

74

96  
May

Extracts

---

7

17

No.

1796  
Calcutta 17 May

J. Black's Analysis  
of the Jetam water

Experiments

1. Equal quantity of Lime w.  
no sediment.
2. Mild Vol. alk: no effect
3. Paper stained blue with  
the marsh violet. Dried in  
the water and dried, changed  
a little towards green
4. Cambui stained to a bluish  
purple with infusion of Litmus  
appeared a more perfect blue  
when dried
5. Acid of Sugar no change

6. Sol. Col. Sub. in change  
7. Sol. of Cal. Saturni / the  
acidum made the water very  
muddy and white, but a small  
quantity of distilled vinegar redissolved  
nearly the whole of this precipitate  
and rendered the water almost  
perfectly clear again.

8. Sol. of Barytes in Muriatic  
acid made the water become  
muddy and deposit a sediment  
which was not redissolved by ad-  
ding purified Nitric acid

9. Sol. of Silver produced a strong  
muddiness and considerable precipi-  
tation which was not redissolved  
by adding purified Nit. acid

### Observations

The last Exp. shows the presence  
of the Muriatic acid, and the  $O_2$ <sup>1</sup>  
of the Vol. acid. But by the 3<sup>d</sup> 4<sup>th</sup>  
and 7<sup>th</sup> it appears that there was  
more than enough of Alkaline  
matter to saturate both acids

The 5<sup>th</sup> Exp. shows that it was  
not Cal. earth but Alkaline salt  
and the 6<sup>th</sup> that it was not the  
Vol. but one of the fixed Alk. etc.

The first experiment showed that  
the ~~unsaturated~~ <sup>unsaturated</sup> alkali was not  
combined with <sup>fixed</sup> air, or but in a  
very small proportion

- To investigate the exact  
matter and purifying quality

# Evaporation

10,000 Grains by weight to  
dryness -

Dry Extract of *Asyrium* W. 8.25  
of Geyser - - 10. -

The Evaporation was performed in  
3 glass vessels 3 inches wide and  
7½ Deep which received heat  
from the steam of boiling water  
not directly by heat through the  
intervention of white iron cases  
which fitted the glasses and in  
which they hung - Advantages  
of this apparatus - fixed matter  
collected on a small surface -  
Glasses so moderately heated that  
they bear water to be added during

The evaporation without breaking  
- No part of the fixed matter  
remained behind - easily weighed -

- At the end of the Evap. an  
odour similar to that of unperfumed  
alkaline soap - appeared the  
form of transparent jelly of the  
thickness nearly of half a crown  
This jelly afterwards while small  
fragments were connected with each  
other. A small quantity attached  
to the glass - especially -

These phenomena are remarkable those  
in evaporating water in which  
silicious earth is dissolved especially  
by <sup>an</sup> alkaline salt

The Extract attracted moisture  
from the air

The Extract contained a quantity  
of unsaturated alkaline salt which  
was removed ~~from~~ when a small  
quantity was washed and applied  
to paper stained with the juice of  
violets or Radishes, the colour in  
both cases changed to a green.

To purify the extract with di-  
stilled water thro' a filter, was per-  
formed with Crystals of common salt,  
with Crystals of an oblong and  
flatted form, effloresced - was found  
to be fixed alkali.

The undissolved matter on  
the filter appeared to be totally  
or principally siliceous earth. It  
was white and exceedingly springy  
and light. A small quantity was

put into a flask with water, laid on a  
fire of Charcoal and dried, it was then  
subjected to the blow pipe, but could  
not be melted. Another quantity of  
the same was triturated dry with an  
equal portion of Aerated and is mixed  
fixed alkali, put into a small pla-  
tina spoon, strong heat of the B. pipe  
to the bottom of the spoon, a trans-  
parent colourless glass which effloresced  
by being digested with a small q.<sup>ty</sup>  
of distilled water was completely dissolved  
and formed a liquor & liquor silicum  
- quantity of unsaturated Alkal.  
was contacted by <sup>and</sup> Dist. of the Sp. of  
of 1790 to 100 Fohs. That being 60  
dissolved with 100 times its weight  
of distilled water

Line: rays in Cambrian in substance  
of Linnæus well calculated for counting  
both the unconformable bed & Alkali  
but the form more costly than  
the latter, turn red soon by green

The residuum on the filter at  
so contained a small quantity of  
argillaceous earth which would not  
yield to the blow pipe, was with it  
kept - no glass formed -

