

- (1) Number of pages _____
(2) Date of repair _____
(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public works. DEPARTMENT

G.O. No.	1342.	Press
B.P. No.		Mis.
258-259.		
Dated	17. 5.	1873.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
17th May 1873.*

No. 258. Read the following Endorsement of the Military Department, dated
Fort St. George, 1st April 1873:—
From Colonel J. LOUDON, Commissary General, to Colonel A. C. SILVER,
Secretary to Government, Military Department, dated Madras, 31st March
1873, No. 9,362.

I HAVE the honour to forward a valuable report* received from Major H. P.
Hawkes, Assistant Commissary General,
on the construction and working of
steam bakeries in India, and, with refer-
ence to the Order of Madras Govern-

ment noted in the margin, would suggest that it be forwarded through the Public
Works Department to the Superintending Engineer, under whose direction the new
steam bakery at Bangalore is to be re-built, especially drawing his attention to
that portion of the report which treats on the construction of "ovens."

TRANSFERRED to the Public Works Department.

(Signed) A. C. SILVER, Colonel,
Secretary to Government, M. D.

No. 259. ORDER THEREON, 17th May 1873, No. 1,372.

MILITARY WORKS, No. 7.

ORDERED that (300) copies of this
valuable report be printed for the use
of Officers of the Public Works and

Commissariat Departments and for general information.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

To District Engineers,
„ Inspecting Engineer, for Buildings.
„ Executive Engineer, Wynaad,
„ Consulting Architect,
„ Military do.

} With Report.

No 9362

Commissary General's Office
Madras 31st March 1873

No 1

From

The Commissary General

To

The Secretary to Government
Military Department
Fort Saint George.

Sir,

No 4244 of 15th
March 1873

I have the honor to forward as
valuable Report received from Major
W. P. Hawkes, Assistant Commissary
General on the construction and working
of Steam Bakeries in India and with
reference to the Order of Madras Government

No 2737 dated 21 November 1872 noted in the margin, —
would suggest that it be forwarded through
the Public Works Department to the Su-
perintending Engineer, under whose direction
the new Steam Bakery at Bangalore is to
be re-built, especially drawing his attention
to that portion of the Report which treats
on the construction of "Queues"

I have the honor to be,
Sir,
Your most obedient servant

J. Radon Colonel

No 4264

From Major old S. Idaroko

A. Resident Camp Bell

To The Com. Army General
Madras

Sir

In compliance with your instructions, I have the
honour to forward the following 'notes' on the construction
and working of steam batteries in India

2 I have endeavored to throw together the results of
experience gained whilst in charge of the batteries elements
batteries, and have added the information gathered during
period of several years from similar establishments elsewhere

3 I do not pretend to lay down precise rules, suitable for
all circumstances - there will be a great deal to be put in the
infantry and local peculiarities, with doubtless records, it
is not able to make entire modifications in the system now
proposed, still I hope that the information offered may
not be without value to those who may in future be charged
with the construction or working of government batteries
in this country, many more were now accepted although the whole

Commissioner of the Hyderabad Government
Secunderabad 15th March 1873

Q. Did you collect numerous specimens from men whose only
ground was crops, or fields without trees, such as meadows
or pastures, dark colors? Through cultivated land - Cattle
pasture? Some specimens ought to collect from others,
and advantage of fairs of New, to make a series of portraits
of those cattle with the human kind, in order to compare
the color of the tongue - Even when the present condition
of colors appears to be all equally good, specimens
of various shades of color seems always to improve
the collection of the specimens of colors.

