value to:

- 20 Patakas of Abyssinia.
- 30 Kwans of Annam.
- 24 Piasters of Arabia.
- 20 Pesos Fuertes of the Argentine Republic.
- 44 Florins, 15 Kreuzers of Austria.
- 103 Francs, 62½ Centimes of Belgium.
- 20 Pesos, 7 Reals of Bolivia.
- 36 Milreis, 697 Reis of Brazil.
- 21 Pesos, 93 Centavos of Bogota.
- 20 Dollars of Canada and British possessions of North America.
- 2 Gold Condors, 1 Peso, 93 Centavos of Chili.
- 12 Taels, 4 Mace, 2 Candareens, 3 Cash and 6 Haos of China.
- 21 Pesos, 80 Centavos of Costa Rica.
- 21 Pesos, 62 Centavos of Cuba and Porto Rico.
- 36 Rigsdalers, 6 Marks, 4 Skillings or 74 Kroner, 64 Ores, of Denmark.
- 21 Pesos, 80 Centavos of Ecuador.
- 400 Piasters of Egypt.
- 103 Francs, 62½ Centimes of France and French possessions in Africa.
- 4 Pounds, 2 Shillings, 3 Pence Sterling of Great Britain and Australia.

- 103 Draclimas, $62\frac{1}{2}$ Leptas of Greece.
 84 Marks of the German Empire.
 21 Pezos, 80 Centabos of Guatemala.
 21 Dollars, gold of Hayti.
 21 Pezos, 80 Centavos of Honduras.
 45 Rupees, 15 Annas of India.
 103 Lires, $62\frac{1}{2}$ Centissimi of Italy.
 20 Yens, 6 Sens of Japan.
 20 Dollars, gold of Liberia.
 50 Scudis of Malta.
 20 Dollars, 4 Centavos of Mexico.
 103 Lei, $62\frac{1}{2}$ Ban Paras of Moldavia, Roumania and Wallachia.
 50 Guilders of the Netherlands.
 20 Pesos of Paraguay.
 18 Milreis, 350 Reis of Portugal.
 27 Roubles, 25 Kopecks Silver of Russia.
 8 Tomauns, 47 Abassis of Persia.
 21 Sols, 80 Centavos of Peru.
 251 Piasters, 75 Paras of Servia.
 $32\frac{1}{2}$ Silver Ticals of Siam.
 103 Pesetas, $62\frac{1}{2}$ Centimes of Spain.
 74 Riksdaler Rieksmynt, 64 Ores of Sweden and Norway.
 103 Francs, $62\frac{1}{2}$ Rappens of Switzerland.
 200 Gurush of Tripoli.
 169 Piasters, 6 Kharonbs of Tunis.
 7 Tillas, 8 Tengas of Turkestan.
 465 Piasters, 10 Aspers of Turkey.
 2 Gold Condors, 1 Peso, 80 Centavos of U. S. of Colombia.
 21 Patacons of Uruguay.
 25 Pesos, 74 Centajos of Venezuela.
 20 Janurio Dollars of Zanzibar.

In June, 1795, the first coinage of Eagles or Ten Dollar gold pieces occurred; they were of $916\frac{2}{3}$ fineness and 270 grains in weight. Value: \$10.50.

Obverse: The Goddess of Liberty, facing to the right, wearing a rather high liberty cap, hair flowing loosely; around the

edge, fifteen six-pointed stars; five on the right, and ten on the left of the Goddess of Liberty; Legend: "LIBERTY." Exergue: "1795."



EAGLE OF TEN DOLLARS.

Reverse: Eagle, with expanded wings, holding in its beak a laurel wreath and grasping a palm branch with both talons; Legend: "UNITED STATES OF AMERICA."

In 1796 the Eagles had sixteen stars upon the Obverse, eight upon each side of the Goddess of Liberty. It was the original intention to add an additional star for every new State; but it was concluded to abandon the practice for fear that the stars would become too numerous. Fineness: 916 $\frac{2}{3}$. Weight: 270 grains. Value: \$10.50.

In 1797 a change was made.



EAGLE OF TEN DOLLARS.

The Obverse remained the same as that of 1796; but upon the Reverse the following change was made: Eagle, raised wings, upon its breast the United States shield, holding in its

beak a scroll with "E PLURIBUS UNUM" inscribed upon it, grasping in its right talon a bundle of arrows; in the left an olive branch; above the eagle thirteen stars and clouds. Legend: "UNITED STATES OF AMERICA." Fineness: $916\frac{2}{3}$. Weight: 270 grains.

From 1798 to 1804, inclusive, the stars on the Obverse were reduced to thirteen. Fineness: $916\frac{2}{3}$. Weight: 270 grains. Value: \$10.50.

From 1805 to 1837, inclusive, no eagles were issued.

June 28th, 1834, an act of Congress was passed, by which the fineness of United States standard gold was reduced from $916\frac{2}{3}$ to 899.225, and the weight of the eagle from 270 to 258 grains. This was done to favor coinage of gold and prevent its exportation and destruction: United States gold coin, always at a premium on account of its extra fineness, had been immediately exported to Europe and smelted.



EAGLE OF TEN DOLLARS.

The Half Eagles and Quarter Eagles coined under the act of 1834 were called "Benton's Mint Drops," after Senator Benton, of Missouri, the chief advocate of the new measure.

January 18th, 1837, another act of Congress changed the standard of the gold and silver coins of the United States to 900, the fineness established by several nations of Europe.

Upon this change of standard an alteration took place in the device of the eagles, and the first eagles of the new standard and weight were issued on the 26th day of December, 1838, having on the Obverse, Liberty facing left, having her hair tied

in a loose knot, a tiara with "LIBERTY" inscribed upon it: thirteen stars around the field and 1838 in Exergue. Reverse: An eagle with a United States shield upon its breast and uplifted wings, left talon three arrows, right, olive branch. Le-



EAGLE OF TEN DOLLARS.

gend: "UNITED STATES OF AMERICA." Exergue: "TEN D."
Weight: 258 grains. Fineness: 900. Scarce.

No alteration occurred until 1866, when upon the Reverse, over the head of eagle, the motto "IN GOD WE TRUST" was added in a scroll; no other change was made. Weight: 258 grains. Fineness: 900.



EAGLE OF TEN DOLLARS.

The Eagle of Ten Dollars is equal in value to:

22 Florins, $7\frac{1}{2}$ Kreuzers of Austria.

51 Francs, $81\frac{1}{4}$ Centimes of Belgium.

18 Mil Reis, $348\frac{1}{2}$ Reis of Brazil.

51 Francs, $81\frac{1}{4}$ Centimes of Francee.

42 Marks of the German Empire.

2 £., 1 Shilling, $1\frac{1}{2}$ Pence of Great Britain.

25 Guilders, 19 Stivers, $2\frac{1}{2}$ Cents of Holland.

51 Lires, $81\frac{1}{4}$ Centissimi of Italy.

- 9 Mil Reis, 175 Reis of Portugal.
 13 Roubles, 62½ Kopecks, Silver of Russia.
 51 Pesetas, 81¼ Centimes of Spain.
 37 Crowns, 32 Ores of Sweden and Norway.
 51 Francs, 81¼ Rappens of Switzerland.

The first return of gold coins from the United States Mint was on the 31st day of July, 1795, and consisted of 744 Half Eagles, of the value of Five Dollars each. Obverse: A female bust, emblematic of Liberty, facing to the right, wearing a rather high liberty-cap, hair flying loosely about it.

Above is inscribed the word "LIBERTY;" beneath, "1795." To the left of the effigy, ten stars, and to the right, five, fifteen in all.



HALF EAGLE OF FIVE DOLLARS.

Reverse: An eagle, with expanded wings, holding a laurel wreath in its beak, and grasping a palm branch with both talons. Legend: "UNITED STATES OF AMERICA." Weight: 135 grains. Fineness: 916⅔. Value: \$5.25.

No change was made in the coinage until 1797. Obverse remained the same.



HALF EAGLE OF FIVE DOLLARS.

The Reverse was changed to an eagle with raised wings, holding in its beak a scroll, inscribed "E PLURIBUS UNUM,"

and grasping in the right talon a bundle of arrows, and in the left an olive branch. Upon its breast is the United States shield. Above the eagle are clouds and thirteen stars. Legend: "UNITED STATES OF AMERICA." Weight: 135 grains. Fineness: 916 $\frac{2}{3}$. Value: \$5.25.

No further changes were made until the first issue of the new type, which took place on the 30th of September, 1807. Obverse: A bust of Liberty, facing to the left, wearing a liberty-cap, upon the band of which is inscribed "LIBERTY." Exergue: "1807." To the left of effigy are seven stars, to the right, six, thirteen in all.



HALF EAGLE OF FIVE DOLLARS.

Reverse: An eagle, with its wings expanded, the United States shield upon its breast. In the left talon three arrows, in the right an olive branch. Above the eagle is displayed a scroll, inscribed "E PLURIBUS UNUM." Legend: "UNITED STATES OF AMERICA." Exergue: "5 D." The value of United States gold coins was stamped upon them for the first time in 1807. Weight: 135 grains. Fineness: 916 $\frac{2}{3}$. Value: \$5.25.

In 1813, the Obverse was changed to a head of Liberty, with thirteen stars arranged in an arch above it and around the edge of the coin. Exergue: "1813."



HALF EAGLE OF FIVE DOLLARS.

Reverse: Unchanged. Weight: 135 grains. Fineness: 916 $\frac{2}{3}$. Value: \$5.25.

In 1814 and 1815 (only five or six known of 1815), same devices and legends.

In 1816 and 1817, there was no gold coinage.

In 1818, the old devices and legends were resumed, and continued until 1833, inclusive. Weight: 135 grains. Fineness: 916 $\frac{2}{3}$. Value: \$5.25.

Upon the change of standard in 1834, another alteration took place in the type of the gold coinage. Up to June, 1834, they continued the same as before, but the change of standard having taken place in that month, the type was changed, in order to distinguish the new standard from the old, merely by sight.

The Obverse similar to the old coin, except that the liberty-cap is removed from the head of the Goddess of Liberty, and instead, the hair is confined by a band inscribed with the word "LIBERTY."



HALF EAGLE OF FIVE DOLLARS.

Reverse: Same as the old coin, except the scroll bearing the motto "E PLURIBUS UNUM," is omitted. Weight reduced from 135 grains to 129 grains, and the Fineness from 916 $\frac{2}{3}$ to 899.225 fine. Value: \$5.00.

By Act of Congress, January 18th, 1837, the fineness of United States coin was raised to 900. Near the end of the year 1838, a change of device was made, but none of these pieces were issued until 1839. Obverse: A bust of Liberty, the shoulders undraped. The hair in a roll behind, entwined floating ribbons. Two curls hang loose upon the neck. Upon the brow a tiara, with "LIBERTY" inscribed upon it. Around the edge thirteen stars. Exergue: Date of issue.

Reverse: Same as since 1807, except that "5 D" in the Exergue was changed to "FIVE D." Weight: 129 grains. Fineness: 900.



HALF EAGLE OF FIVE DOLLARS.

From 1839 down to 1866 no alteration was made.

In 1866, upon the Reverse, over the head of the eagle, the motto, "IN GOD WE TRUST," was added. No other change was made. Weight: 129 grains. Fineness: 900.



HALF EAGLE OF FIVE DOLLARS.

The Half Eagle of Five Dollars is equal in value to:

- 11 Florins, $3\frac{3}{4}$ Kreuzers of Austria.
- 25 Franca, $90\frac{5}{8}$ Centimes of Belgium.
- 9 Mil Reis, $174\frac{1}{2}$ Reis of Brazil.
- 25 Franca, $90\frac{5}{8}$ Centimes of France.
- 21 Marks of the German Empire.
- 1 £, $6\frac{3}{4}$ Pence of Great Britain.
- 12 Guilders, 19 Stivers, $3\frac{3}{4}$ Cents of Holland.
- 25 Lires, $90\frac{5}{8}$ Centissimi of Italy.
- 4 Mil Reis, $587\frac{1}{2}$ Reis of Portugal.
- 6 Roubles, $81\frac{1}{4}$ Kopecks of Russia.
- 25 Pesetas, $90\frac{5}{8}$ Centimes of Spain.
- 18 Crowns, $66\frac{1}{2}$ Ores of Sweden, Norway, and Denmark.
- 25 Franca, $90\frac{5}{8}$ Rappens of Switzerland.

The first issue of Quarter Eagles was made on the 21st of September, 1796. The amount, however, was very small, being only sixty-six pieces. Obverse: A bust emblematic of Liberty, facing to the right, wearing a rather high liberty-cap, with "LIBERTY" inscribed above it. Exergue: "1796."

Some of the Quarter Eagles of 1796 bore sixteen stars on the Obverse, while others had a clear field, the stars being omitted from that side of the piece.



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

Reverse: An eagle, with raised wings, holding in its beak a scroll, inscribed "E PLURIBUS UNUM," and grasping in the right talon a bundle of arrows, and in the left an olive branch. Upon its breast is the United States shield. Above the eagle are clouds, and thirteen stars. Legend: "UNITED STATES OF AMERICA." Weight: 67.500 grains. Fineness: 916 $\frac{2}{3}$. Value: \$2.62.

In 1796 some of the Quarter Eagles bore on the Obverse sixteen stars, while others had a clear field, the stars being omitted.

In 1797, 1798 and 1799 no change was made either in device, fineness, weight or value.

In 1800 and in 1801 no more Quarter Eagles were coined.

In 1802, 1803, 1804, 1805, 1806 and 1807, Quarter Eagles appeared with the devices and legends of 1796. Weight: 67.500 grains. Fineness: 916 $\frac{2}{3}$. Value: \$2.62.

In 1808 a change was made. Obverse: A bust emblematic of Liberty, facing to the left, wearing a liberty-cap, upon the band of which is inscribed "LIBERTY." Exergue: "1808." To the left of effigy are seven stars, to the right six, thirteen in all.



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

Reverse: An eagle with its wings expanded, the United States shield upon its breast. In the left talon three arrows, in the right an olive branch. Above the eagle a scroll, inscribed "E PLURIBUS UNUM." Legend: "UNITED STATES OF AMERICA." Exergue: "2½ D." Weight: 67.500 grains. Fineness: 916⅔. Value: \$2.62.

In 1809 and to 1821 no Quarter Eagles were coined.

In 1821 the Obverse was slightly changed, the head of Liberty appearing more reduced in size, and the thirteen stars arranged in a circle around the edge.

In 1821 the Obverse was changed to a head of Liberty, with thirteen stars arranged in an arch above it and around the edge of the coin. Exergue: "1821."



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

Reverse remained unchanged. Weight: 67.500 grains. Fineness: 916⅔. Value: \$2.62.

In 1822; 1823 and 1828 no Quarter Eagles were coined.

In 1829 the Quarter Eagles reappeared and continued without change till 1833, inclusive. Weight: 67.500 grains. Fineness: 916⅔. Value: \$2.62.

In 1834 the fineness was changed from 916⅔ to 899.225, and the weight reduced from 67.500 grains to 64.500 grains.

In 1834 the liberty-cap was removed from the Goddess of

Liberty, the hair being confined by a band, upon which is inscribed "LIBERTY."



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

Reverse: Same as the old coin, with the exception that the scroll bearing the motto "E PLURIBUS UNUM" is omitted. Weight: 64.500 grains. Fineness: 899.225.

In 1839 the Quarter Eagle reappeared, device of 1834. Fineness changed, Act of January 18th, 1837, to 900.

In 1840 a change was made. Obverse: A bust emblematic of Liberty; the shoulders undraped. The hair is looped in a roll behind, and entwined with beads; a couple of stray curls hang loosely upon the neck. Upon the front of the head a tiara, with "LIBERTY" inscribed upon the same. Around the edge thirteen stars. Exergue: Date of the year of issue.



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

Reverse remained unchanged. Weight: 64.500 grains. Fineness: 900.



QUARTER EAGLE OF TWO DOLLARS AND A HALF.

