

## APPENDIX I.

To His Honour,  
The President of the South African Republic,  
his obedient and respectful Servants,

TIBURCE MORESOT

*Br. es lettres et es  
sciences. Fté. de Paris  
ex attaché Mtere des  
Finances. S.Lt 4e  
chasseurs à cheval.*

J. PERRIN.

When the Californian gold diggings were opened our first French Financier the late Baron de Rotschild sent over to S. Francisco a young man of his family M. Davidson for the only purpose of buying gold. The richest man in Europe thought it was worth his trouble to monopolize the gold and create a new branch of his immense firm in the young and well promising country. The U. S. government soon came into competition with the rich banker, but with one more chance of success viz. the possibility of Coining.

A mint was created and national coin began to abound in America. So did Australia. Both nations understood that it would be folly to leave undisputed to traders the profit of buying from the diggers, folly to forfeit this grand privilege of Governments:—Stamping and issuing coins.

A mint established near the gold diggings could realise a large profit of which a liberal government could let the diggers have their share. Freight, loss of interest during the time of the transport, insurance money, commission of the buyer who has to sell again to any European market, all these are as many expenses saved if Gold is "hic et nunc" transformed into coins. Should the Government give to the digger the intermediary price between the real value of his finds and the amount offered to him by any other purchaser, the bargain would still be a very remunerative one to both contractors. The price of gold increasing would soon prove an encouragement for all hands at work already, an effective allurements for many to come yet.

The question is to know whether buying all the gold found in New Caledonia would not prove too large an enterprise for the Transvaal public finances. We

do not think it would require much money. Diggers do not as a rule sell large quantities of gold at once. Most of them have to get rid of their finds at the end of the week to pay the week's expenses, and they do not care if the money they receive and have to give again in payment is counted in notes or hard cash. To those only who should happen to sell large quantities, payment in Gold would be preferable. Even in this case what else would it be for the Treasurer but a mere advance of a few hours for which the Mint, the next day, would pay him back with a large interest added to the capital?

Evidently hard cash would soon be too abundant in the Republic. Would this excess be a danger and the cause of a depreciation in the value of money. We do not think so, at least for a long time to come. England ships over to the Cape Colony a large amount of coins. Trade and bank would soon find an economy in buying South African money sooner than English gold increased in his price by all the costs of the transport. We all know how scarce silver coins are occasionally in the interior of the Colony, what premiums have many times been paid for it on the Diamond fields for instance. To remedy to this and at the same time take advantage of it, it would be advisable to issue a gold coin of 4s. value.

It would be the South African dollar equivalent to the American gold dollar, to the French, Italian, Belgian, Swiss 5 francs. Five dollars would be exactly the English pound in gold 22c/t fine 925/1000. The course of exchange would consequently soon be in favour of the Transvaal's new spring of wealth making the young country master of the discount in all South Africa.

South African money taken in payment by importers in all the Colonial or Republican ports would go from here to all parts of the world, showing crest and motto of the South African Republic as a patent proof of wealth and a sure allurements for emigration which is to fertilize all the wealth of this country.

Besides our Mint ought to keep a certain quantity of melted but unflattened metal some 22 c/t, some 18, some 9 c/t fine on purpose to answer to various wants of Jeweller's, Goldsmith's, Gilter's trades etc., etc. Under this shape gold would be exported to an extent which nothing but the exhaustion of our mines could limit.

We do not expect to write here anything but what the learned men who rule this country's affairs are perfectly aware of. They will, no doubt, know better than ourselves, how to appreciate the advantages attached to the creation of a Mint close to the gold fields. All considerations of that kind are summed up in the following elementary principle of economy:—

*When possible the seat of fabrication ought to be on the very ground from which the rough matter is extracted.*

We regret that Mr. Perrin, Government's Assayer has not received yet his instruments. We should otherwise be able to show in exact figures what would be the profit per ounce according to the proportion of silver South African gold contains more or less.

We put aside general considerations we so slightly touched expecting not so much to interest the reader than to justify our taking the liberty of begging his attention to this enterprise. We will now give as precisely as our knowledge of the subject allows us to do it a brief exposition of the proceedings, the description of the necessary machines, the enumeration of the cost prices. In fact we will try to give a complete though a rough plan of the Mint such as we understand it would answer to the wants both of the Transvaal finances and the gold market.

### SOUTH AFRICAN REPUBLIC MINT.

BUILDING — such a building as shown by our diagrams I and II would thoroughly answer the purpose.

3 large rooms would be perfectly sufficient. The Foundry, the Stamping Room, the Assayer's rooms divided in two by a partition.

Then the manager's office isolated from all other rooms in case of fire is so situated as to make easy the overseeing of all works. It is besides the only way in and out of the Mint.

A. FOUNDRY. This room 30 x 15 ft. must contain four ordinary furnaces a, b, c, and d. These furnaces must stand lower than the ground which disposition allows the man in the foundry, to take the crucibles out more easily while it does not make the room so hot.

A ditch is dug in front of the furnaces so as to increase the power of the draught. It is covered with a wooden grate. Pipes run under the ground from the furnaces to a chimney 40 to 45 ft. high which produces a sufficient draught.

In those furnaces gold is melted, in the oven fig. 2 it is nealed. In the lead tub (e) the metal is cleaned through a solution of Sulphuric acid. In the ingot mould it takes a proper shape to be submitted to the action of the flattening cylinders.