To determine the quantity  
of acid nature of the earthy matter  
Residuum collected by boiling

1<sup>st</sup> Expt: some into a platinum spoon  
and made it red hot - then  
it became black, then underwent a  
slight inflammation, afterwards white

without changing its colour, fusion  
being only a little contracted in size &  
diminished in weight

2 To a small <sup>mass</sup> of Residuum added on  
a bit of glass was added a drop of aqua  
fortis - neither appeared with, nor dissolved  
it, only changed the colour to a pale  
red

3 Another small portion, which  
had been gently calcined, was well  
mixed with the aerated spirit alkali  
in equal quantities, and exposed to a  
strong heat in the platinum spoon.  
The Alkali was quickly melted and  
became caustic, but would not be brought  
into fusion, at least not perceptible

4 A little mass continued in melted  
mass on charcoal indissoluble and  
without any appearance of effervescence.

Thin earth around. Therefore be of the  
 Argillaceous ~~siliceous~~. Had it been the Siliceous  
 it would have been melted with the Al-  
 kalis into a transparent glass - which  
 happened easily with different specimens  
 of the pure Siliceous earth subjected to the  
 same heat; and had it been any of the  
 alkaline earths the boxes would have  
 dissolved it quickly and with effervescence

Quantity from each of the waters  
 10,000 Grains by W.

Kybur =  $\frac{1}{20}$  part of a Grain

Zeyen  $\frac{30}{100}$  of a Grain

The earth was first brought to an ob-  
 scure red heat

The greater part of the earthy  
 matter had not yet made its appearance  
 that is the Siliceous earth. It still  
 remained in a state of perfect solution

in the Neutralized and boiled water  
 above described some part of which had  
 actually passed thro' the filtering paper  
 The results of other experiments showed  
 that the whole of these Neutralized  
 waters might have been filtered  
 without danger of separating any part  
 of the Siliceous earth by that operation

The quantity of Siliceous earth deter-  
 mined by Evaporation was 10,000 Gr

Kybur 3.73

Zeyen 5.40

The water was evaporated to dryness  
 with a gentle heat in two china  
 cups, carefully washing every drop of the  
 from the glasses into the cups with  
 distilled water and then taking out  
 the dry extracts out of the cups they  
 were put separately into filtering paper  
 and passed distilled water through them  
 repeatedly until all the saline matter

was washed away. The paper being  
then carefully dried, the cork in them  
was found exceedingly spongy fine and  
tender. Some of this with half its wt.  
of alkali was melted into a perfect glass  
in the platinum spoon.

Experiments to ascertain the  
Neutral Salt

Preliminary experiments gave reason  
to believe these salts to be common  
Glauber salts.

1<sup>st</sup> set — Some common salt had  
been refined by a second Crystallization  
— in hot day and large Crystals  
of this was taken 10 grains by wt.  
which were dissolved in about half a  
pound of distilled water. A solution  
of silver containing a little super-  
fluous acid, the silver was precipi-  
tated in the form of some common

rather more was added than what the  
ten grain ~~weight~~ of common salt would  
precipitate. The same course after  
complete subsidence and decantation  
of the saline water from it was  
carefully collected on a small filter  
and well washed with distilled water  
and thoroughly dried and weighed.  
It was learned that 100 parts of common  
salt are sufficient to give 295 of silver  
corner — By similar experiments  
the quantity of common salt was found  
to be in 10,000 grains of  
Prayhem = 2.90  
Geyser = 2.46

It may be suspected that the  
Glauber salt contained in the su-  
perfluous water, might by means of its vol-  
atile acid contribute to the precipitation of  
a part of  
the silver, but experiments prove that



a small quantity of bot. acid or any  
 bot. salt dissolved in a large quantity of  
 water does not precipitate silver - and  
 to prevent any more of the silver being  
 precipitated by the alkali of the water  
 there was added of purified aqua fortis more or  
 enough to saturate the alkali, before I added  
 the solution of silver -

Another set of Experiments on the same  
 plan was made with Glauber salt  
 and the sol<sup>n</sup> of Barytes in Marria acid  
 instead of Common salt and the solution  
 of silver. - 10 parts of pure crystallized  
 Glauber salt, with precipitate 17 parts  
 of Barytes crystallized. This fact ascertained  
 the solub<sup>l</sup> of Barytes was added to  
 the fluid water so as long as any  
 turbidness or precipitate continued  
 the precipitate was washed, dried and  
 weighed. quantity is 10,000 grains  
 by the 1.20 & 1.46 -