The Quarter Eagle of Two Dollars and a Half is equal to:
5 Florins, 51½ Kreuzers of Austria.

- 12 Francs, $95\frac{5}{16}$ Centimes of Belgium.
 4 Mil Reis, 857 Reis of Brazil.
 12 Francs, $95\frac{5}{16}$ Centimes of France.
 10 Marks, 50 Pfennige of the German Empire.
 10 Shillings, $3\frac{3}{4}$ Pence of Great Britain.
 6 Guilders, 9 Stivers, $4\frac{3}{4}$ Cents of Holland.
 12 Lires, $95\frac{5}{16}$ Centissimi of Italy.
 2 Mil Reis, 193 $\frac{1}{2}$ Reis of Portugal.
 3 Roubles, 40 $\frac{1}{2}$ Kopecks, Silver of Russia.
 12 Pesetas, $95\frac{5}{16}$ Centimes of Spain.
 9 Crowns, 33 $\frac{1}{4}$ Ores of Sweden and Norway.
 12 Francs, $95\frac{5}{16}$ Rappens of Switzerland.

In 1854 a new coin made its appearance; namely, the Three Dollar Gold Piece. Obverse: A graceful Indian head, a feathered crown, inscribed "LIBERTY" upon the band. Legend: "UNITED STATES OF AMERICA."



THREE DOLLARS.

Reverse: "3 Dollars," and the date of the year of issue. The whole surrounded by a wreath of the leaves of the tobacco plant and cereals. No change has been made since. Weight: 77.400 grains. Fineness: 900.

The Three Dollar Gold Piece is equal in value to:

- 6 Florins, 62 $\frac{1}{4}$ Kreuzers of Austria.
 15 Francs, $54\frac{3}{10}$ Centimes of Belgium.
 5 Mil Reis, $504\frac{5}{100}$ Reis of Brazil.
 15 Francs, $504\frac{3}{10}$ Centimes of France.
 12 Marks, 61 Pfennige of the German Empire.
 12 Shillings, 4 Pence of Great Britain.
 7 Guilders, 10 Stivers of Holland.
 15 Francs, $54\frac{3}{100}$ Centissimi of Italy.

918 Reis of Portugal.

4 Roubles, 8 $\frac{3}{4}$ Kopeeks, Silver of Russia.

15 Pesetas, 54 $\frac{3}{10}$ of Spain.

11 Crowns, 20 Ores of Sweden and Norway.

15 Francs, 54 $\frac{3}{10}$ of Switzerland.

In 1849 the One Dollar Gold Piece was added to the coinage.

The Obverse: A female head emblematic of Liberty, hair loosely tied in a knot, on the forehead a tiara, with "LIBERTY" inscribed upon it; around it, in a circle, thirteen stars.



ONE DOLLAR.

Reverse: "1 DOLLAR," and the date of the year of issue, surrounded by two branches of laurel, crossed and tied. Legend: "UNITED STATES OF AMERICA." Weight: 25.800 grains. Fineness: 900.

This dollar, after a few years of trial, was found too small in diameter, and many complaints were made against it on that account.

In 1854, therefore, an alteration was made in the size of the dollar gold piece; larger in diameter, it is of a proportionate decrease in thickness. The Obverse bears a beautiful Indian female head, crowned with feathers; upon the band encircling the head and feathers the word "LIBERTY" is inscribed. Legend: "UNITED STATES OF AMERICA."



ONE DOLLAR.

Reverse: "1 DOLLAR," and the date of the year of issue; the

whole surrounded by a wreath of cereals. No change has since been made.

The Dollar is equal in value to :

- 1 Pataek of Abyssinia.
- 1 Kwan, 5 Mas of Annam.
- 1 Piaster, 16 Caveers of Arabia.
- 1 Peso Fuerte of the Argentine Republic.
- 2 Florins, 20 $\frac{3}{4}$ Krentzers of Austria.
- 5 Francs, 18 $\frac{1}{10}$ $\frac{3}{10}$ Centimes of Belgium.
- 1 Peso, 3 $\frac{1}{2}$ Centavos of Bolivia.
- 1 Mil Reis, 834 $\frac{8}{10}$ $\frac{5}{10}$ Reis of Brazil.
- 1 Peso, 9 $\frac{6}{10}$ $\frac{5}{10}$ Centavos of Bogota.
- 1 Dollar of Canada, and the other British Provinces of North America.
- 1 Peso, 9 $\frac{6}{10}$ $\frac{5}{10}$ Centavos of Chili.
- 6 Mace, 2 Candareens, 1 Cash, 1 Hao, 8 Tse of China.
- 1 Peso, 8 $\frac{9}{10}$ $\frac{3}{10}$ Centavos of Costa Rica.
- 1 Peso, 8 $\frac{1}{10}$ Centavos (gold) of Cuba and Porto Rico.
- 1 Rigsdaler, 5 Marks, 2 Shillings of Denmark.
- 1 Peso, 8 $\frac{9}{10}$ $\frac{3}{10}$ Centavos of Equador.
- 20 Piasters of Egypt.
- 5 Francs, 18 $\frac{1}{10}$ $\frac{3}{10}$ Centimes of France and French Possessions in Africa.
- 4 Shillings, 1 $\frac{1}{2}$ Penny Sterling of Great Britain and Australia.
- 4 Marks, 20 Pfennige of the German Empire.
- 5 Drachmas, 18 $\frac{1}{10}$ $\frac{13}{10}$ Leptas of Greece.
- 1 Peso, 8 $\frac{9}{10}$ $\frac{3}{10}$ Centavos of Guatemala.
- 1 Dollar, 5 Centimes (gold) of Hayti.
- 1 Pezo, 8 $\frac{9}{10}$ $\frac{3}{10}$ Centavos of Honduras.
- 2 Rupees, 4 Annas, 9 Pice of India.
- 5 Lires, 18 $\frac{1}{10}$ $\frac{13}{10}$ Centissimi of Italy.
- 1 Yen, $\frac{1}{10}$ of a Sen of Japan.
- 1 Dollar, gold, of Liberia.
- 2 Sendi, 6 Tari of Malta.
- 1 Dollar, $\frac{1}{10}$ of a Centavo of Mexico.

5 Lei, $18\frac{1}{10}\%$ Ban Para of Moldavia, Roumania, and Wallachia.

2 Guilders, 10 Stivers of the Netherlands.

1 Peso of Paraguay.

22 Abassi, 1 Shatree of Persia.

1 Sol, $8\frac{2}{10}\%$ Centavos of Peru.

967 $\frac{1}{10}\%$ Reis of Portugal.

1 Rouble, $36\frac{1}{2}$ Kopecks, silver, of Russia.

1 Peso, $8\frac{2}{10}\%$ Centavos of San Salvador.

12 Piasters, $47\frac{1}{2}$ Para of Servia.

$1\frac{3}{8}$ Silver Ticals of Siam.

5 Pesetas, $18\frac{1}{10}\%$ Centimes of Spain.

3 Ricksdaler Ricksmynt, $73\frac{1}{2}$ Ores of Sweden and Norway.

5 Francs, $18\frac{1}{10}\%$ Rappens of Switzerland.

10 Gurush of Tripoli.

8 Piasters of Tunis.

7 Tengas, 33 Pool of Turkestan.

23 Piasters, $25\frac{1}{2}$ Aspers of Turkey.

1 Patacon, $5\frac{1}{10}\%$ Centavos of Uruguay.

1 Peso, $28\frac{7}{10}\%$ Centajos of Venezuela.

1 Janurio Dollar of Zanzibar.

The constantly changing prices at which coins are sold at public auction and private sales, render it a work of extreme difficulty to give the market value of each piece; we can, however, approximate the values sufficiently to present the buying prices of our country's coinage, and with this view we have had prepared the following and other tables of prices, believing that the reader will find it a valuable guide for the preservation of the rare and fine coins found among the mediums of exchange that pass from hand to hand. To Bankers, Brokers, Storekeepers, and other branches of the business communities of this country as well as to the numismatists, the following schedule of American pieces and prices will have a special interest. (Double Eagles, Assay pieces, etc., command a small premium.)

APPROXIMATE FICTITIOUS VALUE OF THE AMERICAN COLONIAL AND UNITED STATES COINAGES, prepared expressly for "DYE'S COIN ENCYCLOPÆDIA" by Mason & Co., Coin Dealers, 32 North 13th street, Philadelphia.

PRICES PAID FOR UNITED STATES GOLD COINS.

DATE.	DENOM.	REMARKS.	BUYING PRICE	DATE.	DENOM.	REMARKS.	BUYING PRICE.
1795	Eagle.	Small Eagle.	\$11.00 to \$13.00	1818	1/2 Eagle.		\$5.25 to \$5.50
1795	1/2 Eagle.	Small Eagle.	8.00 to 7.00	1819	1/2 Eagle.		7.00 to 9.00
1795	1/2 Eagle.	Large Eagle.	8.00 to 10.00	1820	1/2 Eagle.		6.00 to 8.00
1796	Eagle.	6 stars facing.	12.00 to 13.50	1821	1/2 Eagle.		7.00 to 8.50
1796	1/2 Eagle.	.....	8.00 to 8.00	1821	1/2 Eagle.		4.00 to 6.00
1796	1/2 Eagle.	With stars.	7.00 to 9.00	1822	1/2 Eagle.		10.00 to 13.00
1796	1/2 Eagle.	No stars.	8.00 to 10.00	1823	1/2 Eagle.		6.00 to 8.00
1797	Eagle.	6 stars facing.	11.00 to 13.00	1824	1/2 Eagle.		8.00 to 10.00
1797	Eagle.	4 stars facing.	13.00 to 15.00	1824	1/2 Eagle.		6.00 to 8.00
1797	1/2 Eagle.	16 stars.	7.00 to 8.50	1825	1/2 Eagle.		6.00 to 7.50
1797	1/2 Eagle.	15 stars.	8.00 to 10.00	1825	1/2 Eagle.		3.50 to 4.50
1797	Eagle.	Large Eagle.	7.00 to 8.00	1826	1/2 Eagle.		7.00 to 8.00
1797	1/2 Eagle.	.....	4.00 to 5.00	1826	1/2 Eagle.		3.00 to 3.75
1798	Eagle.	6 stars facing.	11.00 to 12.00	1827	1/2 Eagle.		7.00 to 8.00
1798	Eagle.	4 stars facing.	12.00 to 14.00	1827	1/2 Eagle.		3.00 to 4.00
1798	1/2 Eagle.	Large Eagle.	6.00 to 7.00	1828	1/2 Eagle.		8.00 to 10.00
1798	1/2 Eagle.	Small Eagle.	7.00 to 8.00	1829	1/2 Eagle.		6.00 to 7.00
1798	1/2 Eagle.	.....	5.00 to 6.00	1829	1/2 Eagle.		3.00 to 3.50
1799	Eagle.	.....	10.25 to 10.50	1830	1/2 Eagle.		7.50 to 8.50
1799	1/2 Eagle.	.....	5.50 to 6.00	1830	1/2 Eagle.		2.75 to 3.00
1800	Eagle.	.....	10.25 to 10.50	1831	1/2 Eagle.		6.50 to 7.50
1800	1/2 Eagle.	.....	5.50 to 6.00	1831	1/2 Eagle.		2.75 to 3.00
1801	Eagle.	.....	10.25 to 10.50	1832	1/2 Eagle.		5.50 to 6.00
1802	Eagle.	.....	11.00 to 12.00	1832	1/2 Eagle.		2.75 to 3.00
1802	1/2 Eagle.	.....	5.25 to 5.35	1833	1/2 Eagle.		5.50 to 6.25
1802	1/2 Eagle.	.....	3.75 to 4.50	1833	1/2 Eagle.		2.60 to 2.75
1803	Eagle.	.....	10.50 to 11.00	1834	1/2 Eagle.	Motto.	5.50 to 6.00
1803	1/2 Eagle.	.....	5.25 to 5.50	1834	1/2 Eagle.	No Motto.	5.00 to 5.10
1804	Eagle.	.....	10.50 to 11.00	1834	1/2 Eagle.	No Motto.	2.50 to 2.55
1804	1/2 Eagle.	.....	5.50 to 6.50	1834	1/2 Eagle.	Motto.	2.75 to 3.00
1805	1/2 Eagle.	.....	5.25 to 5.50				
1805	1/2 Eagle.	.....	3.50 to 4.50				
1806	1/2 Eagle.	4 varieties.	5.25 to 7.50				
1806	1/2 Eagle.	.....	3.50 to 4.75	1835			
1807	1/2 Eagle.	Roman Head.	5.25 to 5.50				
1807	1/2 Eagle.	Greecian Head.	5.50 to 6.00				
1807	1/2 Eagle.	.....	3.50 to 4.75	1838	Eagle.		10.50 to 11.50
1808	1/2 Eagle.	.....	5.25 to 5.50				
1808	1/2 Eagle.	.....	4.00 to 8.00				
1809	1/2 Eagle.	.....	5.50 to 6.00	1839			
1810	1/2 Eagle.	Large date.	5.25 to 5.75				
1810	1/2 Eagle.	Small date.	5.50 to 6.00				
1811	1/2 Eagle.	.....	5.50 to 6.00				
1812	1/2 Eagle.	.....	5.25 to 5.50				
1813	1/2 Eagle.	.....	5.25 to 5.50	1875			
1814	1/2 Eagle.	.....	5.50 to 6.50				
1815	1/2 Eagle.	.....	25.00 to 50.00				

From this date up to 1838 the various pieces only val'ble as proofs.

From this date up to 1881 the various pieces only val'ble as proofs.

3 dollar and 1 dollar pca. double face.

PRIVATE GOLD COINAGE.

CALIFORNIA COINS.

Previous to the establishment of the Branch Mint, at San Francisco, in 1854, many private refineries and companies struck gold coins of various denomination.

In 1850, by Act of Congress, the United States Assay Office was established in San Francisco, and the following coins were issued from that office:



THE CALIFORNIA SLUGS.

This coin, of which there are two varieties, is of an octagon shape. The first variety has an eagle, with raised wings, grasping the United States shield, three arrows in the right, and an olive branch in the left talon; from its beak floats a scroll, inscribed with the word "LIBERTY;" above the eagle is another scroll, with "887 THOUS." inscribed upon it. Legend: "UNITED STATES OF AMERICA." Exergue: "50 d. c." (*Fifty Dollars of California*). These are inclosed in a beaded circle, and, though in relief, are sunk into the piece in such a manner as to leave a raised rim around the outside. Upon the edge is inscribed: "AUGUSTUS HUMBERT, UNITED STATES ASSAYER, CALIFORNIA GOLD, 1851."

The second variety is similar in type, but is much more finished. Upon the scroll, above the eagle, is inscribed: "880 THOUS.;" around, the Legend: "UNITED STATES OF AMERICA."

Exergue: "50 D. C." The raised rim does not appear upon this piece; but outside of the circular line, inclosed in the field, is inscribed: "AUGUSTUS HUBERT, UNITED STATES ASSAYER OF GOLD, CALIFORNIA, 1851." The edge is grained. Upon the Reverse, in the middle of the field "50," surrounded by rays of peculiar lining. Weight: 1319.312 grains. Fineness: 880 and 887. Value: \$49.85 and \$50.00.

Considerable controversy has existed for years regarding the afore-described "California Slugs." Some writers on coins maintain that they were of the authorized United States coinage, while others dispute the same. To settle this vexed question, we appealed to Director Linderman, of the United States Mint. His letter, which we print in full, settles the matter conclusively:

TREASURY DEPARTMENT,
OFFICE OF THE DIRECTOR OF THE MINT.
WASHINGTON, D. C., May 1, 1873.

SIR:—I have received your letter of the 30th ultimo, requesting to be informed if the \$50 California Slug is an authorized United States coin.

The piece referred to is not an authorized United States coin, but simply a slug or bar with the United States stamp, indicating the degree of fineness and value, affixed by the United States Assayer, appointed by authority of law, to "perform such duties in assaying and fixing the value of gold in grain and lump, and in forming the same into bars, as shall be prescribed by the Secretary of the Treasury."

