P. W. CURRENT No. 7367

30. to 35 N°-2732-W

Recd: 1-10-95

10 S.C

N°. 3064 W. dt 29th Nov 1895

B

Communicated to
officers concerned, in
Continuation of G. O. N°.
2732 W. dt 30th October
1895.

DESPATCHED
3 DEC. 95

Ch: Ex. for I. instr. ISC
C. Ex. for Dpt. instr. ISC
S. Ex. IV Circle instr. 186

Vote. Immed.
Immediate
received
in
25/11

Govt. of {1895} Madras.

REVENUE.

Issued

Recd. 25 Sept 95 *Encl.*

G.O., 2nd September 1895, No. 596.

SEPTEMBER.

North Arcot District Manual.

Approving, with remarks, the revised edition of the —, and directing the Superintendent, Government Press, to secure copyright for the present and all succeeding District Manuals.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

Read—the following letter from H. A. STUART, Esq., I.C.S., Editor of District Manuals, to the Secretary to Government, Revenue Department, dated Fort St. George, 9th April 1895, No. 674 :—

I have the honour to forward the two volumes of the new edition of the North Arcot District Manual and to request that the necessary orders may be issued to the Superintendent of the Government Press for its distribution.

2. I beg to suggest that a copy be sent to Mr. A. F. Cox, now Officiating Comptroller-General, who compiled the first edition ; and I would recommend that a similar course be taken with the new editions of all those manuals the original authors of which are still living.

Order—dated 2nd September 1895, No. 596, Revenue.

Miscellaneous.

The revised edition of the two volumes of the North Arcot District Manual, submitted by the editor with his letter read above, is generally approved by Government with the exception of the last paragraph on page 168 of Volume I, Chapter III. The statement of policy therein contained being incorrect and misleading, His Excellency the Governor in Council directs that the following erratum be issued with the first volume of the manual :—

Omit all the words after "liable to revision."

2. Orders for the distribution of the revised District Manuals have been issued to the Superintendent, Government Press, in G.O., dated 8th August 1895, No. 525.

3. The suggestion of Mr. Stuart in paragraph 2 of his letter read above is approved. The Superintendent, Government Press, will be directed to distribute, according to the annexed list, a copy of the revised manual to the original authors who are still alive.

4. Copyright for the present and all succeeding District Manuals should be secured by the Superintendent, Government Press.

(True Extract.)

Secretary to Government.

To H. A. Stuart, Esq., I.C.S.
" the Superintendent, Government Press.
" the Board of Revenue (Revenue Settlement, Land Records and Agriculture).
" the Board of Revenue (Land Revenue).
Copy to Departments of the Secretariat.
" other Heads of Departments under the Revenue Secretariat.

Exd. Shaik Karim.

300 Copies.

APPENDIX.

SUPPLEMENTAL distribution list of the Revised District Manuals to the original authors who are still alive.

District Manuals.	Original authors.	Remarks.
1. Arcot, North	A. F. Cox	Accountant-General, Bengal.
2. „ South	J. H. Garstin	Retired.
3. Bellary	John Kelsall	Do.
4. Chingleput	C. S. Crole	Member, Board of Revenue.
5. Coimbatore	F. A. Nicholson	Collector of Anantapur.
6. Kistna	Gordon Mackenzie	District Judge, Gódávari.
7. Madura	J. H. Nelson	Retired.
8. Malabar	W. Logan	Do.
9. Salem	H. LeFanu	Acting Collector of Sea Customs, Madras.
10. Tanjore	T. Venkasami Row	Retired Uncovenanted First Assistant, Revenue Secretariat.
11. Trichinopoly	Lewis Moore	District Judge, Bellary.
12. Vizagapatam	D. F. Carmichael	Retired.

P. W. CURRENT No. 7367

30. to E. No 2732 W

Recd. 1-10-95

10 S.C

No 3064 W of 29th Nov 1895

16

Communicated to officers concerned, in Continuation of G. O. No 2732 W. of 30th October 1895.

DESPATCHED
3 DEC. 95

Ch. Es. for I. with 15C

C. Es. for Rys. with 15C

S. Es. IV Circle with 15C

Govt. of {1895} Madras.

REVENUE.

Issued

Recd. 25 Sept 95 Encl.

G.O., 2nd September 1895, No. 596.

SEPTEMBER.

North Arcot District Manual.

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Govt. of {1895} Madras.

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No 3064 W of 29 Nov 1895

Communicated to officers concerned, in continuation of G.O. No 2732 W. dated 30th October 1895.

(Sd) J.P.

10.

Ch. E. for I.
C E. for Rys
S. Es. IV

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

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4. Copyright for the present and all succeeding District Manuals should be secured by the Superintendent, Government Press.

(True Extract.)

(Signed) E. GIBSON,
Secretary to Government.