## Result

In an English gallon of 231  
 cubic inches or 50,400 grains

of Rye Beer water there is	gr
Caustic Joseph Alkali	3.
Magnesian Earth - -	0.29
Siliceous Earth - - - -	21.03
Common salt - - - -	16.96
Glauber salt crystallized - -	7.53

## Try on

Caustic Joseph Alkali - -	5.56
Magnesian earth - - - -	2.80
Siliceous earth - - - -	31.50
Common salt - - - -	14.42
Glauber salt crystallized - -	0.57

An attempt to account for the  
Barometris being always lowest at  
Cebu about noon — C. P.

This phenomenon is owing to the sea  
and land breeze —

The air lying over the land being  
warmed by the action of the Sun  
during the day, ascends in the higher  
regions the place it occupied is sup-  
plied by a current of air from the  
sea

During the night this rarified air  
becomes condensed and consequently must  
descend, the consequence must be a  
current of air from the shore toward  
the sea

In the former case while the air  
is rising, the barometer is depressed the  
mercury must therefore descend. In  
the latter, while the air is descending

The pressure must increase, and the  
mercury consequently rise -

As the greatest cold happens at  
dawn, the barometer should be higher  
then

In England the air in a hot day  
is driven rather up an empty chim-  
ney, in the night it moves downwards  
into the room -

That Calcutta does not experience  
a sea breeze sensible with regard to the  
direction of the wind, there may not-  
withstanding be both an ascending  
and descending current current to  
suffice to effect the barometer -

The wind at Calcutta commonly  
blows less forcibly during the night  
than in the day -

But independent on the sea &  
land breezes, if it be admitted that

in all warm climates that there  
is an upward current during the day  
and downward current thro' the night  
then phenomena of the Bar. must ne-  
cessarily follow -

From Mr. Will. Revolver  
screw on a compound screw

Let one screw play within another  
so that while the largest turns  
round and rises in the frame, the  
innermost may rise but not turn  
round - Let the size of the thread  
of the inner (large) screw be  $a$  and  
of the other  $a-b$

Suppose now the screw under  
screw to be turned once round, the  
point of this screw will be raised thro  
the space  $a$  above its former situ-  
ation with regard to the frame in  
which it moves. But it has ad-  
vanced on the smaller screw thro  
a space equal to one of its threads  
 $= a-b$  therefore this last screw must  
have advanced thro a space equal to

the difference of the two that is  
thro  $b$  Ed: R. Let the screw  $AB$   
largest have 10 threads in an inch  
and a thread of  $BC = \frac{9}{100}$  of an inch -  
hence  $a = \frac{1}{100}$  and  $a-b = \frac{9}{100}$  therefore  
 $b = \frac{1}{100}$  that is at every turn of the  
nut at the point of the upper  
screw will advance 100 part of an inch

Suppose the size of a thread  
in the larger screw to be given &  
also the space thro which the point  
 $F$  is to advance at every turn of the  
screw, to find what n<sup>o</sup>. of threads of the  
large screw divided into a number of  
parts greater by one will give a  
thread of the large screw

Let  $n =$  num of

Then

$$\frac{an}{n+1} = a-b$$
$$an = an - bn + a - b$$
$$bn = a - b$$
$$n = \frac{a-b}{b}$$

Then in the form Eq —

$$a = \frac{1}{10} \quad b = \frac{1}{100} \quad \text{then } n = \frac{\frac{1}{10} - \frac{1}{100}}{\frac{1}{10}} = 9$$

That is if none of the larger threads be divided into ten equal parts one of those will be equal to a thread of the lesser size —

By the above formula the following table was constructed in which the figures on the left hand express the value of  $a$  those at top the value of  $b$ , and those in the meeting of the line the value of  $n$ . When the value of  $n$  involves a fraction, we get rid of it by multiplying both  $n$  and  $n+1$  by the denominator of that fraction. Thus if  $a = 30$  and  $b = 500$   $n = 15\frac{2}{3}$  and  $n+1 = 16\frac{2}{3}$ , the numbers 47 and 50 are in the same proportion, therefore if 47 threads of the larger size be

divided into 50 parts one of these will be the size of a thread in the lesser size —