7 - The reading of the rough
8 - the taking of the account

2 - The stacking of the ground product into down stacking
3 - The separation of the ground product into down stacking
and then down stacking materials.

briefly as follows:

and several others

2. Die Pflanzen
3. Die Tiere
4. Die Menschen
5. Die Vögel
6. Die Fische
7. Die Insekten
8. Die Reptilien
9. Die Amphibien
10. Die Säugetiere
11. Die Vögel
12. Die Fische
13. Die Insekten
14. Die Reptilien
15. Die Amphibien
16. Die Säugetiere
17. Die Vögel
18. Die Fische
19. Die Insekten
20. Die Reptilien
21. Die Amphibien
22. Die Säugetiere
23. Die Vögel
24. Die Fische
25. Die Insekten
26. Die Reptilien
27. Die Amphibien
28. Die Säugetiere
29. Die Vögel
30. Die Fische
31. Die Insekten
32. Die Reptilien
33. Die Amphibien
34. Die Säugetiere
35. Die Vögel
36. Die Fische
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41. Die Vögel
42. Die Fische
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53. Die Vögel
54. Die Fische
55. Die Insekten
56. Die Reptilien
57. Die Amphibien
58. Die Säugetiere
59. Die Vögel
60. Die Fische
61. Die Insekten
62. Die Reptilien
63. Die Amphibien
64. Die Säugetiere
65. Die Vögel
66. Die Fische
67. Die Insekten
68. Die Reptilien
69. Die Amphibien
70. Die Säugetiere
71. Die Vögel
72. Die Fische
73. Die Insekten
74. Die Reptilien
75. Die Amphibien
76. Die Säugetiere
77. Die Vögel
78. Die Fische
79. Die Insekten
80. Die Reptilien
81. Die Amphibien
82. Die Säugetiere
83. Die Vögel
84. Die Fische
85. Die Insekten
86. Die Reptilien
87. Die Amphibien
88. Die Säugetiere
89. Die Vögel
90. Die Fische
91. Die Insekten
92. Die Reptilien
93. Die Amphibien
94. Die Säugetiere
95. Die Vögel
96. Die Fische
97. Die Insekten
98. Die Reptilien
99. Die Amphibien
100. Die Säugetiere

一、政治
 二、經濟
 三、教育
 四、文化
 五、社會
 六、宗教
 七、藝術
 八、科學
 九、法律
 十、道德
 十一、哲學
 十二、歷史
 十三、地理
 十四、生物
 十五、物理
 十六、化學
 十七、醫學
 十八、農業
 十九、工業
 二十、交通
 二十一、通信
 二十二、能源
 二十三、環境
 二十四、衛生
 二十五、體育
 二十六、音樂
 二十七、美術
 二十八、戲劇
 二十九、電影
 三十、電視
 三十一、廣播
 三十二、出版
 三十三、印刷
 三十四、建築
 三十五、園林
 三十六、設計
 三十七、工程
 三十八、技術
 三十九、管理
 四十、行政
 四十一、司法
 四十二、警察
 四十三、消防
 四十四、海關
 四十五、稅務
 四十六、金融
 四十七、銀行
 四十八、保險
 四十九、證券
 五十、期貨
 五十一、債券
 五十二、股票
 五十三、基金
 五十四、信託
 五十五、租賃
 五十六、買賣
 五十七、抵押
 五十八、擔保
 五十九、代理
 六十、委託
 六十一、授權
 六十二、轉讓
 六十三、繼承
 六十四、遺贈
 六十五、遺產
 六十六、債務
 六十七、債權
 六十八、合同
 六十九、契約
 七十、協議
 七十一、決定
 七十二、裁決
 七十三、判決
 七十四、處分
 七十五、執行
 七十六、監督
 七十七、指導
 七十八、輔導
 七十九、訓練
 八十、考核
 八十一、評定
 八十二、獎懲
 八十三、褒貶
 八十四、榮辱
 八十五、名譽
 八十六、地位
 八十七、權力
 八十八、權威
 八十九、威望
 九十、聲望
 九十一、名氣
 九十二、知名度
 九十三、影響力
 九十四、感召力
 九十五、凝聚力
 九十六、向心力
 九十七、歸屬感
 九十八、認同感
 九十九、忠誠度
 一百、忠诚度

[illegible]

1. *Chrysomelidae* (beetles)
 2. *Curculionidae* (weevils)
 3. *Chrysomelidae* (beetles)
 4. *Curculionidae* (weevils)
 5. *Chrysomelidae* (beetles)
 6. *Curculionidae* (weevils)
 7. *Chrysomelidae* (beetles)
 8. *Curculionidae* (weevils)
 9. *Chrysomelidae* (beetles)
 10. *Curculionidae* (weevils)

100

1880-1881

[Faint, illegible handwriting]

Handwritten text, likely bleed-through from the reverse side of the page. The text is mostly illegible due to fading and orientation.