Very respectfully,

H. R. LINDERMAN,

Director.

JOHN S. DYE, Esq.,
1338 Chestnut Street,
Philadelphia.

.....

2. Twenty-five Dollars of California.



Issued by Templeton Reid, whose name appears upon the Obverse; of variable standard, and ranging in value from \$23.50 to \$25.00.

3. Twenty Dollars, issued by Humbert. Obverse: Same as the Fifty Dollar piece, with the exception that upon the scroll "900" appears. The Reverse is similarly lined; but across the centre is an open space on which is inscribed "UNITED STATES ASSAY OFFICE OF GOLD, SAN FRANCISCO, CALIFORNIA, 1853." The edge is grained. Weight: 517.624 grains. Finess: 900. Value: \$20.

4. California Half-Dollar. 5. California Quarter-Dollar.



Value: 40 cents.



Value: 20 cents.

For several years gold Half and Quarter-Dollars were issued; the Half-Dollar of the first issue was of a round shape, and had upon the Obverse a head of Liberty, surrounded by a circle of thirteen stars. Some have upon the Reverse "1852," within a wreath of laurel. Legend: "HALF DOL. CALIFORNIA GOLD." Others have the date "1853," and the Legend: "CALIFORNIA GOLD. HALF D." The Half and Quarter-Dollars were issued by private parties. Obverse: Head of Liberty, encircled by stars. Reverse: " $\frac{1}{2}$ DOLLAR," and the date of the year of issue, within a circle of pellets. The Quarter-Dollar has the same devices and Legends, with the exception of " $\frac{1}{4}$ DOLLAR" instead of $\frac{1}{2}$ Dollar.

6. Twenty Dollars, or Double Eagle of the Pacific Co.



The Legend: "S. M. V. CALIFORNIA GOLD," stands for *Standard Mint Value*; nevertheless, the weight and fineness of this coin varies so much, that \$19.22½ has proved to be the average value of 25 coins assayed at the Assay office of the United States, in San Francisco.

7. Ten Dollar piece of the Pacific Co.



The Obverse of this piece bears an eagle flying, across the field, grasping an olive branch in the right, and a hammer in the left talon. Legend: "PACIFIC COMPANY, CALIFORNIA." Exergue: "1849." Reverse: A liberty cap, surrounded by diverging rays and stars. Exergue: "10 DOLLARS." Weight: 229 grains. Fineness: 797. Value: \$7.86.

8. Five Dollars of the Pacific Co.



The Obverse and Reverse are similar to No. 7. Weight: 130 grains. Fineness: 797. Value: \$4.48.

9. Ten Dollar gold pieces of Baldwin & Co.



Obverse: Indian on horseback, throwing a lasso. Legend: "CALIFORNIA GOLD." Exergue: "TEN DOLLARS." Reverse: An eagle, in imitation of the National coinage. Legend: "BALDWIN & CO." Exergue: "SAN FRANCISCO." Weight: 263 grains. Fineness: 880. Value: \$9.96.

10. Five Dollar gold piece of Baldwin & Co. Obverse: Head of Liberty, same as on the National gold coinage, with the exception that instead of the word "LIBERTY," "BALDWIN & CO.," appears upon the tiara. Reverse: "S. M. V. (*Standard Mint Value*) CALIFORNIA GOLD." Weight: 128 and 130 grains. Fineness: 880. Value: at from \$4.90 to \$4.92½. All the coins of Baldwin & Co. contain copper as alloy, while most of the California coins are usually alloyed with native silver.

11. Ten Dollar gold piece of Augustus Humbert.



Weight: 260 grains. Fineness: 884. Value: \$9.95.

12. Ten Dollar gold piece of Moffat & Co. This company coined money for a number of years; their first coins bear the date of 1849, and some are stamped with 1854. Obverse and



Reverse similar to the devices of the National Double Eagle, with exception only that "MOFFAT & CO." takes the place of the

word "LIBERTY" upon the tiara. Weight, Fineness, and Value: Same as the United States coinage.

13. Ten Dollar gold piece of Moffat & Co.

Weight: 258.250 grains. Fineness: 897. Value: \$9.97-.700.

14. Five Dollar gold piece of Moffat & Co.



Obverse and Reverse of same type as No. 13, and value in proportion.

Messrs. Moffat & Co. also issued gold ingots for circulation in California, bearing the stamp of Moffat & Co. upon one side, and the fineness in carats and value stamped upon the Reverse. These ingots of $21\frac{7}{8}$ carats were of the intrinsic value of \$16.00, and those of $20\frac{3}{4}$ carats, \$9.43.

15. Ten Dollar gold piece of the Oregon Exchange Co. Obverse: A beaver in the middle of the field, beneath which is inscribed "O. T." (*Oregon Territory*), and the date, "1849," as Exergue. Legend: "K. M. T. P. C. S." (the initials of the persons composing said company).



Reverse: "10 D. 20 G." (10 *dincros*, 20 *granos*, equal to 878 *fine*). "NATIVE GOLD 10 D." (10 *dollars*). Legend: "OREGON EXCHANGE CO." Weight: 255 grains. Fineness: 878. Value: \$9.70.

16. The Five Dollar gold piece of the Oregon Exchange Co. is similar in device and Legend to No. 15.



Weight: 130 grains. Fineness: 878. Value: \$4.84½.

17. Ten Dollar piece of Templeton Reid.



Value: \$9.85.

18. Ten Dollar gold piece of Dr. J. S. Ormsby, of Pennsylvania, coined during his sojourn on the Pacific coast.



Obverse: "10 DOLLARS," in the middle of the field, surrounded by a circle of thirty-one stars. Reverse: "J. S. O," in the middle of the field, initials of Dr. J. S. Ormsby. Legend: "UNITED STATES OF AMERICA." Exergue: "CAL." Weight: 258.500 grains. Fineness: 842. Value: \$9.37.

19. Ten Dollar gold piece of Dubosque & Co.

Obverse and Reverse similar to the National coinage of that denomination. Value: \$9.85.



20. Ten Dollar gold piece of the Cincinnati Mining and Trading Co.



Obverse: An Indian bust, head crowned with feathers. Legend: "CINCINNATI MINING AND TRADING COMPANY." Reverse: An eagle in flight, grasping United States shield in his right, and three arrows and olive branch in the left talon. Legend: "CALIFORNIA TEN DOLLARS." Exergue: "1849." Weight: 258 grains. Value: \$9.70.

21. Five Dollar gold piece of the Cincinnati Mining and Trading Co.



Obverse and Reverse: Similar to No. 20. Weight: 132 grains. Value: \$4.95.

22. Ten Dollars of the Miners' Bank of San Francisco.

Obverse: "TEN D." in the middle of the field. Legend: "MINERS BANK." Exergue: "SAN FRANCISCO." Reverse: An eagle, similar to the National coinage. Legend: "CALI-



FORNIA," beneath are thirteen stars, arranged around the edge. Weight: 263.500 grains. Fineness: 865. Value: \$9.87.

23. Five Dollar gold piece of N. G. & N.



Weight and Fineness variable. Value varying from \$4.83 to \$4.95½, without the alloy of silver; and, including that, 2½ cents more.



24. Five Dollar gold piece of the Massachusetts and California Company.



Obverse: "FIVE D." in the middle of field, surrounded by a wreath of laurel. Legend: "MASSACHUSETTS AND CALIFORNIA

co." Exergue: "1849." Reverse: The crest and arms of Upper California: around the edge are arranged thirteen stars. Weight: 115.500 grains. Value: \$4.75.

25. Five Dollar gold piece of Dunbar & Co.
Value: \$4.75.

NORTH CAROLINA COINS.

In 1830, Mr. C. Bechtler established, with consent of the United States Government, a Mint at Rutherfordton, North Carolina, and commenced the coinage of Five and Two and a Half Gold Dollar pieces. In 1834, he also coined some One Dollar pieces. Of Mr. C. Bechtler's gold coins there are two series, those previous to 1834, and after that year, and up to 1842. In 1842, Mr. C. Bechtler sold his interest to Mr. A. Bechtler, and his name appears upon the North Carolina gold coins from 1842 to 1849. The Five Dollar gold piece of Bechtler, from 1830 to 1834, weighs 150 grains, and of 833 fineness, and its value, at the present standard, \$5.34. In 1834, there was an important reduction of standards in the National gold coins, to which Mr. Bechtler conformed, and, by way of distinction, afterward used the uniform date of that year.

C. Bechtler also adopted three grades of fineness and weight; thus the Five Dollar gold piece, of which we give an illustration, was coined at the following standards:



Those of 20 carats, 833 fine, weight, 140 grains, value, \$4.90; those of 21 carats, 875 fine, weight, 134 grains, value, \$4.89; those of 22 carats, 917 fine, weight, 128 grains, value, \$4.84. The 20 carat gold pieces are stamped "NORTH CAROLINA" gold; the 21 carat pieces "CAROLINA" gold; and the 22 carat

pieces "GEORGIA" gold. Notwithstanding that the stamp of Georgia gold appears on the coins, it is a well-known fact that all the gold was mined in North Carolina, and that these stamps are only to assist in indicating the different qualities, as they are generally understood in that region, Georgia gold being always the best, and North Carolina the poorest.

The Two and a Half Gold Dollar pieces were coined of 20 and 22 carats fine, and stamped "N. C." gold and "GEORGIA" gold.



Those of 20 carats, 833 fine, weight, 70 grains, value \$2.47; those of 22 carats, 917 fine, weight, 64 grains, value \$2.39. The One Dollar gold pieces are all of 21 carats fine, and of 28 grains in weight, and their intrinsic value only 94 cents.



BECHTLER TWO DOLLAR AND A HALF PIECE.

After 1842, and up to 1849, Mr. A. Bechtler's coins were of considerable variance in weight, fineness, and value.



BECHTLER DOLLAR.

Since 1849 that Mint has been abolished, and that coinage has become very scarce.

GEORGIA COINS.

In 1830, when the first extensive produce of Georgia gold was mined, Mr. Templeton Reid established a Mint, and coined,

by permission of the United States Government, Ten, Five, and Two and a Half Gold Dollar pieces. His coins bear on the Obverse: "TEMPLETON REID, ASSAYER," and their denominations. Upon the Reverse, the inscription "GEORGIA GOLD," surrounded by a circle of stars.

The Ten Dollar gold pieces of 1830, 1831, 1832, and 1833 weigh 248 grains, and are 942 fine, their value \$10.06. The Five Dollar gold pieces of that period, 124 grains, and 930 fine, value \$5.00. The Two and a Half-Dollar pieces are 932 fine, and weigh 60.500 grains, value \$2.43.

In 1834, Templeton Reid reduced his standard weight and fineness, and being of irregular value, their issue was soon discontinued. In 1849, when the gold discoveries of California startled the whole world, Mr. Templeton Reid removed his machinery and tools to San Francisco, California, and commenced soon after to coin Twenty-five and Ten Dollar gold pieces.

MORMON COINS OF UTAH.

The Mormons, at Great Salt Lake City, have issued gold coins of twenty, ten, five and two and a half dollars. Their weight varies materially, and their fineness 899 and sometimes 900 fine.



TWENTY DOLLARS OF UTAH.

Obverse: An eye surmounted by a Mormon Mitre. Legend: "HOLINESS TO THE LORD." Reverse: Two hands clasped; beneath, the date of the year of issue. Legend: "G. S. L. C. P. G." (*Great Salt Lake City Pure Gold*). Exergue: "TWENTY DOLLARS." Value: Twenty dollars in Utah; but

the intrinsic value upon assay varies from sixteen dollars to eighteen dollars.



TEN DOLLARS OF UTAH.

Obverse and Reverse same as the twenty dollar pieces, only upon the Exergue of Reverse, "TEN DOLLARS." Value in Utah, ten dollars; but the intrinsic value upon assay varies from \$8.50 to \$9.00.



FIVE DOLLARS AND TWO AND A HALF DOLLARS OF UTAH.

Obverse and Reverse same as the twenty and ten dollar pieces, only upon the Exergue on the Reverse "FIVE DO" and "TWO AND HALF DO," respectively. Their value varies from \$4.25 to \$4.50, and also from \$2.10 to \$2.25.

The coins of Utah, prior to 1860, proved upon assay to vary materially in fineness; being coined from native gold, they contain silver, about as the average of the unassayed gold, out of which they were made.

The results of assay at the United States Mint prove that they are irregular, both in weight and fineness; but on a general average they were found to be 886 fine.

The Utah coins, up to this day, bear the Legend "PURE GOLD;" they took for granted that it had no alloy, being coined from "native gold," which has silver alloy, about the average of California gold, out of which the coins were made; and, of course, without correct assay.

The coins, prior to 1860, are now very rare, and much sought for by collectors, at advanced prices.

In 1858 President Brigham Young had a new die prepared for coining the five dollar gold pieces. A pattern piece was struck for him, and we are indebted to the Hon. Brigham Young, Jr., and Joseph L. Barfoot, Esq., Curator of the Salt Lake City Museum, for a wax impression of the same, which we illustrate herewith.

This pattern piece was worn by the Prophet Brigham Young, as a charm attached to his watch chain, up to the time



of his death. At the death of the Prophet and Governor, the watch, chain and charm were sold by the executors of his will, and realized three hundred dollars.

The coins issued for circulation are similar in size and device.



FIVE DOLLARS OF UTAH OF 1860 AND 1862.

Upon the Obverse, an eagle, with outspread wings, a beehive upon its breast. Legend: "ASSAY OFFICE, G. S. L. C." (*Great Salt Lake City*). Exergue: "5 D. PURE GOLD."

Reverse: A lion *couchant* occupying the field. Legend: Same as upon the Obverse, only in the "Deseret" characters, an alphabet on phonographic principles.

TEMPLETON REID'S GEORGIA COINAGE.

In the year 1830, when gold began to be extensively mined in the States of Georgia and North Carolina, the project was set on foot of coining it "at the pit's mouth." The authorized establishments for this purpose have been, that of Templeton Reid, in Georgia; and that of Christopher Bechtler in North Carolina.

Three denominations of coin were issued: Ten, Five and Two and a Half Dollar gold pieces; bearing the name of "Templeton Reid, Assayer," and the designation: "Georgia Gold." The Ten Dollar gold pieces weighed 248 grains, and were of 942 fineness. The Five Dollar gold pieces weighed 123.5 grains, and were of 938 fineness. The Two and a Half Dollar pieces weighed 60.5 grains, and were of 932 fineness.

Afterwards, when the California gold fields began to attract attention, Templeton Reid removed his establishment to that region, and in 1849 commenced the coinage of Twenty-five and Ten Dollar gold pieces.



TWENTY-FIVE DOLLARS OF TEMPLETON REID.

They are similar to the Georgia coinage.

MR. C. BECHTLER'S COINAGE.

Mr. Bechtler's Mint was located at Rutherfordton, N. C.; it commenced operation in 1831. There were two series; the first bearing no date, but issued earlier than 1834. They were of three denominations, viz.: Five, Two and a Half and One Dollar pieces: professedly 20 carats fine, and 150.75

and 30 grains, respectively. The second series are those which bear the date of 1834. In that year there was an important reduction of standard in the United States gold coin, to which Mr. Bechtler conformed.

The denominations were as before, but there were three grades of fineness and weight; thus at 20 carats, the Five Dollar piece weighed 140 grains; the same at 21 carats, weighed 134 grains, and at 22 carats, weighed 128 grains.

The pieces of 20 carats were stamped: "NORTH CAROLINA GOLD;" those of 21 carats: "CAROLINA GOLD," and those of 22 carats: "GEORGIA GOLD."

Christopher Bechtler's coinage after 1834, according to official United States assays, varied as follows:

\$5 North Carolina gold, 140 to 139.8 grains; 833 to 815 fineness.

\$5 Carolina gold, 134 to 134.4 grains; 875 to 845 fineness.

\$5 Georgia gold, 128 to 127 grains; 917 to 882 fineness.