	10	20	30	40	50	60	70	80	90	100	500	1000	10000
2	4	9	14	19	24	29							
5	1	3	5	7	9	11	13	15	17	19			
10				3	4	5	6	7	8	9	49		
20						2	2½	3	3½	4	24	49	
30						1	1⅓	1⅔	2	2⅓	15⅔	32⅓	
40								1	1¼	1½	11½	24	249
50									1	9	19	149	

The case where the compound size will be most compact with an then a very slow motion or very great power is wanted —

From Russia vicinity of  
Aleppo

— Now but Moslems are per-  
mitted to enter the Mosque  
at Aleppo. And there is only  
one where Jews and Christians  
are permitted to enter the  
court yard — This court yard is  
left as a thoroughfare, or even  
during the hours of prayer.

— Not so strict at Constantinople  
and other cities —

— The word Beyler is Persian  
and Turkish — nearly of the same  
form as in Asia — Armenia —

— Locks of the Bazar gates  
of wood. They about a span  
long and an inch thick with  
flats are drawn four feet or more  
~~two~~ short nails which fit the  
intervals of as many in the  
bolt and move the bolt back-  
wards and forwards. The flates  
are covered with plates of iron.  
— Private houses have European  
locks.

— Gates in the principal streets  
also watchmen. Difficult for  
offenders to escape. These pre-  
cautions and the being vindi-  
cated to appear in the street  
without a banner render  
housebreaking and street brawls very  
rare at Aleppo.

— The Divan is the Turkish  
audience room.

The corner seats of the Divan  
are reputed the most honor-  
able cushions.

— Ornaments placed on the entrance  
into the house.

— Roofs where there are no  
domes are flat and plastered  
with a composition of mortar  
ten parts and sand. European  
Inhabitants by their custom  
communicate with one another

and with the Bazar, a great  
advantage during the plague.  
— To leap over a neighbour's  
wall is thought as equivalent  
now as breaking open his  
house - few intrigues.

More dust than smoke  
- Feet road and Chancery  
- Baginas the great Museum  
- feet employed to heat the  
- contents of the Dairy of animals  
- fells of stables farming of  
- fruit and other objects collected  
- by people on the street -  
+ on the subject of ancient feet  
- consult Warm Vol 1<sup>st</sup> page 254  
- and below translate of Strabo  
- step down - these better of  
- quality -  
- Parney - let get manufactures  
- Aqueduct said to be covered  
- with the city - repaired by the  
- Empress Helena mother of Const.  
- who also built the church now  
- converted into the principal

Mosque -  
- Aqueduct somewhere on the  
- surface - some places under  
- ground -  
- Close to the city extensive  
- quarries - grit stone as just  
- soft but hardens in the air  
- Marble from different parts  
- red from Damascus -  
- Lime on account of feet &  
- (over ash) - plenty of Lime  
- stone - Master of Paris -  
- employed in furnishing the  
- principal rooms, now known  
- by way of comment for the small  
- certain pieces of the fountain  
- The fountains or basins now  
- lined with marble are placed



with a composition of quicklime  
pounded chalk <sup>stone</sup> cotton and oil  
This plaster is durable and effecti-  
ally prevents the seeping of the  
water -

Clay bed - Fuller with mead  
with dried rose leaves and made  
into balls much used for cleaning  
the hair in the Bagrios. Brandy  
common and highly prized by the  
consumers a considerable quantity  
of this earth

Metals not found at present  
near Aleppo nor probably in  
any part of Syria - Lead Iron  
and iron chiefly from England  
and Holland - Mines of Lead  
and Copper in Armenia  
Two sorts imported from Spain

One sort is finer than the other  
because it is said to suit the  
rooms

Salt Lake 10 miles from  
St. Shahr for 1 to 2  
or three miles thick upper  
part separated from the sand  
dred and hewn down then  
separated - best sort very  
fine - excellent quality

At 11 miles - Sunk Village  
a cavity in the Earth  
the sides of which contain  
coral, Madraspor and other  
mineral productions - No  
appearance of Vol. in them

Extract from the report  
of the Committee for improving  
the manufacture of powder at  
Bombay —

Defects of the former  
powder works —

1. Bad construction of the furnaces  
for working Saltpetre — No  
chimnies — Grating too far from  
the ~~bottom~~ bottom of the boilers  
— New construct — 300 barrels  
of wood = 10 or 1200 in the old
2. The water in which Saltpetre  
is dissolved (crystallized), is reheated  
on fresh fire, this increases the

impurities of the first boiling  
are added to the second &c —  
so that the Saltpetre is generally  
less pure at the end, than at  
the beginning of the process —