To H. A. Stuart, Esq., I.C.S.
" the Superintendent, Government Press.
" the Board of Revenue (Revenue Settlement, Land Records and Agriculture).
" the Board of Revenue (Land Revenue).
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Exd. Shaik Karim.

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9. Salem	H. LeFanu	Acting Collector of Sea Customs, Madras.
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11. Trichinopoly	Lewis Moore	District Judge, Bellary.
12. Vizagapatam	D. F. Carmichael	Retired.

Govt. of {1895} Madras.

REVENUE.

Issued

Recd. Encl.

G.O., 2nd September 1895, No. 596.

SEPTEMBER.

North Arcot District Manual.

Approving, with remarks, the revised edition of the —, and directing the Superintendent, Government Press, to secure copyright for the present and all succeeding District Manuals.

No. 3064 W. of 29th Nov. 1895.

Communicated to officers concerned, in continuation of G.O. No. 2732 W. dated 30th October 1895.

(Sd) J. P.
W.

Ch. E. for I.
C. E. for Rep.
S. E. IV.

Govt. of {1895} Madras.

REVENUE.

10 S.C

Mr. C. No. 736 W/95

No. 3064 W. of 29th Nov. 1895.

Communicated to officers concerned, in continuation of G.O. No. 2732 W. dated 30th October 1895.

(Sd) J. P.
W.

Issued

Recd. Encl.

G.O., 2nd September 1895, No. 596.

SEPTEMBER.

Ch. E. for I.
C. E. for Rep.
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(True Extract.)

(Signed) E. GIBSON,
Secretary to Government.

To H. A. Stuart, Esq., I.C.S.
" the Superintendent, Government Press.
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6. Kistna	Gordon Mackenzie	District Judge, Gódávari.
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8. Malabar	W. Logan	Do.
9. Salem	H. LeFanu	Acting Collector of Sea Customs, Madras.
10. Tanjore	T. Venkasami Row	Retired Uncovenanted First Assistant, Revenue Secretariat.
11. Trichinopoly	Lewis Moore	District Judge, Bellary.
12. Vizagapatam	D. F. Carmichael	Retired.

9397

Govt. of 1895 Madras.

PUBLIC WORKS.

Read. Encl.

G.O., 29/11/ 1895. No. 3067 W.

Professional reports on works.

—

Directing the supply, to the Madras College of Engineering, of all Proceedings containing — submitted for sanction.

—

60/4

[G. 15]

P. W. CURRENT No. 9397

Govt. of {189} Madras.

Recd 27.11.95

To

The Public Works Dept.

Proceedings, dated 22d November 1895,
No. 899.

Subject.

Stating that the request of the Principal, College of Engineering, to be supplied with certain Govt relating to water-supply schemes and with Proc: containing professional reports of Engineering nature, will be considered in the L & M. Dept & in the PW Dept

C.E. for I
C.E. for II
E.E. for Rys
Educational Dept
Educational Dept
If C.E. is to
say

DESPATCHED
9 DEC. 95

90-2-93.

Order:- dy 22d November 1895, No 899.

The request of the Principal, College of Engineering will be considered in the Local and Municipal, and the Public Works, departments.

/True Extract/

Francis

Ag: Undersecretary
for Chief Secretary.

To

The Director of Public Instruction
" Local & Municipal Dept
" Public Works Dept ✓

BLG

[G. 53]
3,000—15-8-95.

Educational Department.

CHIEF SECRETARIAT. MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following ~~paper~~ :—

Endorsement of the Director of Public Instruction, Madras, dy 15th November 1895, No 12,319, on the following letter from the Principal, College of Engineering, Madras, dy 11th November 1895, No 256/S.

× × ×

2. I have also the honour to request that Government may be moved to supply this College in future with all Proceedings containing professional reports on works submitted for sanction, in the following Departments and Branches.

Public Works Department Roads & Railways Branch.
——"—— Do —— Irrigation Branch
—— Do —— Railway ——"——
Sanitary Engineer's Department.

Order:-

GENERAL.
ESTABLISHMENT.

Govt. of {1895} Madras

PUBLIC WORKS.

Dated November, 29th.

Read. *Encl.*

G.O. No. 3067 W., 29th Nov. 1895.

NOVEMBER.

Professional Reports on Works

Directing the supply to the Madras College of Engineering of all Proceedings containing — submitted for sanction.

No. 3067 W., 29TH NOVEMBER 1895.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

READ—the following paper :—

G.O. No. 899, Educational, dated 22nd November 1895.

Read—the following papers :—

From the Principal, College of Engineering, Madras, dated 11th November 1895, No. 256 S. :—

* * * * *

2. I have also the honour to request that Government may be moved to supply this College in future with all Proceedings containing professional reports on works submitted for sanction in the following departments and branches :—

Public Works Department, Roads and ~~Railways~~ Buildings Branch.
Do. Irrigation Branch.
Do. Railway ,,
Sanitary Engineer's Department.