\$2.50 North Carolina gold, 70 grains; 833 to 819 fineness.

\$2.50 Georgia gold, 64 to 63.6 grains; 917 to 872 fineness.

\$1.00 North Carolina gold, 28 to 27.6 grains; 833 to 810 fineness.

Georgia gold was always understood to be the best, and the North Carolina gold the poorest.

CALIFORNIA PRIVATE COINAGE.

In 1849, and after California was admitted into the Union,



CALIFORNIA QUINTUPLE EAGLES OF FIFTY DOLLARS.

gold coins were issued by that State of the denominations of Fifty, Twenty-five, Twenty, Ten, Five, Two and a Half and One Dollar pieces; also Fifty and Twenty-five Cent pieces in gold.

The Fifty Dollar piece and the Fifty and Twenty-five Cent pieces are octagon shaped; all the others are round coins.



CALIFORNIA EAGLES OF TEN DOLLARS.



CALIFORNIA EAGLES OF TEN DOLLARS.

SILVER COINAGE.

In 1794, the first Silver Dollar of the United States Government was issued. Obverse: A female bust, facing to the right, with flowing hair. Legend: "LIBERTY." Round the edge fifteen stars, eight to the left of effigy and seven to the right. Exergue: "1794." Reverse: Eagle, as if about to fly, surrounded by a wreath. Legend: "UNITED STATES OF AMERICA." On the edge: "ONE DOLLAR; OR, UNIT, HUNDRED CENTS."

In 1795 a slight change took place on the Obverse: The bust of Liberty made larger and partly draped, the hair tied with a ribbon at the back of the head. Reverse: Eagle re-

duced in size, but better proportioned, and is standing on clouds.
Exergue: "1795."

In 1796 the device remained unchanged until about Septem-



ONE DOLLAR.

ber, when the stars on the Obverse were reduced to thirteen, seven to the left and six to the right of effigy.



ONE DOLLAR.

In 1798 the Obverse remained unchanged except Exergue: "1798." Reverse: Eagle, raised wings, holding in its beak a scroll, inscribed "E PLURIBUS UNUM" upon it, grasping in its right talon a bundle of four arrows, in its left an olive branch, upon its breast the United States shield; above the eagle, clouds and thirteen six-pointed stars. Legend: "UNITED STATES OF AMERICA."



ONE DOLLAR.

In 1799 and up to 1804 no change was made. In 1804 only a few dollars were struck, and they have become so exceedingly rare, that during 1877 the one sold at auction brought seven hundred dollars.



ONE DOLLAR.

The weight of the Silver Dollar was established by Act of Congress on the 2d day of April, 1792, and the quantity of pure silver fixed at $371\frac{1}{2}$ grains, and that of the standard metal at 416 grains, being of 900 fineness, and up to 1805 it continued unchanged. Between 1805 and 1836 no dollars were coined.

In 1836 a new pattern was prepared; it had on the Obverse: Liberty seated beside a United States shield, holding in her left hand a staff, with liberty cap, in the right a scroll, upon

which "LIBERTY" is inscribed. Legend: "Thirteen stars." Exergue: "1836." Reverse: Eagle flying across a field, studded with twenty-six stars. Legend: "UNITED STATES OF



ONE DOLLAR.

AMERICA." Exergue: "ONE DOLLAR." Fineness: 900. Weight: 416 grains.

In 1837, January the 18th, Congress enacted a change in the standard weight by abstracting therefrom $3\frac{1}{2}$ grains of the alloy, reducing 416 grains to $412\frac{1}{2}$ grains; but still retaining $371\frac{1}{2}$ grains of pure silver. No dollars were issued that year.



ONE DOLLAR.

In 1838 the first reduced $412\frac{1}{2}$ grain silver dollar was issued: it bore the device of the dollar of 1836, excepting on the Reverse the stars were omitted.

In 1839 no change occurred. In 1840 the Obverse same as

1838-1839, except Exergue, changed to "1840." The Reverse was changed to an eagle about to fly, wings expanded, United States shield upon its breast, right talon an olive branch, left a bundle of three arrows. Legend: "UNITED STATES OF AMERICA." Exergue: "ONE DOL."



ONE DOLLAR.

In 1866, the motto, "IN GOD WE TRUST," was added upon the Reverse.



ONE DOLLAR.

From this date up to 1873 the Dollar was regularly issued, and always of the same device; until Congress in that year demonetized silver.

In 1873 the first Trade Dollar was coined, of 900 fineness, and of 420 grains weight. Obverse: Goddess of Liberty, facing to the left, and seated on a bale of merchandise, against

which leans a sheaf of wheat; in her right hand she holds an olive branch, in the left a scroll, upon which "LIBERTY" is inscribed; on the base of seat the motto "IN GOD WE TRUST;" surrounding which are thirteen stars. Exergue: "1873."



TRADE DOLLAR.

Reverse: Eagle with expanded wings, holding in its right talon a bunch of three arrows, left, an olive branch; underneath, "420 GRAINS, 900 FINE;" over the eagle's head a scroll, with "E PLURIBUS UNUM" inscribed. Legend: "UNITED STATES OF AMERICA." Exergue: "TRADE DOLLAR."

This Trade Dollar has been ever since regularly issued, with the Exergue on Obverse, the date of the year of issue.



ONE DOLLAR.

In 1878, after considerable debate in both Houses, the bill for the remonetization of silver was passed; but vetoed by the President; nevertheless, the Senate and House of Representa-

tives passed the bill over the veto by a Constitutional majority, and the Silver Dollar of $412\frac{1}{2}$ grains Troy became once more a legal tender, and appeared in its new form on the 13th day of March, 1878. Trade Dollars not legal tender.

Obverse: Head of Liberty, facing to the left. Legend: "E PLURIBUS UNUM," and thirteen stars, seven to the left, and six to the right. Exergue: "1878." Reverse: An eagle as if about to fly; above the eagle, "IN GOD WE TRUST." Olive branches, crossed and tied at the ends. Legend: "UNITED STATES OF AMERICA." Exergue: "ONE DOLLAR." Weight: $412\frac{1}{2}$ grains. Fineness: 900. Value: \$1.00.

The Dollar is equal in value to:

2 Florins, $20\frac{3}{4}$ Kreuzers of Austria.

5 Francs, $18\frac{1}{100}$ Centimes of Belgium.

1 Dollar, $9\frac{5}{100}$ Centabos of Chili.

6 Mace, 2 Candareens, 1 Cash, 1 Hao, 8 Tse, of China.

1 Dollar, $8\frac{9}{100}$ Centavos of Costa Rica.

1 Dollar, $8\frac{1}{10}$ Centabos of Cuba.

1 Dollar, $8\frac{9}{100}$ Centavos of Ecuador

20 Piasters of Egypt.

5 Francs, $18\frac{1}{100}$ Centimes of France.

5 Drachmas, $18\frac{1}{100}$ Leptas of Greece.

1 Dollar, $8\frac{9}{100}$ Centabos of Guatemala.

1 Dollar Silver of Hayti.

2 Guilders, 10 Stivers of Holland.

1 Dollar, $8\frac{9}{100}$ Centabos of Honduras.

2 Rupees, 4 Annas, 9 Pice of India.

5 Lires, $18\frac{1}{100}$ Centissimi of Italy.

1 Yen, $\frac{1}{10}$ of a Sen of Japan.

1 Dollar, $\frac{2}{10}$ of a Centavo of Mexico.

1 Dollar, $8\frac{9}{100}$ Centaros of Nicaragua.

1 Dollar of Paraguay.

1 Dollar, $8\frac{9}{100}$ Centabos of Peru.

1 Dollar, $8\frac{1}{10}$ Centabos of Porto Rico.

5 Lei, $8\frac{1}{10}$ Ban Paras of Roumania.

1 Rouble, $36\frac{1}{4}$ Kopeeks, Silver of Russia.

- 1 Dollar Silver of San Domingo.
 5 Pesetas, 18 $\frac{13}{100}$ Centimes of Spain.
 5 Francs, 18 $\frac{13}{100}$ Rappens of Switzerland.
 1 Patacon, 5 $\frac{1}{10}$ Centabos of Uruguay.
 1 Dollar, 28 $\frac{7}{10}$ Centavos of Venezuela.

HALF DOLLARS.

The first Half Dollar was issued in 1794, and resembled the Dollar of that year. Weight: 208 grains. Fineness: 892.400.



HALF DOLLAR.

In 1795 the Half Dollar was similar in designs to 1794.



HALF DOLLAR.

In 1796 the Half Dollar resembled the Dollars of that year. But 2,918 Half Dollars were coined in 1796, and about an equal number in 1797.

In 1798, 1799, and 1800 no Half Dollars were issued.

In 1801, and up to 1807 inclusive, the issues resembled the Dollars of these years respectively.



HALF DOLLAR.

In 1808 a complete change was made. Obverse: Liberty facing to the left, wearing a loose cap with "LIBERTY" on the band, having seven stars in front of effigy and six behind, with date of issue in the Exergue. Reverse: Eagle with expanded wings, United States shield upon its breast, right talon holding an olive branch and left three arrows; over its head a scroll with "E PLURIBUS UNUM" inscribed. Legend: "UNITED STATES OF AMERICA." Exergue: "50 c." This device continued until 1814 inclusive.



HALF DOLLAR.

In 1816 no Half Dollars were coined.

In 1817 the coinage of Half Dollars was resumed, and continued to be issued regularly down to the year 1836 inclusive, without any change, except that in 1826 the stars on the Obverse were small, and in 1827 large again. In the issue of 1834 the dates varied in size on the Exergue of Obverse.

In 1837, by act of Congress, January the 18th, the weight

of the Half Dollar was reduced to 206.25 grains, and raised to the standard of 900 fineness.



HALF DOLLAR.

In 1837 the scroll, "E PLURIBUS UNUM," was removed from the Reverse, and "50 CENTS" replaced the "50 c." on the Exergue. From this time on the edges were reeded.



HALF DOLLAR.

In 1838 and 1839 no change in device; in 1840 it resembled the Dollar of that year. Exergue on the Reverse: "HALF DOL." This device continued without change, except date on Exergue, up to 1852 inclusive.

In 1853, the 21st day of February, Congress reduced the weight of the Half Dollar, fixing the weight at 192 grains, but making no change in fineness, which has remained 900 fine up to this date.

In 1853 the device was slightly changed; a barbed arrow was placed on each side of the date on the Exergue of the Obverse, and background of the Reverse was covered with rays.



HALF DOLLAR.

In 1854 the rays were again removed, as also the barbed arrows, and continued so till 1866 inclusive.

In the latter part of 1866 a scroll was placed over the eagle's head on the Reverse, bearing the motto, "IN GOD WE TRUST."

No change occurred till 1873, when Congress changed the weight of the Half Dollars to $12\frac{1}{2}$ grammes or 192.9 grains in weight; fineness: 900. In that year, and in 1874, an arrow-head was placed on each side of the date on the Exergue.



HALF DOLLAR.

In 1875, 1876, and 1877, the arrow-heads were removed; no other change was made.



QUARTER DOLLAR.

The first Quarter Dollar was issued to the public in 1796: the device resembling the Dollar of 1796. In 1797 no change.



QUARTER DOLLAR.

In 1798, 1799, 1800, 1801, 1802, and 1803 no Quarter Dollars were issued.

In 1804 the Quarter Dollar resembled the Dollar of that year. In 1805, 1806, and 1807 no change.



QUARTER DOLLAR.

In 1808 to 1815 no Quarter Dollars were issued.

In 1815 a new device was adopted resembling the Half Dollar of that year. In 1817 no Quarter Dollars were coined.



QUARTER DOLLAR.

In 1818 the Quarter Dollar resembled that of 1815, and was issued with that device till 1823 inclusive.



QUARTER DOLLAR.

In 1824 no Quarter Dollars issued. In 1825 device of 1815 used. In 1826 no Quarter Dollars issued. In 1827 and 1828 device of 1815 used. In 1829 and 1830 no Quarter Dollars issued.



QUARTER DOLLAR.

In 1831 the diameter was reduced, the stars on Obverse made smaller; on the Reverse, the scroll with "E PLURIBUS UNUM" was omitted, and the edge raised.

In 1831 and up to 1837 the Quarter Dollar was coined of the same device, having the original weight of 104 grains and a fineness of 892.400, as established in 1796.

By act of Congress, January 18th, 1837, the weight of the Quarter Dollar was reduced from the original 104 grains, to 103.125 grains; the fineness being raised at the same time from 892.400, as at first, to the standard of 900 fine.

In 1838 and 1839 the Quarter Dollar coinage bore the same device as that of 1831.

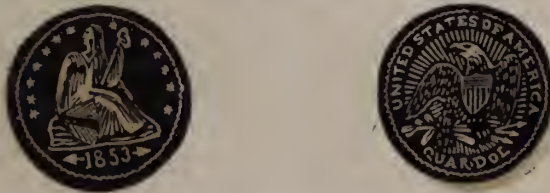
In 1840 an entire change was made. Obverse: Liberty

seated, holding liberty-cap in left, and resting right hand on the United States shield: on the Reverse, the Exergue was "QUAR. DOL."



QUARTER DOLLAR.

This device continued for each year down to 1853, when, March 31st, Congress again reduced the weight from 103.125 to 96 grains, still retaining 900 fineness.



QUARTER DOLLAR.

In 1853 the device of 1840 was continued, except upon the Exergue an arrow was placed on each side of date; the Reverse was slightly changed; rays in abundance filled the background of the American eagle.

In 1854 the same device, with the exception of the rays having been withdrawn from the Reverse. Weight: 96 grains, and of 900 fineness. No change occurred until 1866, when, by order of Congress, on the Reverse overhead of the eagle a scroll appeared with the motto: "IN GOD WE TRUST." The arrows beside the date were also removed. Weight: 96 grains and 900 fineness.

In 1873 another slight change was made. Congress wishing to approximate the United States coinage to the decimal French system, ordered the weight to be increased nine-

twentieths of a grain, and make the Quarter Dollar weigh $6\frac{1}{4}$ grammes or 96.450 grains, retaining the old standard of 900 fineness.

In 1874 a slight change was made upon the Obverse of the Quarter Dollar, the arrows being again replaced on each side of the date.



QUARTER DOLLAR.

In 1875 the arrows each side of the date were discontinued.



TWENTY CENT PIECE.

In 1875 Congress for the use of the Pacific States authorized the coinage of the Twenty Cent piece. Several pattern pieces were struck in advance. Device, Obverse: Liberty seated, holding in her right hand a staff surmounted by a liberty-cap, left resting on a United States shield. Legend: Thirteen stars. Exergue: "1875." Reverse: A rather high-shouldered eagle, resembling the one on the Trade Dollar, holding three arrows in right talon, and olive branch in left. Legend: "UNITED STATES OF AMERICA." Exergue: "*TWENTY CENTS.*" Weight: 77.160 grains and of 900 fineness. Edges not reeded.

In 1874 a few Twenty Cent pieces were coined with a change in device on the Obverse, viz.: Seated Goddess of Liberty of a more modern type and facing to the left; back of her and by her right side, sheaves of wheat; in her right hand she holds a

staff surmounted by a liberty-cap, her left resting on a globe instead as usual upon the United States shield; the word "LIBERTY" is inscribed upon a band surrounding the globe.



TWENTY CENT PIECE.

Exergue: "1874." Reverse unchanged. Weight: 77.160 grains and of 900 fineness.

In May, 1878, by act of Congress, the Twenty Cent pieces were abolished.

DIMES, OR TEN CENT PIECES.

The first Dimes, or Ten Cent pieces, were struck in France from old silver family plate furnished by President Washington, and from a supposed resemblance, between the head of Liberty and Washington's wife, were known as the "Martha Washington Dimes" (see *Half Disme* 1792). The circulation was very limited, and but few examples are now known.

Obverse: A head, facing left, hair unconfined, floating backward in flowing locks. Legend: "LIBERTY PARENT OF SCIENCE & INDUS." Within the legend and beneath the head the date 1792.