From the foundry the gold melted into ingots is carried into the stamping room:

B. STAMPING ROOM 45 x 15 ft. contains 2 flatteners, (a and b), 1 gold drawing board (c), 2 Coiner stamps (d and e), 2 scales (f and g). When the metal has gone through this room it is ready for the manager's safe and the public circulation.

The plan here enclosed shows by itself sufficiently, the disposition to be adopted for the manager's office.

The interior disposition of the Assayer's rooms ought to be left to the Assayer's care as it depends on the dimension of instruments already in existence.

We wish the reader to notice the great advantage of our plan:

1°. The manager being able of overseeing easily all workmen employed.

No one coming in or going out without his knowledge.

2°. The metal going round from the office when it is brought when rough back to it where it is put in circulation when coined through a succession of rooms answering to the progression of work without any loss of time or any useless move.

To be added to the building a coal oven where wood ought to be slowly burned into coal for the wants of the foundry and the Assayer's furnaces.

We calculate that the building such as we give, its plan ought not to cost more than £600. (Bricks and yellow wood).

### MELTING.

After the gold has been so refined as to be perfectly pure it must be mixed with a certain quantity of copper according to the adopted title. This gives to the gold the tenaciousness it wants to be coined. The mixture is prepared in either earthen or cast crucibles and is moulded in an ingot mould into the shape of thin plate.

While the metal is melting that is during an hour or so at the temperature of 32° of Weywood pyrometer (6362 $\frac{3}{4}$ ° Farenheit) we stir it now and then so as to mix more intimately both metals whose density is so different (19.258 for gold & 8.788 only for copper). The ingot mould has to be heated and greased a little before it receives the metal in fusion.

The ingots about 6 $\frac{1}{2}$  inches wide and  $\frac{1}{2}$  inch thick are then fit to be flattened.

### FLATTENING.

The ingot out of the mould is carried to the flatteners. This engine is the most important of all those we have to use. Its cylinders must have 1 ft. diameter. They must be made of Krupp's steel which makes them a little expensive. The cog wheels will be of a large dimension. If they are of small size, we might notice, in the thickness of the metal differences in correlation with each cog. These are, no doubt, caused by the variations in the moving power.

When the metal has been run 4 or 5 times between the cylinders the pression it has been submitted to has been as good as cold beating. It must then be nealed and kept red hot for some time. When it gets cold again it is somewhat tarnished and black, to what we may easily remedy by rubbing its surface after it has been immersed for some time in a tub full of water with a slight solution of Sulphuric acid.

When nealed and cleaned in this way the metal has to be flattened again down to the thickness of the coin we want to stamp.

### DRAWING.

The ingots, having been lengthened a good deal between the cylinders are cut by circular scissors into longitudinal throngs.

The bands so obtained offer, however carefully they have been flattened an unevenness which has to be remedied to before the stamping. Therefore we use the drawing board. The metallic bands are drawn through a square wire drawing iron and become then so perfectly even that all coins, from whatever part of the band they are cut out will weigh exactly the same.

### PINKING.

The coins are pinked by a coiner with a punch. On this operation depends the weight of the coins. It may be understood then how carefully it must be attended to. Of course any coin is weighed and melted again if found to be over or under weight. When cut and weighed the coins are immersed into a conical tub and stirred round there in slightly acidulated water. As soon as this operation has made them perfectly neat they are fit for the stamping.

### STAMPING.

We gave a sketch of a coin stamper as it is cheaper and might undoubtedly prove sufficient to use this instrument. But we must say that the old system, full of deficiencies as it is, could be, with great advantage, replaced by the new one, "la presse monétaire" the coining press. This engine has been introduced in the "Hotel des Monnaies de Paris" some years ago by Mr. Thonnelier if we do not misrecollect the name of this learned gentleman. It has been since much improved and its only drawback is that it requires a mechanical mover either steam or waterfall. We repeat that it is possible, we might say easy to do without it.

The advantages of the coining press are that:—

- 1°. it acts with an even pression on the coins.
- 2°. the coiners never strike each other should they happen to work without a coin between them.
- 3°. It may easily stamp as many as 60 coins per minute.

We give here a rough sketch of it:

The motion of a tree in rotation on which is fixed the large flywheel Z is transmitted through G. F. H. to the column I so that column presses on J which is continually kept against it by the levers M L. supporting the weights NN. J. containing the upper stamp. U is the lower one. J moving from right to left

and back is in contact with U only at a certain exact time when the pression of I is at its maximum and the coin put into J has slipped between both stampers.

The mere comparison of the sizes of the flywheel's diameter and of G shows what a powerful and regular pression is obtained by this machine.

## PRICES LIST.

4	Ordinary furnaces (Refractory brick can be had in Natal) .. ..	5	20
1	nealing do. .. ..	10	10
1	Tub for acid solution .. ..	3	3
1	flattener .. ..	40	40
1	do. .. ..	80	80
1	Coiner stamp .. ..	12	12
1	do. .. ..	40	40
6	punches .. ..	2	12
6	coiner punches .. ..	10	60
1	large scale .. ..	25	25
3	small do. .. ..	2 10	7 10
1	Drawing board .. ..	20	20
1	ingot mould .. ..	2 10	2 10
	Circular scissors .. ..	10	10
	Sundry tools, crucibles etc. .. ..	—	20

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362£

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We have not reckoned the instruments belonging to the Assaying laboratory as they are already in possession of

J. PERRIN.