Endorsement of the Director of Public Instruction, Madras, dated 15th November 1895, No. 12319.

Order—No. 899, Educational, dated 22nd November 1895.

The request of the Principal, College of Engineering, will be considered in the Local and Municipal, and the Public Works Departments.

(True Extract.)

(Signed) W. FRANCIS,
for Chief Secretary.

ORDER—No. 3067 W., dated 29th November 1895.

Ordered accordingly.

(True Extract.)

Under Secy. to Govt., P.W.D.

To the Chief Engineer for Irrigation.
,, Consulting Engineer for Railways.
,, Educational Department.

Exd. T.K. Narayana Aiyangar.
Spare Copies

C.F. 72.

[G. 16]

P. W. CURRENT No. 9324

Govt. of {189} Madras.

13.12.94 No 31994
2.6.94 : 1370 W
19.2.94 : 462 W Recd: 26.11.95

Encl: 6+
(+2 plans)

To

The Public Works Dept

No. 3669 W/95 29 Nov 1895

B

Proceedings, dated 19 Nov 1895,
No. 953

Subject.

Remarking on the proposed alterations and additions to the Lying-in-Hospital Madras, + requesting the Consulting architect to submit a revised plan + Estimate.

Communicated, and the enclos. returned to the Consg. Architect who will submit a revised plan + estimate accordingly.

2. The Consg. Archt. will report on the point mentioned in para 2 of the order in the Public Dept.

27/11

Cases 27/11/95

I & B Comm

DESPATCHED
2 DEC. 95

C.A. to Govt
with 6 enclosures.

1,000—20-2-93.

and estimate accordingly.

2. The attention of the Chief Engineer, Public Works Department will be invited to the apparently excessive depth of foundation provided in the plan and estimate.

/True Extract/

W W Phillips
Ag: asstt Secretary
for Chief Secretary.

To

The Public Works Deptt (with plan & estimate) &
the Surgeon General.

[G. 53]
3,000—15-8-95.

Public Department.

CHIEF SECRETARIAT. MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following paper:—

From the Surgeon General, Madras. dy 18th October 1895, No. 439, explaining the necessity for the proposed alterations and additions to the Lying-in-Hospital, Madras.

—

Order:- dy 19th November 1895, No. 955.

After personal inspection, in company with the Superintendent, Lying-in Hospital, the Government is of opinion that the existing covered ways shut in the new rooms at either end of the Central block far too much. The alterations proposed by the consulting Architect will not, however, prove sufficiently remedial. The covered ways which run out from the Central block in a South easterly direction towards the entrance gate-way should be removed* altogether and rebuilt parallel* to their existing position. The consulting Architect will be requested to submit a revised plan and

* as noted in red ink on the plan (on tracing cloth) which will be returned to the Public Works Dept.
* as shown by dotted red lines on the plan.

ley the 1st April from the grant which will be provided for it in the Budget of 1895-96, and for completing it within the year.

Should funds become available earlier, of which however there is at present no prospect, an allotment will be made during the current official year.

CMB 7/12 10/12/94

No. 1/

Additions to the Lying-in Hospital, Madras- Commencement of the work

(To The Honorable the Chief Secretary for favor of counter initials)

No. 3199 W dy 13 Dec 1894

DESPATCHED 14 DEC. 94

The Consg: Architect
" Public Department.

B

PUBLIC WORKS DEPARTMENT.

No. 3199 W. dt 13th December 1894.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

Endorsement in the Public Department on letter from the Surgeon-General with the Government of Madras, No. 74/3 dated 26th November 1894.

(H & No. 2392 of 1st Dec. 1894)

There are no funds at present available with Government in the P.W. Department; but there seems no reason why the commencement of the work should be deferred till June 1895, as anticipated by the Superintendent of the Lying-in-Hospital. The Consulting Architect will make preliminary arrangements to admit of the work being started by

W
12 Dec

(40—1,000—21-4-94.)

Public (1894) DEPARTMENT.

CURRENT No. 9177

From

SURGN. MAJOR-GENL. C. SIBTHORPE, F.R.C.P.I.,

SURGEON-GENERAL WITH THE

GOVERNMENT OF MADRAS,

Madras,

To

No. 74/3

Rec'd: 3-12-94

ENCLOSURES. 1

Dated 26 } November 1894.

Recd 28th

Reply 28th.

CHIEF SECRETARY'S OFFICE
No.
28. NOV. 1894
GOVERNMENT OF MADRAS

Subject.

Recommends to allot necessary funds and issue orders with a view to the additions to the Central Block of the Lying-in-Hospl being commenced at an early date.