3. Water so salt that the na-  
tives will not drink it is used  
in the manufacture, both  
for Crystallizing the Saltpetre,  
and added to the com-  
position thro' the mills —

The only object of the former  
manufacture seems to have  
been, the separating vegetable  
and other matters perceivable  
by the eye, without attending  
to the different salts with  
which it is adulterated —

To remove this resin water-  
must be collected <sup>during</sup> the rainy  
season — quantity for one  
year would not exceed 2000 bushels  
of 100 Gall. each.

+ Mr. Farquhar's mode of refining  
Salt-petre — is to add to it  
 $1\frac{1}{2}$  times its weight of water  
when ~~the~~ this solution is  
well clarified, and sufficiently  
evaporated, he lets it crystallize  
of these crystals he takes  
only for use the uppermost  
which are the purest. The  
remaining crystals are re-  
fined again.

— Observation — Salt-petre is  
at least 50 per Cent dearer

at Bombay than at Buzut.  
Wood is also dear — This would  
occasion a considerable additional  
expense here — + Salt is volatile  
in the heat of boiling water —  
+ French mode of refining Salt  
petre by two washings with  
cold water the first 20 per Cent  
the 2<sup>d</sup> 25 per Cent — adopted by  
the Committee as the best. —

150 Bombay Maunds = 1500  
Lbs of finely powdered Salt put  
into a wooden tank, 40 Plus  
of cold water poured on them  
and well stirred, let stand  
24 hours — water drawn off  
by a cock — Salt-petre is then

put into small baskets sup-  
ported above the Tank, and the  
water forced out as much as pos-  
sible by mixing the salt with the  
hands. It is then returned to the  
Tank and 25 p Cent more of  
water is added, after standing  
another day this is drained off  
as before. It is now found that  
72 p Cent of salt pure is got  
back, of a very considerable degree  
of purity is got the remainder  
being dispersed in the two  
waters, or is mixed with some  
impurities that fall to the bottom  
of the Tank. This purified salt  
pure has a brownish colour  
from containing a little veget.  
and mineral matters amounting

together, probably to less than  
1 p Cent. There can be little  
injury to the gun powder -  
The sea salt is less than  
1 p Cent. and the still more  
lustful salts with earthy bases  
are completely taken away  
and should be taken to  
pick out as much out as  
possible from the coarse  
salt. It before it is powdered  
and to remove as much  
of it during the washing  
as may be.

There remains in the  
water of the two washings  
about 23 p Cent of salts  
which consists of pure sea salt  
and salts with earthy bases

in different proportions according  
to the nature of the crude salt. At  
50 Cent more is found of salt  
detached with impurities, and  
which should be refined again  
before it is used.

Of the 230 Cent of Salts  
contained in the water the  
salt part = 16 parts. It is  
to be understood of the salt part  
- which the committee made  
experiments

The prospect of getting in this  
72 Cent is very easy, and not  
expensive, but in order to recover  
the remaining  $\frac{16+5}{21}$  parts of Nitre  
the usual process of boiling and  
crystallization must be gone

thro' which requires a good deal  
of skill, and are very tedious &  
expensive -

The two washings should we-  
cently be kept separate from each  
other. For the 1 contains nearly  
the whole of the Salts with earthy  
mass and the greater part of  
the sea salt, the 2 contains  
on the contrary being more  
crystallized in the correct way  
affords crystals that may  
be mixed with the common  
salt part of the market  
As large a proportion of  
salt part as the two washings  
contain certainly should not  
be thrown away - great skill be.

+ The effect of these washings depends on this principle that water tho' saturated with Nitric does not the less dissolve common salt or salts with earthy bases. Let it be supposed for example, that a quantity of salt pile contains 12 p. Cent of sea salt and that it is washed with 40 p. Cent of ~~water~~ water, it will be found that  $\frac{2}{3}$  of this water will be got back again from the first washing even in the great way, that is to say, the sea salt in the pile is now reduced to  $\frac{1}{3}$  of its original quantity or 4 p. Cent. If the salt pile be washed a second time with 25 p. Cent of water, it

will be found that a greater quantity of water will be got from this 2<sup>d</sup> washing than was added to it, or that out of 4 parts <sup>now</sup> 3 and nearly one half are removed, that is to say the salt pile remaining contains less than one p. Cent of sea salt. It is evident that in this example a great deal more water is used than what is necessary for dissolving 12 p. Cent of sea salt but it ought to be observed that an additional quantity of water is necessary from the dry salt & returning a considerable portion of it.