Reverse: A small eagle, flying toward the left, though looking to the right. Legend: "UNITED STATES OF AMERICA." Exergue: An inscription: "DISME." Border, milled; edge, milled; size, 14; weight, silver, 40 to 57 grains; copper, 58 grains. Extremely rare.

The next issue and really the commencement of the regular coinage appeared in 1796. Obverse: Bust of Goddess of Liberty, facing to the right. Legend: Seven stars on the right of the word "LIBERTY," and eight on the left of it. Exergue: "1796."

Reverse: Eagle, with a small shield upon its breast, wings expanded, as if about to fly; surrounded by a laurel wreath. Legend: "UNITED STATES OF AMERICA." Weight: 41.6 grains. Fineness: 892.400.

In 1797 the Legend bore thirteen instead of fifteen stars; otherwise no alteration was made on the Obverse.



DIME.

Upon the Reverse a complete change was made, viz.: Eagle with expanded wings, a United States shield upon its breast; in his beak a scroll with "E PLURIBUS UNUM" upon it; right talon, bunch of arrows; left, an olive branch; over his head sixteen stars, surmounted by clouds. Legend: "UNITED STATES OF AMERICA."

In 1798 no change in device except Reverse. Exergue: "10 c."



DIME.

In 1799 no Dimes were coined for circulation.

Up to 1806 no change but to thirteen stars on Reverse.

In 1806 no Dimes were coined for circulation.

In 1807 the device resembled Quarter Dollar of that year.



DIME.

In 1808 no Dimes were coined for circulation.

In 1809 the device resembled that of the Half Dollars of that period, except Exergue on Reverse: "10 c."



DIME.

In 1812 and 1813 no Dimes issued. Coinage resumed, 1814.

In 1815, 1816, 1817, 1818, and 1819 no Dimes were issued.

Coinage resumed 1820, device same as of 1809 and intermediate coinages. Weight: 41.600 grains. Fineness: 892-.400. In 1824 no dimes issued. In 1825 same device used. In 1826 no dimes issued. In 1827 same device used; so continued to 1837.

January 18th, 1837, Congress reduced the weight of the Dime from 41.600 grains to 41.250 grains, and also raised the standard of the coinage to 900 fineness. A change was also made in the device: upon the Obverse: Goddess of Liberty seated, staff with liberty-cap in left hand, and right resting upon United States shield. Exergue: "1837." This issue is conspicuous by the absence of the usual thirteen stars. The Reverse has the inscription, "ONE DIME," surrounded by a wreath. Legend: "UNITED STATES OF AMERICA."

In 1838 the Obverse bears the thirteen stars. Exergue: "1838;" no other change took place. The New Orleans Mint still coined the 1838 issue with starless Obverse. Weight: 41.250 grains. Fineness: 900.

From 1838 down to 1860, inclusive, the device remained



DIME.

as illustrated, save the Exergue on Obverse, bearing the date of the year of issue. Weight: 41.250 grains. Fineness: 900.

In 1860 the stars were dispensed with (in this year the dimes appeared both with and without stars), and the Legend: "UNITED STATES OF AMERICA," appeared on Obverse.



DIMES.

In 1853, February 21st, Congress reduced the weight to 38.400 grains, retaining still 900 fineness. The device was still the same of 1838; but an arrow-head was placed on either side of date on Exergue, and retained during 1854 and 1855, but again removed in 1856; since which time the Dime has been issued every year with device unchanged, except in 1873 and 1874, when the arrows reappeared; and, in 1860, when the Legend: "UNITED STATES OF AMERICA," was substituted for the stars.

In 1873 Congress ordered the Dime to weigh $2\frac{1}{2}$ grammes, or 38.580 grains. Fineness: 900.

In 1875 a slight change was made on the Reverse; the laurel wreath was replaced by one composed of oak, ivy, and tobacco



leaves, corn in the ear, and sheaves of wheat. Weight: 38.580 grains. Fineness: 900.

Excepting the changes of 1873 no change has been made up

to the present day, with the exception of changing the date of issue upon the Exergue of the Obverse.

HALF DIME, OR FIVE CENT PIECE.

The Half Dime was the first coin struck by the United States Mint, located in Seventh street between Market and Arch streets, Philadelphia, Pa. The coin-presses, three in number, were imported from abroad, and arrived at the Philadelphia Mint on Friday, the 21st of September, 1792, were put in operation on the 9th of October, and first used for striking the Half Dimes of 1792.

The Obverse bore the Bust of Liberty, surrounded by thirteen stars. Exergue: 1792. Reverse: Eagle, expanded wings, surrounded by a laurel wreath. Legend: "UNITED STATES OF AMERICA." Weight: 20.800 grains. Fineness: 892.400. In 1793 only a few more were coined; but no change was made either in device or Exergue.

In 1794 and 1795 the device of 1792 was well preserved, with the exception that instead of the thirteen, fourteen stars were put upon the Legend, and the Exergue bore the date of the respective years of issue.

Obverse: A head, facing left, hair unconfined, disposed in short tresses or tufts. Legend: "LIB· PAR· OF SCIENCE & INDUSTRY." Within the Legend, and beneath the head, the date 1792.

Reverse: A small eagle, flying and looking toward the left. Legend: "UNI· STATES OF AMERICA." Exergue: An inscription: "HALF DISME" in three lines. Border, milled; edge, reeded; size, $10\frac{1}{2}$; weight, 21 grains. Extremely rare.

These *Half Dimes* were coined from a quantity of silver plate furnished by Washington, and, although pronounced by numismatic writers "pattern pieces," undoubtedly went into general circulation for a time; hence should be considered a regular coinage, and commence the series of Half Dimes. The dies were of French origin. The following article taken from

Washington's 4th annual address, 1792, explains fully the facts connected herewith:

"In execution of the authority given by the legislature measures have been taken for engaging some artists from abroad to aid in the establishment of our Mint. Others have been employed at home. Provisions have been made for the requisite buildings, and these are now being put into proper condition for the purposes of the establishment. There has been a small beginning in the coinage of half dismes, the want of small coins in circulation calling the first attention to them."

The 1792 Half Dimes were called "Trial Pieces:" the dies cut and struck in France. These pieces are very rare and valuable. The bust is popularly supposed to represent Martha Washington, but the portraits extant hardly bear out the supposition. No Half Dimes were issued after this until 1794, which date is also rare and valuable.



HALF DIME.

In 1796 the hair of Goddess of Liberty was tied with ribbon, back of the head. Legend: Thirteen stars. Exergue: "1796." Reverse: Eagle, reduced in size, and further from the knot with which the wreath is tied, otherwise no change was made. Weight: 20.800 grains. Fineness: 892.400.

In 1797, the same device was used, with the exception that instead of thirteen, fifteen stars were on the Obverse. Reverse: Eagle, United States shield upon its breast; seroll, with "E PLURIBUS UNUM" in its beak; stars and clouds above its head. Legend: "UNITED STATES OF AMERICA."

In 1798 and 1799, no Half-Dimes were coined. In 1800, the stars were again reduced to thirteen, six facing the bust of

Liberty, and seven were behind it. This device was continued through 1801, 1802, and 1803, inclusive.

In 1804, no Half-Dimes were coined or issued, and those of 1805 bore the device of 1800.



HALF DIME.

From 1806, and up to 1828, inclusive, the Half-Dimes were discontinued.

In 1829, a new device appeared. Obverse: Bust of Goddess of Liberty. Legend: Thirteen stars. Exergue: "1829." Reverse: Eagle, wings expanded; a United States shield upon its breast; left talon a bunch of arrows; right, olive branch; over its head a scroll, with "E PLURIBUS UNUM" upon it. Legend: "UNITED STATES OF AMERICA." Exergue: "5 c."

In 1830, and up to 1836, inclusive, no change was made in the device.



HALF DIME.

In 1837, and the early part of 1838, a new device was coined; it bore on the Obverse: Goddess of Liberty, seated; staff, with liberty-cap in left hand; right resting on United States shield. The Legend is starless. Exergue: "1837 and 1838." Reverse: "HALF-DIME," surrounded by a wreath. Legend: "UNITED STATES OF AMERICA." Weight: By Act of Congress, January 18th, 1837, reduced to 20.625 grains; and the Fineness raised to the standard of 900.

In 1839, the thirteen stars were again replaced on the Ob-



HALF DIME.

verse, and with the exception of date of issue upon the Exergue, no change was made up to 1853, inclusive.

In 1853, February 21st, the Half-Dime, by order of Congress, was reduced to 19.2 grains, but retained its 900 fineness. A slight change was also made on the Obverse; upon the Exergue, an arrow was placed each side of date; this was retained during 1854 and 1855, but was again absent in 1856, and up to 1872, inclusive, reappearing again 1873, when the issue of Half Dimes or Five Cent *silver* pieces ceased.



HALF DIME.

THREE CENT SILVER PIECES.

In 1851, March 3d, Congress authorized the issue of Three Cent silver pieces, and required them to be composed of three-fourths silver, and one-fourth copper. The device adopted bears on the Obverse, a large six-pointed star, with United States shield in the middle of it. Legend: "UNITED STATES OF AMERICA." Exergue: "1851." Reverse: A large ornamental "C," with the Roman numerals, "III" in the centre. Legend: Thirteen stars.



THREE CENT SILVER PIECE.

No change was made in 1852. Weight: 12.375 grains. Fineness: 750.

On March 3d, 1853, Congress changed the fineness from 750 to 900; namely, 900 parts silver, and 100 parts copper; and reduced the weight from 12.375 down to 11.520 grains. The device was also altered, on the Obverse, the plain star of 1851 was edged with three distinct lines, the Legend exhibited the words: "UNITED STATES OF AMERICA," in more modern and clearer type. Exergue: "1853."

On the Reverse, within the letter "C," and above the Roman numerals, "III," an olive branch was inscribed, and a bunch of arrows placed below.



THREE CENT SILVER PIECE.

This last device, Weight, and Fineness, was continued without change, down to 1873, when, by order of Congress, the coinage of the silver Three Cent piece was discontinued.

APPROXIMATE FICTITIOUS VALUES OF THE UNITED STATES SILVER COINAGES.

DOLLARS.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1794	\$20.00	to \$35.00	\$35.00	to \$50.00
1795	1.25	1.50	1.50	2.50
1796	1.35	1.75	1.60	2.75
1797	1.35	1.80	1.60	2.85
1798 Large Eagle	1.05	1.20	1.15	1.25
1798 Small Eagle	1.50	2.00	2.50	5.00
1799	1.05	1.10	1.15	1.25
1799, 5 stars facing	1.50	2.00	2.50	4.00
1800	1.10	1.25	1.25	1.50
1801	1.35	1.75	1.50	2.75
1802	1.35	1.75	1.50	2.75
1803	1.55	1.75	1.50	2.75
1804	500.00	750.00	375.00	650.00
1836	3.00	5.00	5.00	8.00
1838	10.00	25.00	15.00	35.00
1839	5.00	15.00	10.00	25.00
1840 to '49 New	1.10	1.25	New	1.50

APPROXIMATE VALUES—Continued. DOLLARS.

	Paying Prices.		Selling Prices.	
1850 New		\$1.25	New,	\$1.75
1851	\$10.00	20.00	\$20.00 to	35.00
1852	15.00	25.00	25.00	40.00
1853	1.25	1.50	1.75	2.75
1854	3.58	6.00	5.00	9.00
1855	3.00	5.00	4.00	7.00
1856	1.50	2.00	3.00	5.00
1857	1.25	1.75	2.25	3.75
1858	10.00	20.00	15.00	35.00
1859 to '69, inc., New		1.25	New	1.75
1870 to '81, Pfs.	1.15	1.25	Pfs. 1.25 to	1.75

UNITED STATES HALF DOLLARS.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1794	\$2.00 to	\$5.00	\$4.00 to	\$10.00
1795	.55	.75	.65	1.25
1796	15.00	40.00	35.00	65.00
1797	15.00	30.00	35.00	65.00
1801	1.00	2.00	2.50	6.00
1802	1.00	2.00	2.50	5.00
1803	.52	.75	.60	1.50
1805	.52	.75	.60	1.25
1806	.51	.60	.60	1.00
1807	.51	.60	.60	1.00
1808	.50	.60	.60	.75
1809	.50	.60	.60	.75
1810	.50	.60	.60	.75
1811	.50	.60	.60	.75
1812	.50	.60	.60	.75
1813	.50	.60	.60	.75
1814	.50	.60	.60	.75
1815	2.00	4.00	4.00	8.00
1817	.50	.55	.55	.65
1818	.50	.55	.55	.65
1819	.50	.55	.55	.65
1820 to 1835	.50	.55	.55	.65
1836 Lettered Edge	.50	.55	.55	.65
1836 Reeded Edge	2.00	3.00	3.00	5.00
1838 Phila. Mint	.50	.52	.55	.65
1838 Orleans Mint	2.50	5.00	5.00	10.00
1839 to '50	.50	.53	.55	.65
1851	.55	.65	.65	1.00
1852	2.00	3.00	3.00	6.00
1853 Arrows	.50	.52	.55	.60
1853 No Arrows	5.00	15.00	10.00	25.00
1854 to '82	.50	.55	.55	.75

UNITED STATES QUARTER DOLLARS.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1796	\$1.00 to	\$3.00	\$2.00 to	\$5.00
1804	.75	3.00	1.25	5.00
1805	.30	.50	.40	.75
1806	.30	.50	.40	.75

APPROXIMATE VALUES—Continued. QUARTER DOLLARS.

	Paying Prices.		Selling Prices.	
1815	.35	.75	.50	1.50
1818	.26	.50	.35	.75
1819	.26	.50	.35	.75
1820	.26	.50	.35	.75
1821	.26	.50	.35	.75
1822	.26	.50	.35	.75
1823	25.00	50.00	40.00	75.00
1824	.26	.50	.35	.75
1825	.26	.50	.35	.75
1827	10.00	50.00	60.00	100.00
1828	.26	.50	.35	.50
1831	.25	.30	.30	.40
1832	.25	.30	.30	.40
1833	.25	.30	.30	.40
1834	.25	.30	.30	.40
1835	.25	.30	.30	.40
1836	.25	.30	.30	.40
1837	.25	.30	.30	.40
1838	.25	.30	.30	.40
1839	.25	.30	.30	.40
1840 to '52	.25	.30	.30	.40
1853 Arrows	.25	.30	.30	.40
1853 No Arrows	2.00	4.00	4.00	8.00
1869 to '82	.25	.30	.30	.40

UNITED STATES TWENTY CENT PIECES.

	Paying Prices.		Selling Prices.	
1874 Proof (pattern)	\$5.00 to \$10.00		\$10.00 to \$20.00	
1875 Unc'd	.25	.30	.35	.50
1875 Proof	.35	.40	.50	.75
1876 Unc'd	.25	.30	.35	.50
1876 Proof	.35	.40	.50	.75
1877 Proof	1.50	2.00	2.75	4.00
1878 Proof	1.50	2.00	2.50	4.00

(N. B.—No other dates coined.)

UNITED STATES DIMES.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1796	\$1.00 to \$3.00		\$2.00 to \$6.00	
1797 (16 stars)	2.00	4.00	4.00	8.00
1797 (13 stars)	2.50	4.50	4.50	8.50
1798	1.00	2.00	2.00	4.50
1800	2.00	4.00	4.00	8.00
1801	1.00	3.00	2.00	6.00
1802	1.00	3.00	2.00	6.00
1803	1.00	3.00	2.00	6.00
1804	2.00	5.00	4.00	10.00
1805	.15	.50	.25	1.50
1807	.15	.50	.25	1.50
1809	.15	.50	.25	1.50
1811	.25	.75	.50	2.00
1814	.10	.25	.15	.50
1820	.10	.25	.15	.50
1821	.10	.26	.15	.50
1822	1.00	3.00	2.00	6.00

APPROXIMATE VALUES—Continued. DIMES.