Transferred

13 S. G.—500—18-4-94.

Pubs/ 4460 dt 19-6-94 Mis
2.6.94 No 1370 dt 20.5.93 No 1376 dt
19.2.94 " 462 dt 13.3.93 " 690 dt
13.7.93 " 1832 dt

Endt
No 2392 dt 1-12-94

Transferred to the Public Works Dept

Lt Richshee
Chief Secretary

J. B. B.
29/11

3468

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,

No. Jour 4/3
Encl. 1

Vellore ~~Madras,~~ 26th November 1894

From

SURGEON MAJOR-GENERAL C. SIBTHORPE, F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,
~~Madras,~~

To

THE Honble the Chief Secy to Government
Public Department.

SIR,

With reference to G.O. No: 1370 P.W. dated the 2d June 1894 — Communicated to me with Public Deptt G.O. No: 446 dated the 19 idem, I have the honor to forward the accompanying Copy of a letter from the Superintendent Lying-in-Hospital Madras, requesting that funds be allotted with a view to the additions to the Central Block being Commenced at an early date.

2/ I quite agree with the Superintendent that there will be a Considerable falling off in the number of labour cases should the work be delayed until the busy time of the Hospital which Commences from June.

3/ I therefore strongly Recommend that Government will see

pointed out very urgently needed, and this year the one European delivery Ward has several times been overcrowded. If work is delayed until our busy time, I am afraid there may be a Considerable falling off in the number of labour Cases.

I have &c
(Sd) A. J. Stevenson.
Surg: Major
Offg Supdt Lying in Hospl.

(True Copy)

C Sibthorpe
Surgeon Maj: Genl
Surgeon General
with the Govt of Madras.

Ll

Dlg. 1
917/94

1894.
Pub. Dept.
Enclos. No. 1
To
3468

No: 611 Govt Lying-in-Hospital
Madras 16th November 1895.

From

Surgeon Major A. J. Stevenson
Offg Superintendent
Government Lying-in-Hospl
Madras.

To

The Secretary to the Surgeon General
with the Govt of Madras
Rangoon.

Sir,

With reference to G.O. of 2nd June 1894 No: 1370 W. Public Works, I have the honor to request that the Surgeon General will be pleased to move Government to allot a certain amount of money in order that the additions to the Central Block may be Commenced in January next.

2/ Work is generally Commenced by the Public Works Department about June, and as from June to October is our busiest time of year, and from January to May our slackest, my application for an early Commencement of work is well founded.

3/ Additions to the Native delivery wards are as Surgeon Lt. Col Branfoot pointed [illegible]

Govt. of {1895} Madras.

Educational Department.

4-11-95 P-3291 C
6-10-95 2998 "
21-9-95 2806 "
6-8-95 1979 "
30-5-95 1292 "
Rect: 26.11.95

To

The P.W. dept

Proceedings, dated 21 Nov 1895.
R No. 215

No 3070 Wg 29th Nov 1895
B

Communicated to the Supt Engr I Circle with reference to his letter No 730 E. dated 23 Octr 1895.

Copy 26/11/95

Sanctioning the exemption from the Examination Rules of N. Papa Rau
from the 21st August 1895,
to the 31st December 1895.

W. CURRENT No. 9347

DESPATCHED
29 NOV 95

S.E. I Circle
Do. I Circle
Engr P.W.D.

[E / 4]
500—25-1-95.

Educational Department.

CHIEF SECRETARIAT, MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following paper:—

From the Public Works Department dated 21st. September 1895 and 4th. Nov.—
1895, Nos. 2806 C. and 3291 C. respectively.

ORDER dated the 21st. November 1895, R. No. 215.

The exemption from the Examination Rules of N. Papa Rau
Temporary clerk, Public Works Dept. from the 31st. August 1895
to the 31st. December 1895 is sanctioned.

~~(True extract)~~

(True Extract.)

H Francis
Ag. Under Secretary,
for *Chief Secretary.*

To

The Public Works Department.

Govt. of { 189 } Madras.

Local and Municipal Department.

19.10.95 N° 3020C
9.7.95 - 2245C
28.8.95 - 2145C
Ins: 185 C dy 2.4.96
Recd: 26.11.95

To

The Public Works Department

No. 3071 Wdy 29th Nov. 1895

Communicated to the Supty. Engr. IV Circle, with reference to his letter No. 376 W of 31st October 1895

27/11

Proceedings, dated 21st November 1895,
No. 1927 M. Mis.

Subject.

Fort Glacis

Informing the Munl. Council, Vellore, with remarks, that they cannot be permitted to erect any buildings on the —— nor make any excavations thereon.

3021C

Copies 26/11/95

RECEIVED
29 NOV. 95

Copy to S. E. IV Circle.
S. E. IV Circle

500—6-11-95

Local and Municipal Department.

CHIEF SECRETARIAT MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following paper:—

From the Public Works Department, dated 19"October 1895, No.3020 C., transferring letter from the Superintending Engineer, 4"Circle, forwarding for perusal certain correspondence regarding the Glacis of the Vellore Fort taken over by the Public Works Department and requesting Orders prohibiting the Municipality from erecting any structures thereon.