[Faint, illegible handwritten notes]

the direct hand pressure is

1890

There is a small note at the bottom of the page, which is a reference to the next page.

Handwritten text, likely bleed-through from the reverse side of the page. The text is illegible due to the cursive script and fading.

of the same nature as the one which has been mentioned in the preceding paragraph.

A vertical strip of a textured, light-colored material, possibly a book cover or endpaper, showing signs of wear and discoloration. The texture is slightly grainy, and there are some darker, irregular spots and marks along the length of the strip, particularly towards the bottom. The overall appearance is aged and worn.

This image shows a blank, aged, cream-colored page, likely an endpaper or flyleaf from an old book. The paper has a slightly textured appearance with some minor discoloration and faint, dark smudges or stains near the top edge. A prominent dark, irregular tear or hole is visible near the bottom center of the page. The overall tone is a warm, off-white or light beige.

10. It will be well to glance at the general conditions

of grinding by hand-mills, which were at first before the war

quills were introduced, & which are still practiced with

improved machinery has not been set up -

little Indians whom we met on the way, and partly by buying some of the goods which we saw for sale.

the wheel into such a condition, that the wheel quadrant

of soap & the least quantity of flour is produced by a gallon

weight of wheat and flour, it must be recollected, the an-

object is all depending for scope, whether ^{where} it is placed or stated.

flowers - where each contains a
seed. The flower is called calyx when
it is before the seed is mature.

... or only partially fit for making bread.

11. The President made a sweeping before hand providing

was to spend one part by measure of water, the other

eight parts of wheat, to mix the whole thoroughly together.

to spread it out in a layer from 3 to 6 inches deep (according

to London 45) for 12 hours before proceeding. When the coffee is

of wheat were used, they were not as good as the wheat of 1880.

[illegible]

Species	Number	Weighted by	Average Deep water	Remarks
<i>Thalassoma</i>	small	common	25 lbs ground & 200 ft deep	
<i>Thalassoma</i>	large	common	31 1/2 lbs - surface	
<i>Thalassoma</i>	large	few	95 lbs ground only	
<i>Thalassoma</i>	large	few	95 lbs ground only	

2nd Species - Price 50¢/lb -

Thalassoma - Average Deep water - 200 lbs

Thalassoma - 120 to 150 lbs

Thalassoma - 145 lbs

[illegible]

hands of the wheat-maintainers for one minute only - The basket is then taken out of the tub and placed on a platform for 5 minutes to drain - after which it is spread out on a clean floor in a shallow layer not exceeding 4 inches deep or much less, if the wheat does not dry quickly - The wheat thus spread out should be frequently turned over with a wooden rake - but it is not necessary that one should be spread under it, or that it should be exposed to the sun. The wheat must be raked about 10 hours before it is required for grinding.

required for grinding.
18. At Steamboat Co., running probably to the difference in the quality of the wheat, the prolonged soaking given in Quadras was found to be far too great & even where only immersed for 20 minutes, the millstones became clogged immediately & had to be taken up. The plan of dampening used in Quadras has answered best here & in damp cold weather it may be necessary to modify this process by dampening only one half the wheat & thoroughly mixing it with the remaining half in a dry state.

19. The damping of water is a point of no small importance in a dry state.

13. The object having been described before proceeding to the stone 13.

14. The object having been described before proceeding to the stone 14.

15. The object having been described before proceeding to the stone 15.

16. The object having been described before proceeding to the stone 16.

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59. The object having been described before proceeding to the stone 59.