— From this principle is derived a method of assessing the relative purity

and values of different kinds of  
Salt pots - Wash the salt  
pots with a saturated solution  
of pure Nitre - The loss of weight  
is the foreign salts, with which  
the salt pots was adulterated -

The Committee have purified  
Salt P. to one lb. out of four  
Oats - and of course that a

greater loss will ~~be~~ be experi-  
enced by Chry: than by washing

Danger for purity matter.  
Answer In washing salt pots  
no accident whatever happens.

By the solution of Salt in Nit:  
and it appears that all the  
Gun powder from Europe, the fine

best powder is used, con-  
tains common Salt -

Nitre has no value of  
Crystallization - nor does it  
attract any moisture from the  
atmosphere. But a little  
Sea Salt by attracting  
moisture soon injures Gun-  
powder - This might be got  
rid of altogether by two  
washings and one Chry:  
The State of the powder for  
small arms should be well  
refined otherwise the cartridges  
when it is exposed to the air  
under a large surface become  
wet and unfit for service -  
+ little faults found at the Mills  
with the other two ingredients

+ In the Bombay powder  
mill 12 stones each 25 lb  
fall 17 times in a minute on  
80 lb of composition for 2 days  
which allowing one hour for  
change of call is about 7 hours  
a day, or the composition receives  
20000 strokes. — In M. Fougere  
mill, comp. is kept in the mill  
for 17 hours, receives 16 strokes  
a minute, or all 16000  
which he observes is little more  
than 1/3 of what has been sus-  
posed necessary in Europe —

— The Committee have kept a  
quantity for 6 days and of 4  
but no advantage from it

— Superior of the beating  
mills to the cylinder mill.  
— I think that the powder  
of too large a grain — Does  
not inflame all at once —  
— When large grained powder is  
made 1/3 reduced to dust; the  
small 1/2 — This dust was an  
trial found not altered in the  
properties of ingredients, In the  
beating mill it made good  
powder

— Grades of powder, Gen. A,  
Defensive

G. P. which contains a large  
proportion of sea salt when  
dry will stand the common  
proof — But exposed to the air &c —



Besides the ordinary proof  
 an analysis should be made  
 of a quantity taken from a cer-  
 tain number of barrels and mixed  
 together - whether the ingredients are  
 in proper proportion and lastly  
 whether the salt petre be of a  
 pure degree of purity

Proof is that of the powder  
 a brass mortar at the elevation  
 of 45° into the chamber of which  
 3 oz of G. P. is put, a brass  
 bell = 60 lbs - Dist: see proof  
 = 525 feet

Cost per 75 lb Cent of  
 salt petre - other ingredients were  
 former was about 71

+ The powder should always  
 be exposed to the air for one  
 night on an open paper before  
 it is used, for no conclusion  
 can be drawn from powder  
 well dried in the sun and then  
 kept for a few days from the  
 air -

Expenses for 240 Bar!	
each con: 100 lbs	
Total expen. Salt pt	2,577.1
- Oil Sulphur	509.
Charcoal	173.
Freight Cattle	1055
Monthly interest on the prin and discount of acct: of Buff:	75
Servants wages	745
Daily expenses	1621
	<hr/> 5,372.2

W.  
That is 22. 1.60 of 100.  
- This rather below than above  
the rate

+ The works at present can make on-  
ly 240 Barrels of month

+ Salt pile loss 20 % Cent in refining  
No' the rest 40% of loss. Salt should  
not exceed 10 % Cent, yet great quant.  
of fuel to recover the S. O. from the 20  
% Cent cost? in the water -

- By the application of Milling  
granulating, sifting and drying  
there is a loss of 12 % Cent -  
in the comp. which should pro-  
duce 8 Bar. only.

- Of crud. Sulph. Iron and Stone  
= 12 in 33 lbs. On this this  
is a loss = 25 % Cent, by refining

- For 240 Bar

Salt O. from 129 1/2 bags each = 154 lbs  
Sulphur 2400 lbs or 10 % Cent of the  
Chermet 3600 lbs or 15 % Cent

cost = 2375 Puffs

= 544 Puffs

= 173