ORDER,No.1927 M. Mis., dated 21st.November 1895.

The Municipal Council, Vellore, will be informed that, although there are no objections to their having charge of the Fort Glacis for purposes of public health and recreation, they can -not be permitted to erect any buildings thereon, nor to make any excavations. Their assumption that they have any rights in the Glacis is incorrect as it neither forms part of a street nor has it been vested in them under the provisions of Act IV of 1884 or any other previous enactment.

(True Extract)

W. W. Thelap

Ag. Asstt. Secretary,

for Chief Secretary.

To

Govt. of {1895} Madras.

JUDICIAL.

Issued

Recd. 11.11.95 *Encl.*

OW 9134/95

G.O., No. 2334, 14th Nov. 1895.

NOVEMBER.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.

No 3073 W d/29 Nov 1895.

Comm.r the

S.E. I Circle for

information & guidance.

C.I.P.

5.E1.

subjected to bacteriological analysis by Mr. Hankin, and the Sanitary Commissioner informs me that it was "rich in common microbes." I accordingly resubmit the enclosures to my letter last named.

13. The cost of other recommendations made by Dr. King is uncertain, but would probably not be very great. The convicts would have to be moved into camp for a time during the disinfection of the wards. The new camping ground, acquisition of which was recently sanctioned by Government, was handed over to the jail on the first instant.

14. If the Government considers that the objections to Párvatípuram which are stated in paragraph 9 *supra* are so strong as to render it undesirable at present to spend more money on that site, while it would be unwise to add extra buildings to the Vizagapatam District Jail until the suitability of the climate to hill-men is assured, there is a middle course which may be adopted. As has been recently done at Cuddapah, the Párvatípuram jail may be temporarily and tentatively closed. There is at present sufficient room in the Vizagapatam jail for the hill-convicts as well as for the prisoners ordinarily received there. There is, moreover, accommodation in the Rajahmundry Central Jail which is now only a few hours by rail from Vizagapatam for at least 300 prisoners more than are at present received there. In the event of scarcity arising and of the number of admissions increasing, the Párvatípuram jail could be at once re-occupied, while its temporary abandonment would enable a practical test to be applied to the suitability of the Vizagapatam jail to hill-men. Meantime the dysenteric germ on the Párvatípuram site would have time to die out.

15. This is the solution of the question which appears to me to have most to recommend it. Further expenditure on the buildings at Párvatípuram would be saved, and if later it was decided permanently to abandon the place, and to add to the Vizagapatam jail, the cost of such additions would not be much, if at all, greater than the work which as yet to be done at Párvatípuram.

16. The issue of early orders deciding the future of the Párvatípuram jail is in any case desirable, and I shall be glad if they can be communicated by wire. If it is resolved to adhere to Párvatípuram the plans and estimates amounting to Rs. 40,900 which are referred to in paragraph 11 *supra* will then be at once submitted for approval and early provision of funds. The Public Works Department should also be desired to prepare a further estimate for providing those blocks at present without it, with an impervious cement flooring, as recommended in paragraph 38 (2) of the Sanitary Commissioner's letter, and for constructing drains throughout the jail. I request also that the sanction asked for in my letter No. 5402, dated 5th September, may be accorded. If, on the other hand, it is resolved temporarily or permanently to evacuate the Párvatípuram jail, orders to stop further expenditure on the works there should be communicated by telegram. The sickly season being now nearly over, there is no immediate urgency regarding the removal of prisoners from Párvatípuram, and all details connected with this matter can be settled later. I may add that as most of the prisoners received at Párvatípuram come from Koraput, and necessarily descend the Pottinghi ghât to Salur, they could as easily be marched to Vizianagram (about 30 miles) whence the East Coast Railway takes two hours to Vizagapatam, as to Párvatípuram which is about 25 miles from Salur.

Enclosure.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government (through the Inspector-General of Prisons), dated 7th October 1895, No. 1749-S.

With reference to G.O., No. 1165, dated 29th May 1895, Judicial, paragraph 10, I have the honour to forward herewith a report on the subject of the Párvatípuram jails. As the Inspector-General of Prisons informs me that the epidemic is still present, to save time I forward it through him.

2. I inspected the jail at the end of July last. Delay was caused by the bottles of water sent to the Chemical Examiner having been smashed *en route*, and a second sample had therefore to be supplied. It was then so late in August that I determined to secure the statistics for that month. Certain other information required did not reach me till the 23rd September. I was not aware that the sickness was still continuing, as my office is not supplied with returns from the Párvatípuram jail.

3. It having been recently suggested to the Inspector-General of Prisons that the disease suffered from is beri-beri, I would state that, whilst the conditions present would certainly be such as to favour the occurrence of this disease, neither by inspection of the prisoners nor *post mortem* statements was there anything to lead me to believe that, if it existed at all, it had anything to do with the sickness under investigation.