60. The object having been described before proceeding to the stone 60.

is called. At Sanderabad the curis are regulated to produce 'First', 'Second', and 'Third' flows, whilst the brae & soap which are too coarse to go through any of the curis are delivered at the end of the latter.

27. The milk soap comes from the end of the latter mixed with the brae, and the white granis of the soap are also mixed with a certain proportion of grass to which some bran still adheres, this dark colored soap is commonly called "Maka".

The process of hand sifting consists in first separating the brae from the soap & then in dividing the whole soap from the maka.

28. This separation can only be effected apparently by hand labour. Various machines have been tried for this purpose but none have been successful. The Deputy Commissioner General at Bealta says: "The process of hand sifting is tedious but unavoidable, as no device has yet attended the many trials made to perform it by machinery" - A soap machine was also sent out with the Madras mill, but though very ingenious, was

Hand sifting the milk soap

Sifting the maka

Mill stone

13th Nov

and Secunderabad Steam Bakeries with Plan

Scale of all the Plans - 40 feet to 1 inch.

27 x 27 1/2
2nd Floor

27 x 27 1/2
1st Floor

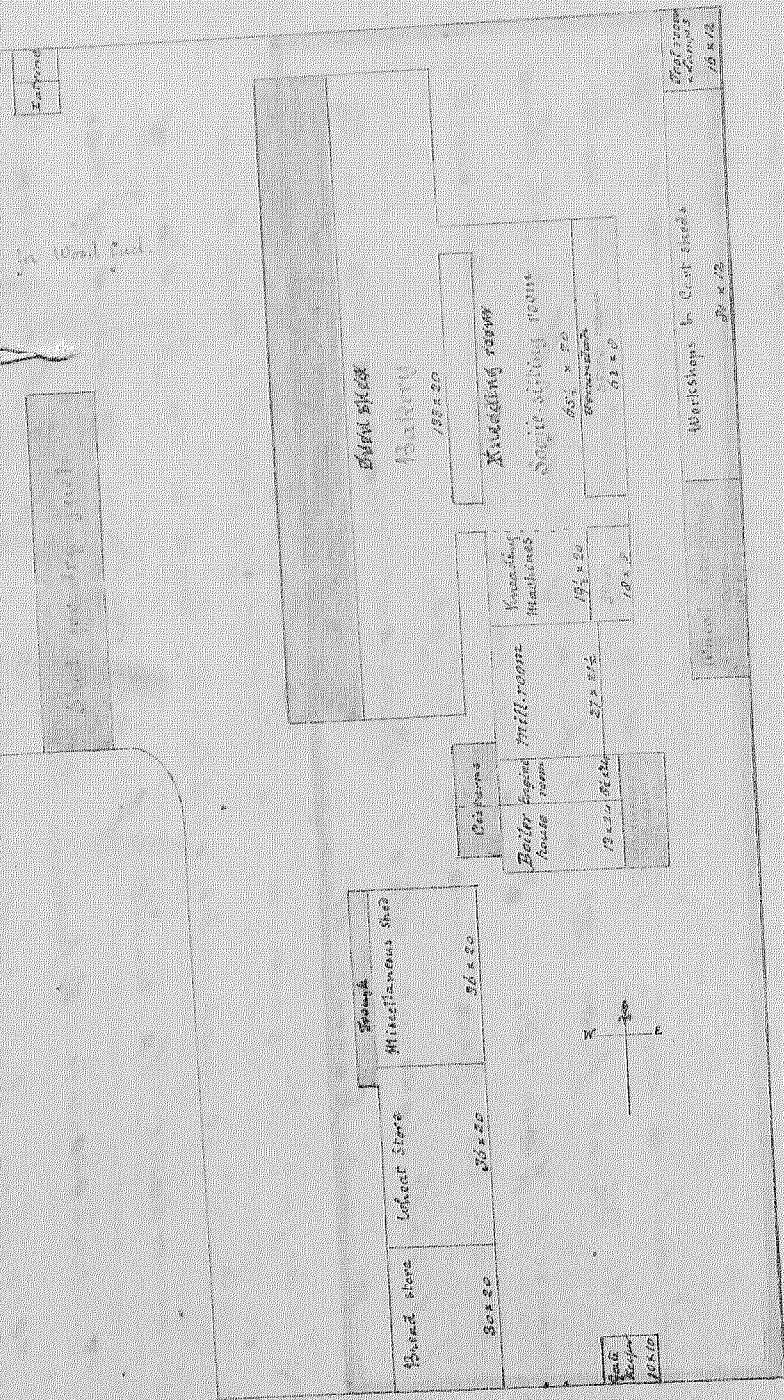
Illustration of
ideal baking

arranged, will best be seen by tracing the material frame

Enclosure for 10000 bush

- Yellow - Original buildings.
- Orange - Additions.
- Red - Site of original enclosure.

Secunderabad Bakery (for 3000 one-pound loaves, but too small & ill-arranged)



Shed for Bread
50 x 16

Wheat for dry feed
20 x 15

Wheat for wet feed
20 x 15

Chimney
Boiler house
Engine room
Engineer's shop

include the following:-

- (1) Boiler house & boiler on wall
- (2) Flour mill
- (3) Engineer's house & workshop

(3) Office with narrow

- (10) Baking & kneading room
- (11) Rolling room with narrow floor
- (12) Flour mill & flour & tank room

35. The series of buildings for a complete bakery must

be arranged to show the position in which everything

the usual course, and having fair facilities out

what appears to be the best general plan for a bakery

will perhaps make any necessary changes, if I received

the usual course, and having fair facilities out

what appears to be the best general plan for a bakery

will perhaps make any necessary changes, if I received

the usual course, and having fair facilities out

what appears to be the best general plan for a bakery

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will perhaps make any necessary changes, if I received

the usual course, and having fair facilities out

what appears to be the best general plan for a bakery

proposed Bakery.