	Paying Prices.		Selling Prices.	
1823	.10	.25	.15	.50
1824	.10	.25	.15	.50
1825 to '29	.10	.15	.15	.50
1830 to '39	.10	.15	.15	.50
1840 to '45	.10	.16	.15	.50
1846	.50	1.00	1.00	2.00
1847 to '59 (Proofs)	.15	.25	.50	.75
1860 to '81 (Proofs)	.15	.25	.25	.40

UNITED STATES HALF DIMES.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1794	\$1.00 to	\$3.00	\$2.50 to	\$5.00
1795	.25	.75	.50	2.00
1796	1.00	2.00	2.00	5.00
1797	1.00	2.00	2.00	5.00
1800	.25	.75	.50	1.50
1801	.50	1.50	1.00	4.00
1802	10.00	50.00	20.00	75.00
1803	.50	1.50	1.00	3.00
1805	.75	3.00	2.00	6.00
1829 to '45	.05	.10	.10	.20
1846	.50	1.00	1.25	2.00
1847 to '59	.10	.15	.10	.20
1860 to '81, Proofs	.10	.15	.20	.35

UNITED STATES SILVER THREE CENT PIECES.

(UNCIRCULATED.)

	Paying Prices.		Selling Prices.	
1851	.10 to	.15	\$.15 to \$	.25
1852	.10	.15	.15	.25
1853	.10	.15	.15	.25
1854	.10	.15	.15	.25
1855	.15	.25	.25	.75
1856 to '62	.10	.15	.15	.25
1863 to '73	.25	.50	.50	1.00

(1874 to 1882 inclusive, none coined.)

NICKEL COINAGE.

In 1866, Congress authorized the issue of the Nickel Five Cent Piece, to weigh 77.16 grains, and the alloy to consist of three-fourths copper, and one-fourth nickel. The device on the Obverse, a large figure "5," surrounded by a circle of thirteen stars, separated from each other by rays. Legend: "UNITED STATES OF AMERICA." Exergue: "CENTS." Reverse: A United States shield, with olive branches overhanging, above the shield, a stubby cross; at the lower end, and protruding

from back of shield, two crossed arrows. Legend: "IN GOD WE TRUST." Exergue: "1866." This Five Cent nickel piece represents the metric system; being two centimetres in diameter, and weighing five grammes.



FIVE CENT NICKEL PIECE.

In 1867, the rays from the Obverse were omitted, and since then the Five Cent nickel pieces have borne the same device unchanged, with the exception of date of issue on the Exergue of the Reverse.

In 1865, Congress ordered the issue of Three Cent Nickel Pieces, to be composed of an alloy of seventy-five per cent. copper and twenty-five per cent. nickel, and to weigh thirty grains. Obverse: Female head, facing to the left, with bandeau bearing the inscription: "LIBERTY." Legend: "UNITED STATES OF AMERICA." Exergue: "1865." Reverse: The large



THREE CENT NICKEL PIECE.

Roman numerals: "III," inclosed by an olive branch wreath. With the exception of the year 1877, this Three Cent nickel piece has been regularly issued up to the present day, replacing with each year's issue the date on the Exergue of the Obverse.

In 1856, there was coined a small Nickel Cent, bearing on Obverse an eagle flying across the field. Legend: "UNITED STATES OF AMERICA." Exergue: "1856." Reverse: "ONE

CENT," inclosed by a tobacco wreath. Weight: 72 grains. The composition of an alloy eighty-eight parts copper, and twelve parts nickel. As a limited number of this Nickel Cent were struck, they have already become very scarce, and at a high premium with coin collectors. (See price list.)



ONE CENT NICKEL PIECE.

In 1857 and 1858 no change was made, with the exception of date in Exergue of the respective year of issue.

In 1859, a change was made in the Obverse, the eagle was exchanged for a beautiful Indian head, wearing a coronet of feathers, with "LIBERTY" engraved around their base. Legend: "UNITED STATES OF AMERICA." Exergue: "1859." Upon the Reverse the tobacco wreath gave place to an oak wreath, and the letters on the inscription, "ONE CENT," were enlarged. The alloy was continued, eighty-eight per cent. copper, and twelve per cent. nickel, retaining yet the former weight.



ONE CENT NICKEL PIECE.

In 1860, the Obverse remained as before, but on the Reverse an addition, an oak wreath instead of laurel; arrows at the base to



ONE CENT NICKEL PIECE.

the right, and olive leaves to the left, fastened together by a ribbon, tied in a loose knot; a small United States shield was also placed on the top, just above the inscription "ONE CENT."

In 1864, Congress ordered a change in the Cent from nickel to bronze, reducing its weight from 72 grains to 48 grains.

BRONZE COINAGE.

In 1864 Congress ordered a new alloy for the coinage of Two and One Cent pieces, to consist of ninety-five per cent. of copper and five per cent. of tin and zinc. Weight: 96 grains, and 48 grains respectively.

Two Cent Bronze Piece. Obverse: Large figure "2," below in a semi-circle, "CENTS," surrounded by a wheat wreath. Legend: "UNITED STATES OF AMERICA." Reverse: A large United States shield, with olive branches overhanging. Above the shield a scroll with the motto, "IN GOD WE TRUST," upon it. Exergue: "1864."



TWO CENTS, BRONZE.

No change whatever was made in this coinage down to 1873, when, by act of Congress, the issue of the Two Cent Bronze Piece was discontinued.

ONE CENT BRONZE PIECE.

In 1864, Congress duly authorized the coinage of the Bronze Cent, ordering its weight to be made 48 grains, and the alloy to contain ninety-five per cent. copper, and five per cent. of tin and zinc. Obverse: An American Indian's head, wearing a coronet of feathers, with "LIBERTY" inscribed around their base. Legend: "UNITED STATES OF AMERICA." Exergue: "1864." Reverse: Inscription, "ONE CENT," surrounded by

an oak-leaf wreath, arrows at the base of wreath, their points facing to the right, to left of which are olive leaves, tied together with a loose knot, and a bow of a ribbon; above the inscription a small United States shield is placed.



ONE CENT, BRONZE.

No change has since taken place in device, with the exception of date of year of issue appearing each successive year to this present date.

APPROXIMATE FICTITIOUS VALUES OF THE UNITED STATES
NICKEL AND BRONZE COINAGES.

UNITED STATES NICKEL FIVE CENT PIECES.

	Paying Prices.		Selling Prices.	
1866 to '82, Unc'd	.06	to .10	.10	to .15
1865 to '82, Proofs	.10	.20	.25	.40

UNITED STATES THREE CENT NICKEL PIECES.

	Paying Prices.		Selling Prices.	
1865 to '82, Unc'd	.04	to .10	.10	to .25
1865 to '82, Proofs	.08	.12	.15	.20

UNITED STATES BRONZE TWO CENT PIECES.

	Paying Prices.		Selling Prices.	
1864 to '71, Unc'd	.03	to .05	.05	to .10
1871 Proofs	.06	.15	.10	.35
1872 "	.10	.15	.20	.50
1873 "	.75	1.00	1.25	1.75

UNITED STATES NICKEL CENTS.

	Paying Prices.		Selling Prices.	
1856 Poor	.50	to .75	\$1.00	to \$1.25
1856 Good	.75	1.25	1.25	1.75
1856 Fine	1.00	1.50	2.00	2.25
1856 Unc'd	1.25	1.75	2.00	3.00
1856 Proof	1.75	2.00	3.00	3.75
1857 to '64, Unc'd	.03	.05	.06	.20
1864 Proofs	.10	.50	.25	1.00

UNITED STATES BRONZE CENTS.

	Paying Prices.		Selling Prices.	
1864 to '82	.01	to .02	.02	to .05
1882 Proofs	.05	.10	.10	.20

COPPER COINS.

In 1787 the United States Congress assembled in Philadelphia, Pennsylvania, but possessing as yet no National Mint, entered into a contract with Mr. James Jarvis to furnish three hundred tons of copper coins. Mr. Jarvis had them struck at a coining establishment in New Haven, in the State of Connecticut. On the 6th of July, 1787, the government ordered that its copper cent should bear the following device: Obverse, a sun dial in the centre, shone upon by the sun from above. Legend: "FUGIO," "1787." Exergue: "MIND YOUR BUSINESS." Reverse: A circle formed of thirteen small rings, representing the original number of States; this large circle of thirteen rings inclosed a double circle in which was inscribed: "UNITED STATES," and inside of that smaller circle: "WE ARE ONE." This copper cent being the first legally authorized coin of the Government of the United States of America.



COPPER CENT OF 1787.

In the same year "STATES UNITED" on Reverse was changed to "UNITED STATES."

On April 2, 1792, the United States Mint was established.

In 1792 the weight of the large Cent was fixed at 264 grains.

LARGE PATTERN CENT.

Obverse: A head, facing right, hair unconfined, floating backward in heavy flowing locks. Legend: "LIBERTY PARENT OF SCIENCE & INDUSTRY." Within the legend and beneath the head the date 1792. On the point of the shoulder of the device an inscription in small letters: "BIRCH."

Reverse: A wreath, two laurel branches crossed at the lower ends and tied with a ribbon; within the wreath a plain circle inclosing a central field bearing the inscription: "ONE CENT" in two lines. Legend: "UNITED STATES OF AMERICA." Exergue: 1⁰⁰/. Border, milled; Edge, sometimes plain, or else inscribed: "TO BE ESTEEMED BE USEFUL." On other specimens the same inscriptions, lacking the first mullet, and having a leaf each side the other. Size, 21; weight, 217 to 286 grains. Extremely rare.

There is a tradition that the head on the Disme and Half Disme, also that upon the large Pattern Cent, were intended to represent Martha Washington. The attempt, if any was made, was an evident failure, as the faces differ very much in expression; however, the subject may have been as supposed and idealized by the artist.

THE EAGLE PATTERN CENT.

Obverse: A head, facing right, hair bound by a fillet and knotted behind the head. Legend: Above the head "LIBERTY." Exergue: Beneath the head the date 1792.

Reverse: A large eagle, standing upon the crown of a hemisphere, wings upraised, fronting to the right, but with the head turned, looking left. Legend: "UNITED STATES OF AMERICA." Border, ornamented with 87 small stars; edge, reeded; size, 18; weight, 175½ grains. Two specimens struck; one is in the mint at Philadelphia.

THE SMALL PATTERN CENT.

Obverse: A head, facing right, hair unconfined, floating backward in flowing locks. Legend: "LIBERTY PARENT OF SCIENCE & INDUST:" Exergue: Beneath the head the date 1792.

Reverse: A wreath, two olive branches crossed at the lower ends and tied with a ribbon; within the wreath a field bearing an inscription: "ONE CENT" in two lines. Legend: "UNITED STATES OF AMERICA." Exergue: 1⁰⁰/. Border, milled; Edge, reeded; size, 14; weight, 65 grains. Extremely rare.

A pattern was also made from these last-described dies, the piece being finished with a silver plug of small size in the centre. This was called The Silver Centre Cent. Weight: 59 grains.

In 1793, a new Copper Cent appeared. Weight: 208 grains. This cent was issued from the United States Mint, Philadelphia, in three distinct forms. *First.* Known as the "Chain-Cent."



CHAIN CENT, COPPER.

Obverse: Bust of Liberty, flowing hair. Legend: "LIBERTY." Exergue: "1793." Reverse: A circle composed of fifteen links, forming a chain. Inscription: "ONE CENT $\frac{1}{100}$." Legend: "UNITED STATES OF AMERICA."

Second. Known as the "Wreath Cent."



WREATH CENT, COPPER.

Obverse: Bust of Liberty, hair flowing. Legend: "LIBERTY." Exergue: "1793." Reverse: A wreath with berries, the stems of wreath tied in a bow with a ribbon. Inscription: "ONE CENT." Legend: "UNITED STATES OF AMERICA." Exergue: " $\frac{1}{100}$."

Third. Known as the "Liberty-Cap Cent."

Obverse: Bust of Liberty, loose hair; over the left shoulder of Liberty is a staff, surmounted by a liberty-cap. Legend:

"LIBERTY." Exergue: "1793." Reverse: Same as the preceding one.



LIBERTY-CAP CENT, COPPER.

In 1794 and 1795, no change was made in the device.

On January 26th, 1796, President Washington issued a Proclamation, that "on account of the increased price of copper, and the expense of coinage," the copper Cent be reduced to 7 dwts., or 168 grains, and the Half-Cent in proportion. By authority of Act of Congress, March 3d, 1795.



COPPER CENT OF 1796.

Part of the issue of the Cents of 1796 bore a new device. Obverse: Bust of Liberty, hair tied with a ribbon; the liberty-cap and staff were dropped during this year, and the bust was partly draped. Reverse remained unchanged.



COPPER CENT OF 1808.

From 1797 to 1807, inclusive, no change was made in the device; but towards the close of that year a change was proposed, and carried into effect in 1808; cents of the new device were struck with Exergue "1808."

In 1809, an obverse head of Liberty; forehead encircled by a band, "LIBERTY" inscribed upon it, surrounded by thirteen stars. Exergue: "1809." Reverse: Wreath in a circular garland inclosing the words "ONE CENT." No change took place during the issues of 1808 to 1814, inclusive.

In 1815, no cent pieces were coined.



COPPER CENT OF 1816.

In 1816 and part of 1817, the Reverse of 1808 was slightly changed, a larger wreath appearing.

In October, 1817, a slight change was made only on the Obverse: The thirteen stars in Legend became fifteen.

In 1823, a limited number of cents were coined for circulation.

Down to 1825, no change was made in these Cents, except in the Exergue of the respective years of issue; the dates appear in somewhat irregular size, large and small.

In 1826, on the Obverse, the head of Liberty underwent a slight change; the loose, flowing hair was made up into a double knot; the rest remained as heretofore.

From 1827 down to 1838, the issues were uniform with that of 1826.

In 1839, four varieties appeared; one had the hair of head of Liberty tied with a cord; the second had beads instead of cord; the third head of Liberty reduced considerably in size; and the fourth had a still smaller and more artistic bust.

From 1840, down to 1844, the dates of the respective years of issue appear in large or small figures, otherwise no change occurred.

From 1845 to 1854, very little change was made.

In 1855, the dates are in a straight and some in a slanting line, while 1856 are straight figures.

In 1857, the last of the copper cents were issued, resembling those of 1856.

HALF-CENT PIECES.



COPPER HALF-CENT OF 1793.

The first Half-Cent was issued in 1793, having on Obverse: Bust of Liberty, facing to the left; staff surmounted by liberty-cap over right shoulder. Legend: "LIBERTY." Exergue: "1793." Reverse: Inscription: "HALF CENT," surrounded by a wreath, tied with a ribbon. Weight: 132 grains.



COPPER HALF-CENT OF 1794.

In 1794 and 1795, similar device to that of 1793; but face of Liberty facing to the right. Weight: 104 grains.

In 1796, according to Proclamation of January 26th, of that year, the weight of the Half-Cent was reduced to 84 grains.

In 1796 and 1797, the Half-Cent bore the device of 1794; but was reduced in weight to 84 grains.

In 1798 and 1799 no Half-Cents were issued.

In 1800, a slight change on the Obverse was made, the hair

of the head of Liberty tied with a ribbon, instead of loose, flowing hair. In 1801, no Half-Cents were coined.



COPPER HALF-CENT OF 1800.

In 1802, and down to 1807 inclusive, the Half-Cents bore the same device.

In September, 1809, a new device made its appearance, the bust of Liberty assumed a matronly look, and this device was retained till 1811, inclusive.



COPPER HALF-CENT OF 1809.

From 1812 down to 1824, inclusive, no Half-Cents were coined.

In 1825 and 1826, the device of the cents of same years appeared. In 1827, no Half-Cents were coined.

In 1828 the Half-Cent appeared with thirteen, and with twelve stars as on Obverse. In 1830, no Half-Cents were coined.

In 1831, Obverse same. From 1833 to 1836, inclusive, same device.

In 1837, and up to 1848, the Half-Cent was not coined except a few as patterns.