Memorandum on the sanitary condition of the Párvatipuram Hill Jail.

Former conditions.—The Inspector-General of Prisons having in his letter, No. 3805, dated 1st July 1895, informed me that epidemic dysentery had again appeared in the Párvatípuram jail, I undertook the inspection of this jail earlier than desired by G.O., No. 1165, Judicial, dated 29th May 1895, paragraph 10, with the object of examining conditions as they existed during the prevalence of the sickness, as, indeed, was suggested to me by the Inspector-General of Prisons. I inspected the jail and prisoners on the 25th and 26th July 1895.

2. The following statement shows the mortality from all causes and from dysentery and diarrhœa in this jail since 1886. The latter should have been exhibited separately, but time does not permit a reference to the jail on this point:—

	Death-rate from all causes.	Death-rate from dysentery and diarrhœa.
1886	50·24	21·53
1887	110·76	24·61
1888	115·80	36·57
1889	81·26	30·47
1890	59·14	24·64
1891	53·06	21·22
1892	24·48	19·57
1893	17·55	17·55
1894	125·88	93·24
1895 up to September	85·36	45·19

3. From the above statement it will be seen that neither in regard to general mortality nor to the special disease of epidemic dysentery is the condition of affairs brought to light in the Government Order referred to a new matter.

4. The first point demanding attention seemed to me to be the ascertaining whether the disease suffered from was really the specific disease of dysentery or other affection of the intestines. A perusal of the *post mortem* records left no manner of doubt that the diagnosis made by the medical officer was correct. Moreover, there was no doubt that in the year 1894 the disease had assumed the scorbutic type in many cases. Records for 1895 showed that this complication had disappeared, and that the ordinary, but a severe, type of epidemic dysentery remained.

5. In 1894, the District Sanitary officer, Vizagapatam, and the Inspector-General of Prisons had made inquiries and had effected improvements in the general hygienic condition of the prisoners. Several faulty details as to diet were remedied on the suggestion of the District Sanitary officer, and, in recognition of the scorbutic condition of many of the prisoners, lime pickle was issued, and special attention was paid to the nature of the vegetables forming part of the diet. Particular stress was laid upon the indubitable over-crowding of prisoners in the jail and the imperfect perflation brought about by reckless erection of sheds within the jail walls.

6. *Present condition.*—To care as to diet it is but reasonable to attribute the alterations of the type of dysentery observed; the full influence of better perflation had not yet been secured at time of inspection as the main wall had not yet been completed, but the obstructing buildings within the compound had been removed. Moreover, the population of the jail has been maintained within the prescribed limits, so that in the matter of improvement of diet and over-crowding—subject to the above remarks—it may be granted that prisoners were under almost as good conditions as the remedying of these serious defects would bring about.

7. The following table exhibits the result of examination of the prisoners as to existence of "sponginess of the gums" confined at the time my inspection, classified according to length of residence in jail:—

Whence transferred to jail.		Length of residence in jail.					
Hill tracts (above ghâts).	Low country (below ghâts).	Under one month.	Above one and under two months.	Above two and under three months.	Above three and under four months.	Above four and under five months.	Five months.
16	9	10	5	6	1	2	1

8. In addition to the above, 44 or 20·4 per cent. of the total jail strength suffered from atrophy and retraction of the gums, 11 or 5·1 per cent. also suffered from various grades of anæmia, and 14 or 6·5 per cent. from enlargement of the spleen.

9. The above statement goes to show that 32 per cent. of the prisoners had suffered or were suffering from a condition that would ordinarily be recognized as land scurvy, the spongy gums representing an acute stage of the disease, the retracted and atrophied gums without concomitant bleeding or ulceration proving that the disease had been undergone, but that the patient was convalescent.

10. *State of diet.*—As already stated, such errors in the hygiene of diet as existed were remedied under Surgeon-Lieutenant-Colonel Leapingwell's advice. The diet on inspection by me was of excellent quality, with one exception. Further, the Inspector-General, after careful examination of the figures as to weighments, has expressed the opinion that no "fudging" of the figures had been practised, and that there was consequently no reason to think that deficient diet was a factor. The following figures bear out this statement:—

Months.	Net result of weighment.		Months.	Net result of weighment.	
	Gain.	Loss.		Gain.	Loss.
January 1895	3·54	..	May 1895	3·96	..
February ,, ...	4·14	..	June ,, ...	2·78	..
March ,, ...	4·96	..	July ,, ...	2·65	..
April ,, ...	4·85	..	August ,, ...	3·05	..