Soggie-cooling rooms by butter bins	Soggie-cooling rooms
50 x 24	40 x 24

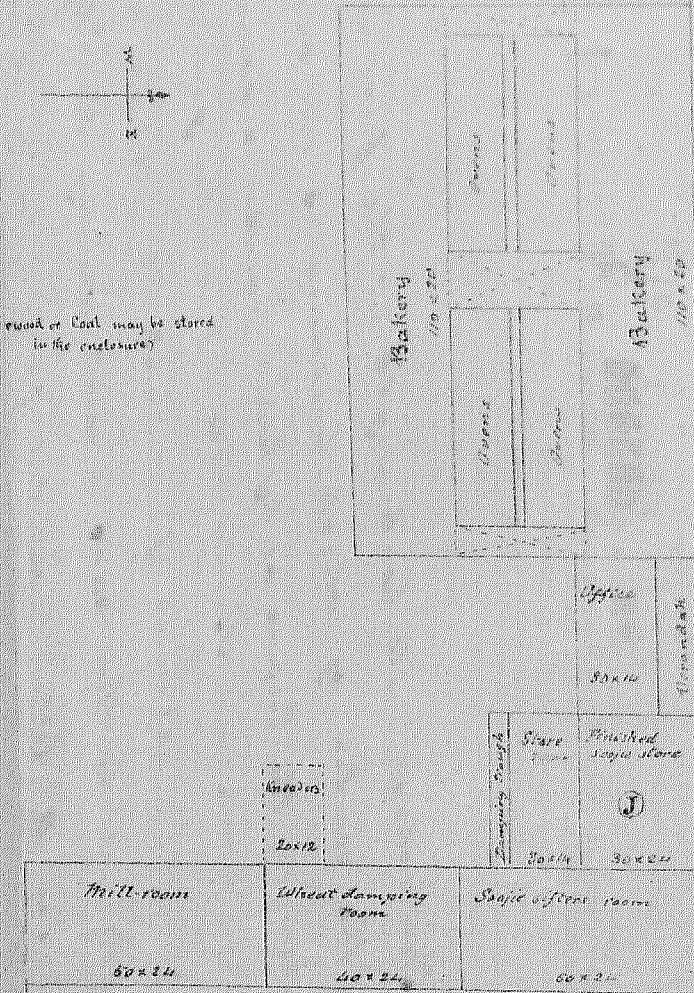
2nd Floor

Bollers by Wheat bins	Granary	Soggie cooling rooms
50 x 24	40 x 24	50 x 24

1st Floor

Wts	Tool room	Workshops	Store room
12 x 16	50 x 16	15 x 16	15 x 16

Wheat or Coal may be stored in the enclosure?



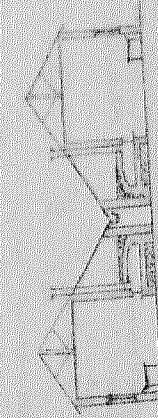
Proposed Bakery. for 3000 one-pound loaves.

in summer because the sun is so hot. The oven is so hot that it is necessary to have a cooling room for the loaves. The oven is so hot that it is necessary to have a cooling room for the loaves. The oven is so hot that it is necessary to have a cooling room for the loaves.

40. The Bakery consists of a kneading, and ovens combined - This is the usual, and I think the best system - The ovens of the ovens are on a square temperature for raising the bread & prevents it being chilled by sudden draughts - In the proposed plan, I have placed two kneading rooms and two rows of ovens back to back. This is done merely to avoid needless lengthening the face of the building, but when fewer ovens are needed, one kneading room with one row of ovens would suffice. It is in some respects a preferable arrangement.

41. These ovens are not placed under the batters, but are built outside (see section), and are covered with a corrugated iron roof to keep off the rain - Now, if built outside a bakery room requires either that the chimneys be carried up through the chimneys to a series of flues or must have a series of flues.