In 1849 the device of the Half-Cent was the same as for cents.

Obverse: Head of Liberty, having the hair tied behind in a double knot, and being crowned with a tiara, upon the front of which the word "LIBERTY" is inscribed.



HALF-CENT, COPPER.

Reverse: Unchanged, the original device being used.

In 1850 and 1851 the device of 1849 was used. In 1852 no Half-Cents were coined for circulation. In 1853, 1854, 1855, 1856 and 1857 the same device was used. By Act of Congress, February 21, 1857, the coinage of the Half-Cent was discontinued.

VALUATION OF COPPER COINS.

UNITED STATES CENTS.

(GOOD TO FINE.)

	Paying Prices.		Selling Prices.	
1793 Wreath	\$1.00	to \$2.50	\$1.75	to \$5.00
1793 Chain	1.25	3.50	2.00	6.00
1793 Lib. Cap	1.75	4.00	3.50	8.00
1794	.05	.25	.15	.75
1795	.10	.50	.20	1.25
1796	.10	.50	.20	1.00
1797	.05	.25	.10	.75
1798	.02	.15	.10	.50
1799	2.50	25.00	3.00	50.00
1800	.02	.15	.10	.75
1801	.03	.20	.10	.50
1802	.02	.15	.10	.50
1803	.01	.10	.03	.25
1804	1.50	6.00	3.00	12.00
1805	.05	.50	.15	1.00
1806	.10	.75	.20	1.50
1807	.02	.25	.10	.50
1808	.05	.25	.15	.75
1809	.50	1.00	1.00	2.50
1810	.02	.10	.05	.50
1811	.10	.50	.25	1.75
1812	.02	.15	.10	.35
1813	.05	.25	.15	1.00
1814	.02	.15	.05	.35
1816 to '20, Each	.01	.05	.02	.25
1821	.03	.15	.10	.50
1822	.01	.05	.03	.20
1823	.05	.25	.10	.50
1824	.03	.20	.10	.35
1825 to '49, Each	.01	.05	.03	.15
1850 to '56, Each	.01	.02	.02	.10
1857	.05	.25	.15	.50

UNITED STATES HALF-CENTS.

	Paying Prices.		Selling Prices.	
1793	\$0.50	to \$1.00	\$1.00	to \$3.00
1794	.10	.35	.50	1.00
1795	.10	.50	.50	1.50
1796	2.50	10.00	5.00	25.00
1797	.10	.25	.25	.75
1800	.02	.10	.10	.35
1802	.25	.75	.75	2.00
1803	.02	.10	.05	.25
1804	.01	.05	.03	.15
1805	.03	.10	.10	.25
1806	.03	.10	.10	.25
1807	.02	.05	.08	.20
1808	.02	.05	.08	.20
1809	.01	.05	.05	.10
1810	.05	.10	.15	.30
1811	.25	.50	.50	1.50
1825 to '29	.01	.02	.02	.05
1831	3.00	4.00	5.00	7.00
1832 to '35	.01	.02	.02	.05
1836	3.00	4.00	5.00	7.00
1840 to '48	3.00	4.00	5.00	7.00
1849 Small date	2.00	3.00	4.00	6.00
1849 Large date	.01	.03	.03	.10
1850 and '51	.01	.02	.03	.10
1852	3.00	4.00	5.00	7.00
1853 to '57	.01	.03	.03	.10

VALUATION OF AMERICAN COLONIAL COINS.

(GOOD TO FINE.)

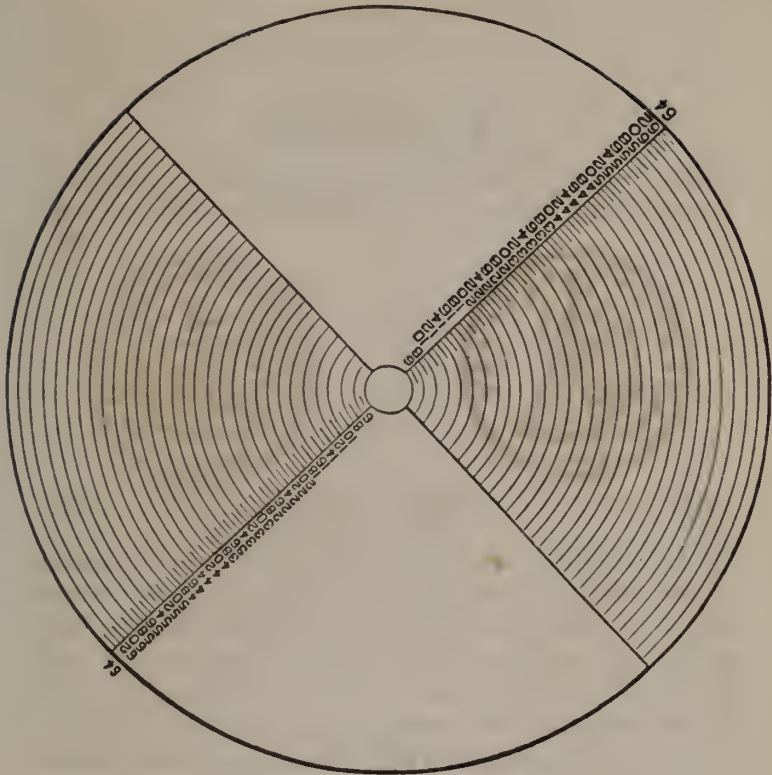
	Paying Prices.		Selling Prices.	
1652 Pine Tree Shilling	\$.50	to \$2.00	\$1.00	to \$4.00
1652 Pine Tree Six Pence	.50	2.00	1.00	4.00
1652 Pine Tree Three Pence	1.00	3.00	2.00	5.00
1652 Pine Tree Two Pence	1.00	2.00	2.00	4.00
1652 Oak Tree Shilling	1.00	2.00	2.00	4.00
1652 Oak Tree Six Pence	1.00	2.00	2.00	4.00
1652 Oak Tree Two Pence	1.00	2.00	2.00	4.00
1783 Annapolis Shilling	1.00	2.00	2.00	4.00
1722 Rosa Americana Penny	.25	2.00	.50	3.00
1723 Rosa Americana Penny	.25	1.50	.50	2.75
1722 Rosa Americana Half Penny	.25	1.50	.50	2.75
1723 Rosa Americana Half Penny	.25	1.75	.50	2.75
1722 Rosa Americana Farthing	.50	1.75	1.00	2.75
1723 Rosa Americana Farthing	.50	1.75	1.00	2.75
1783 and 1785 Nova Constellatio Penny	.05	.25	.10	.50
1721 Louisiana Cent	.25	.50	.50	1.00
1722 Louisiana Cent	.25	.50	.50	1.00
1767 Louisiana Cent "R. F."	.25	.25	.50	1.00
1767 Louisiana Cent without "R. F."	.10	.25	.25	.75
1773 Virginia Half Penny	.10	.25	.15	.50
1783 Georgius Triumpho	.50	1.00	.75	2.00
1787 Immunis Columbia	1.00	3.00	2.00	6.00
1787 Nova Eborac	.10	.50	.15	1.00
U. S. A. Bar cent	.75	1.50	1.50	3.00

VALUATION OF AMERICAN COLONIAL COINS—Continued.

	Paying Prices.		Selling Prices.	
	\$	¢	\$	¢
1787 Auctori Plebis	.75	1.50	1.50	3.00
1785 Vermontis Cent	.25	1.25	.50	2.50
1786 Vermontensium	.15	.50	.25	1.25
1787 Vermon Auctori	.05	.25	.10	.50
1788 Vermon Auctori	.10	.25	.25	.50
1786 Auctori Vermon, baby head	.05	.15	.15	.30
1785 Connecticut Cent	.05	.15	.15	.30
1786 Connecticut Cent	.05	.15	.15	.30
1787 Connecticut Cent	.02	.10	.05	.15
1788 Connecticut Cent	.05	.15	.10	.25
1786 New Jersey Cent	.05	.15	.10	.30
1787 New Jersey Cent	.03	.10	.05	.25
1788 New Jersey Cent	.10	.40	.25	.75
1788 New Jersey Cent, horse head left	.75	2.00	2.00	3.50
1787 Massachusetts Cent	.10	.25	.25	.75
1788 Massachusetts Cent	.10	.20	.25	.70
1787 Massachusetts Half-Cent	.50	.75	1.00	1.75
1788 Massachusetts Half-Cent	.50	.75	1.00	1.75
1781 North American Token	.05	.15	.15	.35
1787 Franklin or Fugio Cent	.05	.25	.15	.50
Kentucky Cent, thin planchet	.75	1.00	1.25	1.50
Kentucky Cent, thick planchet	.75	1.00	1.25	1.75
1794 and 1795 New York Token	.10	.20	.25	.50
Elephant Penny, [Carolina]	10.00	50.00	20.00	100.00
1760 Voce Populi Half Pence	.05	.15	.15	.35
1722 Wood Half Penny and Farthing	.02	.10	.05	.25
1723 Wood Half Penny and Farthing	.02	.10	.05	.25
1724 Wood Half Penny and Farthing	.10	.15	.25	.50
1776 Continental Currency, tin	.25	.50	1.00	3.00
1776 Pitt Token	.25	.50	.75	1.50
Columbia Token	.03	.15	.10	.25
Sommers Island	25.00	50.00	50.00	100.00
Rhode Island Picce, brass	.25	.50	.50	1.00
Mark Newby Half Penny	.25	1.15	.50	2.00
1787 Excelsior New York Cent	5.00	15.00	15.00	35.00

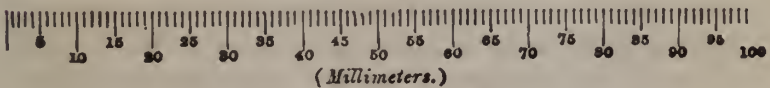
NUMISMATIC COIN AND MEDAL SCALES.

For the benefit of those collectors desirous of having the Coin and Medal Scales used by numismatists, we add illustrations of two different methods. The French measure of the diameter of a coin or medal is by millimeters, as in No. 2. American scale is four inches divided into sixteenths. A common rule will answer to measure the diameter by the American scale.



AMERICAN SCALE.

This scale was invented by Mr. E. Mason, Jr., the well known numismatist of Philadelphia, and has but recently come into use.



FRENCH SCALE.

Divided in millimeters. Used by European numismatists generally, as more convenient to sizes of the foreign medals which are generally odd, as: 17, 19, 21, etc., while American sizes are even, as: 18, 20, 22, etc.

APPENDIX.

HISTORY OF THE RECENTLY DISCOVERED CONFEDERATE
SILVER HALF DOLLAR, BY E. MASON, JR., NUMISMATIST.



STRUCK BY C. S. A., AT NEW ORLEANS MINT, APRIL, 1861.

It has been believed and recorded as an historical fact that the Southern Confederacy had no metallic currency. After a lapse of eighteen years, evidence now presents itself to show that four coins were struck off at the New Orleans Mint while that place was in the possession of the Confederate government. This discovery has been brought about by an article prepared by us for the *Philadelphia Public Record*, and inserted in that paper January 2d, 1879, under the caption of "A CRAZE FOR COINS," which gave the fancy prices placed upon rare pieces.

A few days subsequently to the publication, we received a communication from B. F. Taylor, M. D., the Secretary and Treasurer of the Louisiana State Board of Health, giving the information that he had a Confederate coin in his possession. In reply, we wrote for a lead pencil rubbing of the piece, at the same time expressing a doubt as to the existence of any genuine coins of the Confederate States. The return mail brought a rubbing of the coin.

The obverse has the Goddess of Liberty with the thirteen stars, representing the States from which the Confederacy originated, and the date, "1861." On the reverse a liberty-cap,

beneath which is the American shield, the *union* of the latter containing seven stars, representing the seven seceding States, the whole being surrounded with a wreath of sugar cane and cotton in bloom, and the motto "Confederate States of America."

Early in April, Mr. Taylor sent us the original coin together with the obverse die, requesting us to make public the existence of a Confederate coin, and set at rest the long disputed question concerning the issue of coins by the Confederate States during the civil rebellion. It was Mr. Taylor's desire that the coin and die should become the property of some historical or numismatic association, but private enterprise far outbid all offers from scientific bodies to possess the coveted prize. Notwithstanding the extraordinary and extensive advertising done to secure a purchaser willing to remunerate the owner for a considerable outlay of money, and visits by the writer to various parts of the country to exhibit the coin and die, and presentation of the most convincing and irrefragible proofs of genuineness in the shape of documents, affidavits, published "Acts and Resolutions" of the C. S. A., issued during February and March, 1861, at Montgomery, Alabama, yet this *almost* unique coin, and equally interesting (though old and rusty) die from which the coin was struck, were sacrificed for a few hundred dollars to an enterprising coin dealer in New York. The United States government took a far greater interest in the subject than numismatists and historians generally, as the subjoined correspondence taken from the *New Orleans Picayune*, of April 9th, 1879, which we think of sufficient interest to reprint, will amply testify to.

CONFEDERATE ARCHIVES.

The following correspondence in relation to the history of the Mint in this city while it was under the control of the Confederate States government will be found interesting:

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
WASHINGTON, *March 27th*, 1879.

DR. B. F. TAYLOR, New Orleans, La.:

DEAR SIR: The inclosed circulars will explain to you the nature of the duties upon which I am now engaged:

I beg to refer you to my friends, Generals Beauregard and Hood, and Captain Pierce of your city, for my service in the Confederate army. I would like to have from you for file with the Confederate archives, a letter stating when and where you were appointed chief coiner of the Confederate States Mint, instructions received, copies of originals of any official papers, sketches, descriptions, etc., of all the coins made, etc. This will make a valuable addition to Confederate history, and I know no one but you can give it.

Very truly, yours,

MARCUS J. WRIGHT.

NEW ORLEANS, LA., *April 7th, 1879.*

TO HON. MARCUS J. WRIGHT:

DEAR SIR: Your favor requesting a statement of the history of the New Orleans Mint, in reference to the coinage under the Confederate government, is received.

That institution was turned over by the State of Louisiana the last of February, 1861, to the Confederate States of America, the old officers being retained and confirmed by the government, viz.: Wm. A. Elmore, Superintendent; A. J. Guirot, Treasurer; M. F. Bonzano, M. D., Melter and Refiner; and Howard Millsbaugh, Assayer.

In the month of April orders were issued by Mr. Memminger, Secretary of the Treasury, to the effect that designs for half dollar coins should be submitted to him for approval.

Among several sent, the one approved bore on the obverse of the coin a representation of the Goddess of Liberty, surrounded by thirteen stars, denoting the thirteen States from whence the Confederacy sprung, and on the lower rim the figures 1861.

On the reverse there is a shield with seven stars, representing the seceding States; above the shield is a liberty-cap, and entwined around it stalks of sugar cane and cotton. The inscription is, "Confederate States of America." The dies were engraved by A. H. M. Peterson, engraver and die sinker, who is now living in Commercial Place. They were prepared for the coining press by Conrad Schmidt, foreman of the coining room (who is still living), from which four pieces only were struck.

About this period an order came from the Secretary suspending operations on account of the difficulty of obtaining bullion, and the Mint was closed April 30th, 1861.