11. The exception to which I allude was the state of the ragi flour. It was found stored in kerosine tins and possessed a *very strong* acetous odour. On my pointing this out to the Superintendent, he met with arguments that are not without weight. I believe, as he urged, that natives in certain parts of the country prefer their ragi-pudding in a state of some acidity. It can well be conceived that there is a stage in the advance towards fermentation where the changes in the starch would be such as to favour digestion, but I should regard the fixing of such a stage as a refinement in chemical research. Whilst admitting this much, I consider the acetous state in which the flour was found not safe, and that it would be liable to produce catarrhal affections of the intestine. I pointed out the remedy to the Superintendent, namely, not confining the flour after grinding, but permitting free air access by spreading it out and securing dryness as quickly as possible. In this matter the method followed at Coimbatore is commendable where, although the practice is to wash the ragi entire, the whole is placed on a cement surface permitting of quick and thorough drying in the sun after washing. This is a matter, however, I do not think need be regarded as an important factor in the case, in view of the result of examination of weighments, otherwise than as affording pre-disposition of the intestinal tract to infection.

12. Taking the above facts into consideration, together with the statement of period of confinement in table No. 2, it is evident that far from the period of confinement in jail having a deleterious effect, the opposite is the result; consequently, the conclusion must be arrived at that the state of land scurvy is more or less the normal condition of the prisoners when admitted. Clear evidence was obtained on this point by my subsequent inspection of direct committals to the Vizagapatam jail of the same class of hill-men with the difference, as I shall show further on, that improvement in Vizagapatam jail is far more rapid than in Párvatípuram. That otherwise than in a period of famine, a body of men should be received in this condition is certainly startling; but evidence from old reports at Párvatípuram show that this is a normal condition of a large portion of the hill-men received. For confirmation it would, however, be necessary to prove that the hill-men do suffer from this condition before admission. On this point no evidence is available and I cannot further delay this report with regard to this important point. Evidence must be gathered slowly and carefully and this shall be attended to. In the meantime, I have gathered

The condition of prisoners on admission.

evidence as to the diet used by the poor classes of the hill-men, but this has been rendered in a form that would prevent positive assertion being made by me. So far as I can judge there would, notwithstanding the use of meat at intervals, be a tendency to lack of albumenoids and of vegetable salts-roots taking the place of succulent vegetables. I may here state that I am by no means a believer in land scurvy being so much due to the absence of vegetable diet as it is usually assumed. The defect of the supply of vegetable salts usually exists, but coincident with this my experience with natives would go to show a lack of sufficient, or easily assimilable, albumenoids in the diet—a condition that would be aggravated in this case by exposure to malaria. There are no available statistics as to the death-rate of these hill-men, and but little can be procured as to their health state from hospitals situated in their midst. *The fact remains however that a large proportion of the hill-men received both at the Párvatipuram jail and Vizagapatam jail are subject to the condition named.* Certain records show that during their transfer from the hills in former days the prisoners were subjected to evil hygienic conditions, but these matters have been attended to.

13. There is evidence therefore to show that the prisoners from the hill tracts are received to a considerable extent in a state of health pointing to the *probability* that their diet, although sufficient as to bulk, for some reason as yet not correctly ascertained, is erroneous as to constituents. This condition of health is one which would predispose to affections of the intestinal tract.

14. The following statement shows that there was no special preference for attacks in blocks—nor according to occupation—though there was protection by prolonged residence, showing that susceptibility diminished as time of residence advanced, as a result of improvement of health. The value of this statement throughout is less than I would wish, as the proportion to the population under each head is not stated. As to the influence of residence in special blocks also the statement is not, as remarked further on, of much value as no roster as to residence was maintained. The statement simply shows the block in which the convicts lived on the day of applying for treatment.

Statement showing blocks from which dysentery cases were admitted during outbreak of 1894–95, with occupation, residence and length of residence in jail of the prisoners.

Blocks.							Occupation.						
1	2	3	4	I sheds.	W sheds.	Hospital.	Ragi grinding.	Garden.	Water gang.	Cooks.	Weavers.	Blacksmiths.	Toty gang.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
						1894.							
3	6	4	4	3	4	..	4	5	3	2	1	1	2
						1895.							
2	3	3	3	..	..	1	1	1	4	..	1	..	..

Occupation—*cont.*					Hill or low country.		Residence in jail.						
Coir picking.	Water drawers.	Building gang.	In hospital.	Invalid gang.	Hill.	Low country.	Under one month.	One to three months.	Three to six months.	Six months to one year.	One to two years.	Two to three years.	Above three years.
15	16	17	18	19	20	21	22	23	24	25	26	27	28
							1894.						
2	1	1	..	2	19	6	8	10	7	..	..	..	..
							1895.						
2	..	..	1	2	8	4	5	4	2	1	..	..	..

15. Before discussing the why and wherefore of this prevalence of dysentery, it is necessary to bear in mind that dysentery and diarrhœa, which are commonly classed together in the lay mind, are two different things, and that the former is an infectious disease in the sense that cholera or typhoid fever is; that is, it is conveyable by the bowel excretions, and is produced by a living organism as to the identity of which, as usual, there is some doubt but is generally granted to be an amœba. Once this special organism be introduced, there is reason to believe that it is not readily destroyed, and that its infective powers are maintained under certain favouring conditions.