Section through Bakery - explain.



the roof as in breads, or must have a series of flues or must have a series of flues. The roof is so high chimney as in the case of breads, or must have a series of flues or must have a series of flues. The roof is so high chimney as in the case of breads, or must have a series of flues or must have a series of flues.

42. The kneading rooms which faces the ovens and of which except details are objectionable if they can be avoided. The kneading rooms which faces the ovens and of which except details are objectionable if they can be avoided. The kneading rooms which faces the ovens and of which except details are objectionable if they can be avoided.

Kneading room

43. The bread room should be raised the walls to a height of 12 feet. The bread room should be raised the walls to a height of 12 feet. The bread room should be raised the walls to a height of 12 feet. The bread room should be raised the walls to a height of 12 feet.

There seems never to be satisfaction of all officers, forgetting that often discipline is rigorously successful elsewhere.

Pollock is required to be more so, that is almost impossible.

The broad thoroughness, with a double refinement, of great & that is almost peculiar to our people of course, with the thinking

Pollock is regarded as one more in the line of classical thinkers.

face. I wish now to state that the time may not strike as

General Sherman
on Board

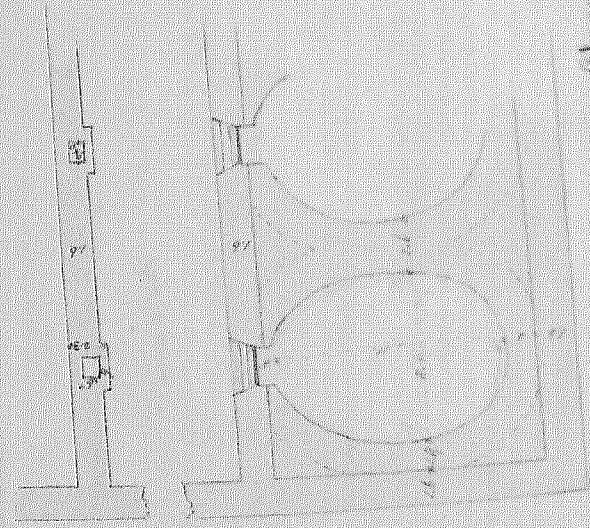
the body of the area which will not consequently be equally heated in all parts.