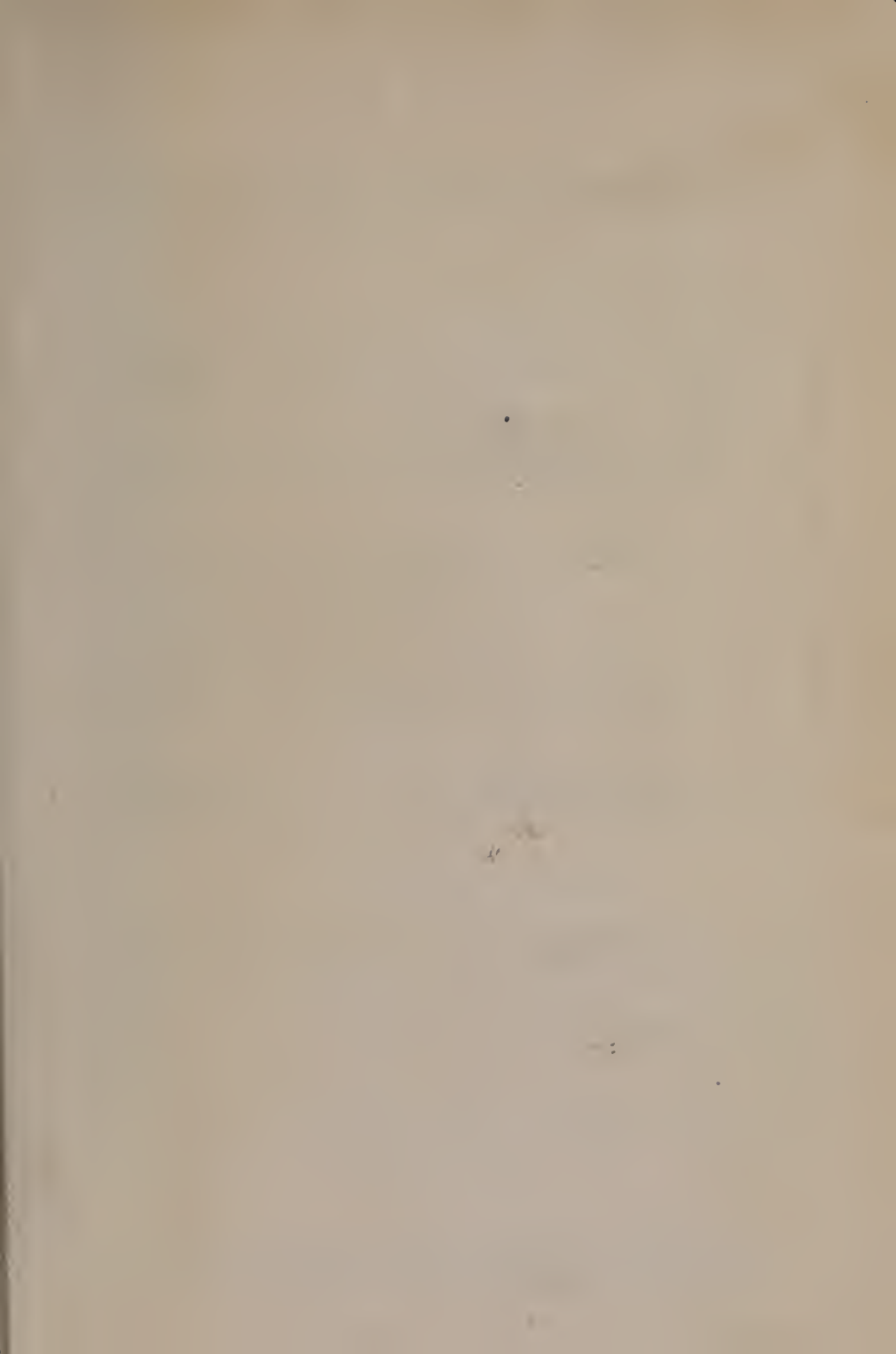
Of the four pieces mentioned one was sent to the government, one presented to Prof. Biddle, of the University of Louisiana, one sent to Dr. E. Ames, of New Orleans, the remaining one being retained by myself. Upon diligent inquiry I am unable to find but one piece besides my own, that being in the possession of a Confederate officer of this city, who transmits it to his son as a souvenir of his father's services in the Confederate cause.

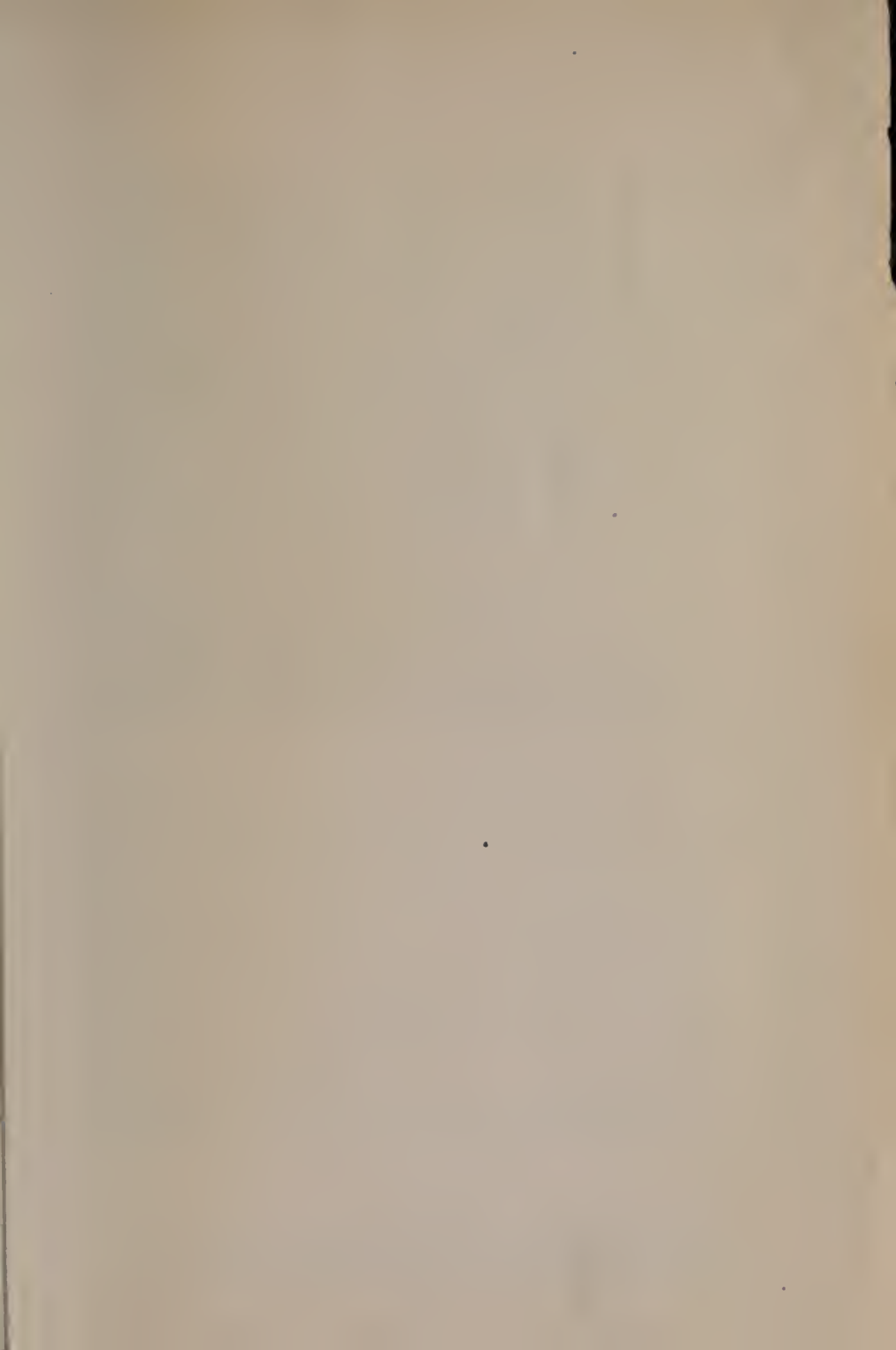
So soon as copies are made I will take pleasure in sending you a specimen for the archives you represent.

Very respectfully, your obedient servant,

B. F. TAYLOR, M. D.,

Formerly Chief Coiner C. S. A.





STATEMENT OF COINAGE FROM THE ORGANIZATION OF THE MINT—1793 TO 1882.—Continued.

Period.	SILVER COINAGE.				MINOR COINAGE.			
	Half Dimes.	Three Cents.	Five Cents.	Two Cents.	Cents.	Half Cents.		
1793 to 1795.....	\$4,320.80				\$10,660.33	\$722.67		
1796.....	511.50				9,747.00	577.40		
1797.....	2,226.35				8,975.10	535.24		
1798.....					9,797.07			
1799.....					9,045.85	60.83		
1800.....	1,200.00				28,221.75	1,057.65		
1801.....	1,695.50				13,698.37			
1802.....	650.50				34,351.04			
1803.....	1,892.50				24,713.53			
1804.....					7,558.38	480.56		
1805.....	780.00				9,411.16	4,072.32		
1806.....					3,480.00	1,780.00		
1807.....					7,272.21	2,386.00		
1808.....					11,090.00	2,000.00		
1809.....					2,228.67	5,772.86		
1810.....					14,585.00	1,075.00		
1811.....					2,180.25	315.70		
1812.....					10,755.00			
1813.....					4,180.00			
1814.....					3,578.30			
1815.....								
1816.....					28,209.82			
1817.....					39,484.00			
1818.....					31,670.00			
1819.....					26,710.00			
1820.....					44,075.50			
1821.....					3,890.00			
1822.....					20,723.39			
1823.....								
1824.....					12,600.00			
1825.....					14,611.07	315.00		
1826.....					15,174.25	1,170.00		
1827.....					23,577.32			
1828.....					22,666.24	3,030.41		
1829.....					14,145.00	2,435.00		
1830.....	61,500.00				17,115.00			
1831.....	62,000.00				33,592.61	11.00		
1832.....	48,135.00				27,600.00			
1833.....	48,250.00				27,300.00	770.00		
1834.....	68,500.00				18,551.00	600.00		
1835.....	74,000.00				18,784.00	795.00		
1836.....	138,000.00							

DOUBLE EAGLE.
Authorized, act of March 3, 1849. Weight, 516 grains. Coinage commenced, 1850.

EAGLE.
Authorized, act of April 2, 1792. Weight, 270 grains. Coinage commenced, 1795. Weight changed, act of June 28, 1834, to 258 grains.

HALF EAGLES.
Authorized, act of April 2, 1792. Weight, 135 grains. Coinage commenced, 1795. Weight changed, act of June 28, 1834, to 129 grains.

QUARTER EAGLE.
Authorized, act of April 2, 1792. Weight, 67.5 grains. Coinage commenced, 1796. Weight changed, act of June 28, 1834, to 64.5 grains.

THREE DOLLAR PIECE.
Authorized, act of February 21, 1853. Weight, 77.4 grains. Coinage commenced, 1854.

THE GOLD DOLLAR.
Authorized, act of March 3, 1849. Weight, 25.8 grains. Coinage commenced, 1840.

THE STANDARD SILVER DOLLAR.
Authorized, act of April 2, 1792. Weight, 416 grains. Coinage commenced, 1794. Weight changed, act of January 18, 1837, to 412.5 grains. Coinage discontinued, act of February 12, 1873.

THE TRADE DOLLAR.
Authorized, act of February 12, 1873. Weight, 420 grains. "Not a legal tender." Coinage commenced, 1874. Coinage suspended by Secretary of the Treasury, February 22, 1878.

THE SILVER HALF DOLLAR.
Authorized, act of April 2, 1792. Weight, 208 grains. Coinage commenced, 1794. Weight changed, acts of January 18, 1837, to 206.25 grains; February 21, 1853, to 192 grains; February 12, 1873, to 12.5 grains, or 192.9 grains.

THE SILVER QUARTER DOLLAR.
Authorized, act of April 2, 1792. Weight, 104 grains. Coinage commenced, 1796. Weight changed, acts of January 18, 1837, to 103.125 grains; February 21, 1853, to 96 grains; February 12, 1873, to 6.25 grains, or 96.45 grains.

THE SILVER TWENTY-CENT PIECE.
Authorized, act of March 3, 1875. Weight, 5 grains, or 77.16 grains. Coinage commenced, 1875. Coinage discontinued, act of May 2, 1878.

THE SILVER DIME
 Authorized, act of April 2, 1792. Weight, 41.6 grains.
 Coinage commenced, 1796. Weight changed, acts of
 January 16, 1837; 10.4125 grains; February 21, 1853; 10
 38.4 grains; February 12, 1873; 10.25 grains, or 38.56 grains.
 HALF DIME.
 Authorized, act of April 2, 1792. Weight, 20.8 grains.
 Coinage commenced, 1794. Weight changed, acts of
 January 18, 1837; 10.2625 grains. February 21, 1853; 10
 19.2 grs. Coinage discontinued, act of February 12, 1873.
 THE SILVER THREE-CENT PIECE.
 Authorized, act of March 3, 1851. Weight, 2.375 grains.
 Coinage commenced, 1851. Weight changed, act of
 March 3, 1853; 10.152 grains. Coinage discontinued,
 act of February 12, 1873.
 FIVE CENT—NICKEL.
 Authorized, act of May 16, 1866. Weight, 77.16 grains.
 Coinage commenced, 1866.
 THREE CENT—NICKEL.
 Authorized, act of March 3, 1865. Weight, 30 grains.
 Coinage commenced, 1865.
 TWO CENT—BRONZE.
 Authorized, act of April 22, 1864. Weight, 96 grains.
 Coinage commenced, 1864. Coinage discontinued, act
 of February 12, 1873.
 CENT—COPPER.
 Authorized, act of July 6, 1787. Coined for the United
 States by James Jarvis, at New Haven, Connecticut.
 Authorized (by the United States Mint), act of April 2,
 1792. Weight, 264 grains. Weight changed, act of Jan-
 uary 14, 1793; 10.268 grains. Coinage commenced, 1793.
 Weight changed, by proclamation of the President, Jan-
 uary 26, 1796, in conformity with the act of March 3,
 1795; to 168 grains. Coinage discontinued, act of Feb-
 ruary 21, 1857.
 CENT—NICKEL.
 Authorized, act of February 21, 1857. Weight, 72
 grains. Coinage commenced, 1857. Coinage discontin-
 ued, act of April 22, 1864.
 CENT—BRONZE.
 Authorized, act of April 22, 1864. Weight, 48 grains.
 Coinage commenced, 1864.
 HALF CENT—COPPER.
 "Not a legal tender," Weight changed, act of January
 14, 1793; 6.104 grains. Coinage commenced, 1793. Weight
 changed, by proclamation of the President, January 26,
 1796, in conformity with the act of March 3, 1795; 6.84
 grains. Coinage discontinued, act of February 21, 1857.

1836	\$ 95,000.00			\$ 110.00	\$1,999.00
1837	113,800.00			55,583.00	
1838	11,750.00			33,792.00	
1839	10,645.50			31,286.61	
184	113,954.25			24,627.04	
1841	98,250.00			15,973.67	
1842	58,250.00			23,833.37	
1843	58,250.00			24,283.21	
1844	32,500.00			23,087.52	
1845	78,200.00			38,048.04	
1846	1,350.00			41,200.00	
1847	63,700.00			61,836.69	
1848	63,000.00			64,157.84	
1849	72,450.00			41,885.00	109.32
1850	82,250.00			44,268.44	169.66
1851	82,050.00			98,607.07	738.36
1852	63,025.00			50,630.94	648.47
1853	81,852.25			66,411.31	276.79
1854	305,000.00			42,301.56	282.50
1855	117,500.00			15,748.39	2.21
1856	299,000.00			26,904.63	175.90
1857	197,000.00			63,334.56	
1858	327,000.00			234,000.00	
1859	41,400.00			37,000.00	
1860	96,500.00			342,000.00	
1861	139,350.00			101,660.00	
1862	117,627.50			116,000.00	
1863	8,223.00			478,450.00	
1864	4,518.50			427,350.00	
1865	4,880.00			541,850.00	
1866	10,732.50			187,000.00	
1867	435.00			113,750.00	
1868	24,200.00			98,505.00	
1869	48,222.50			78,810.00	
1870	14,396.25			88,305.00	
1871	152,751.75			62,075.00	
1872	175,442.50			93,900.00	
1873				107,330.00	
1874				137,035.00	
1875				123,185.00	
1876				120,000.00	
1877				36,015.00	
1878				30,566.00	
1879				95,639.00	
1880				267,781.50	
1881				372,515.55	
1882				424,614.75	
Total	\$4,966,946.90	\$1,281,850.20	\$89,625.40	6,495,654.24	\$39,926.11