Ordinary
Quies.

height in all parts.

47. The ordinary bakers ovens which are found to answer well as Bakers ovens, but some of them are generally of one oval shape from 9 to 11 feet deep & from 7 to 8 feet broad. The greatest height at the crown varies from 2 feet to 4 feet & below. It is constructed in various heights of 1 foot all round from the crown, with a full height of 1 foot all round from the bottom of the oven to the springing of the arch, is found to answer best. The full Bakers ovens more of the same height but quite circular, 8 feet in diameter, and 4 feet high, he prefers them to the oval ones, but I find I was very different in results and the latter (oval shape) is I think generally the best.

which generally holds best
I plan a section of the elements, about more or less, given
The best of the same is on a dry slope, ending down on the
section from the summit to the base. This element is in the
is convenient for in this and also in a that is not over-
L. 10/1



Plan. Union of Students

Salt mined under
mine bed-

common on the coast - ranging
 the bed of the river - ranging
 in the form of a
 to be made to be made
 he liable to be made to be made
 The introduction of the river - one this should not
 The introduction of the river - one this should not

thorp & carried from the reading room to over shed & then
again carried from the shed to the bread room at the
end of the enclosure.

Moreover in carrying out this plan it seemed that it
appeared to have been in a great measure overlooked, that
Major Taylor bakery was estimated for 1500 loaves only.
which is not much. He expects of baking 3000. Instead
of having four times the size, it is really only one fourth
part larger, an increase so trifling that it is scarcely
appreciable.

No accommodation was provided for wood fuel & no
arrangements made for water either for the engine or
bakery.

53. I have been careful to point out the differences of
Major Taylor plan, however, though they are now being
remembered as far as it is possible to do so, the plan
submitted to be adopted is as a 'standard' and the
errors committed have been honestly & repeatedly pointed
out, and the various circumstances of the various
a satisfactory arrangement has been made.

Now, but more ways of saving the money, & a great deal more.
The expenditure of firewood in the ordinary steam engine
boilers is from 90 to 100 lbs. for every 100 lbs. of bread
baked. The steam furnace ^{engine} used was 60 lbs. but only 40
lbs. is baked, a much ^{smaller} expenditure of firewood.
The power of economy of fuel, these appear to
be no difference between the two sets of plans.
54. Oldmixon's plan is the general style of the
bakery which has experience seems to indicate as the
best, & more likely to succeed in carrying the plan
successfully.

55. Bread is baked, though the fact that was built,
the reason the fact that in the bakery, and was
well shown that any great bakery system is slowly
(see plan at page 26) - it has more more made - the more
as originally built, it is advanced with a "standard"
plan, estimated 191 x 14 feet - and the whole of the building

Madison Bakery
Bromfield

With letter to Govt 31

W/D

No 1661 of 1873

P. W. 2123/73.

17 May 1880 B h: 258

Discontinue all the snow would be to consider every room
in the building - suppose it to say, that according to improved
practice, the kneading room is separated from the snow
and though I know that this innovation was claimed
as one of the good points of the plan, the result has been
entirely unfavorable - the bread will not rise properly
in cold weather, and when taken from the kneading room
into the place where bread is exposed to draughts and a
rain - the more snow is too narrow & the bread rises
instead of being close to the baking is at the farther
end of the machine -

Also with want of arrangement doubtless the labour
of all concerned - the material instead of having through
the mill on a fixed system, such as that described in
para 36 of reg. has to be constantly moved from place to
place at a great expense for labour & to the detriment of
the material, the rough instead of being transferred
direct from the kneading tables into the snow falling

Widely Diffused

Disseminated
to the Public

Worth of out

Appreciated
very to good

Went to George
the Spring 1893

The Public's work

Disseminated
Went to

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