The nature of epidemic dysentery.

16. There had in 1894 and former years existed over-crowding in the wards, and dysentery was present. Dysenteric motions must have been frequently passed in the wards before application for treatment was made.

The evidence of prior infection.

17. Even if segregation of such cases were practised, in consideration of native habits, the contamination of the blankets and of the pyals in which they sleep would have been inevitable. These blankets were ascertained not to be retained with individual prisoners; so that were a blanket infected it might be handed to seven men in a week. The blankets inspected were patched with old fragments of others and were frequently little better than a heap of rags. In addition the prisoners were provided with cumbly jackets for wear during the cold weather. It was ascertained that when they went out in the rain, these jackets were worn and no care was taken to see that they were substituted by dry clothing. Thus, granting men were subjected to mere drizzles at intervals, infectivity of disease-bearing particles would be maintained, irrespective of the influence of cold and damp in bringing about a favouring condition of catarrh of the intestine. Again, the floors of the building with two exceptions are earthen, as also the pyals on which the prisoners lie. In the corner of the wards upon the level of the floor were placed the arrangements for night conservancy. This consisted of wooden tubs—an objectionably porous substance to employ for this purpose. *No special surface was prepared, and droppings and washings* from the ablutions of prisoners soaked the floor at this spot. In this connection I may state that it is impossible to differentiate the result of the floors of two of the wards being now covered with concrete, as there was no way of proving in which division of the blocks the prisoners slept on nights. Such conditions would, of course, favour the retention of vitality of the infective agent.

Favouring conditions for retention of vitality of infections agent.

18. The soil of the site is of red gravel and porous. There is reason to believe that it was long occupied as a fort prior to its use as a jail. Such occupation would certainly not favour the freedom from organic impurity of the soil, or from importation of infective organisms. *It is a well recognised fact that wards of hospitals and buildings such as barracks, where dysentery has prevailed for a long period, do not readily get free from contamination.*

The sanitary features of the locality.

19. The most striking feature of the locality is the great range of fluctuation of the sub-soil water. When at its highest level for the year, the water in the garden-well and in a well immediately outside the jail stands at about 3 feet from the surface, whilst the highest level of the water in the drinking-well is 13 feet and the greatest fall 29 feet This special well from which drinking water is obtained is made upon the most erroneous principles it is possible to conceive. It consists of alternate bands of masonry with dry brick intervals so that in receiving water from a distance, it would reach the interior of the well at as near the level at which it arrives as consistent with the existence of bands of 3 feet of masonry—this even being pervious. The base of the cone of this well may be said to extend 2,560 feet, being 160 times the multiple of its range of depression. In examining the area of this cone, I found that a space of 52,926 square feet had been for many years used as a night-soil depôt for the permanent deposit of night-soil. When this was commenced I could not ascertain, but its use was stopped by Colonel Porteous after an enquiry as to the state of health of the prisoners—*vide* G.O., No. 526, Judicial, dated 20th March 1890. This night-soil trenching ground is but 85 yards from the well. Considering the length of time that has elapsed since these pits were abandoned, it would seem to follow, as a matter of course, that the contents should now be fully decomposed. It, however, was found on attempting to dig the foundation of the walls of the new hospital building that imperfectly changed night-soil was present. At my request the Superintendent dug pits in this area, with the result of exposing matter that was still recognizable as fœcal in considerable amount. There was thus, prior to 1890, a mass of night-soil within a pervious sub-soil and within the drainage cone of the well, which observation in July 1895 shows is still but imperfectly changed. Whether or not this condition of affairs did affect the purity of the well supply can luckily be settled by an appeal to the chemical analyses constantly maintained. Records on this point are available from 1890 as shown below:—

—	Párvatí-puram jail well reported on 20th January 1890.	Párvatí-puram jail water reported on 26th February 1891.	Filtered water from Párvatí-puram hill jail well reported on 23rd February 1892.	Drinking water from Párvatí-puram hill jail well reported on 16th February 1893.	Párvatí-puram jail drinking water well reported on 10th April 1894.	Filtered drinking water, Párvatípuram, reported on 17th May 1895.	Unfiltered drinking water, Párvatípuram reported o 17th May 1895.	The hill jail, Párvatípuram, 17th August 1895.
1	2	3	4	5	6	7	8	9
Total solids, grms. per litre.	0·370	0·470	0·320	0·370	0·305	0·330	0·340	0·380
Volatile solids, grms. per litre	0·160	0·150	0·150	0·170	0·115	0·140	0·140	0·100
Chlorine solids, grms. per litre	0·041	0·046	0·039	0·041	0·031	0·031	0·031	0·042
Total hardness, Clark's scale.	7°·700	9°·100	4°·900	4°·200	3°·150	4°·550	4°·550	5°·950
Permanent hardness, Clark's scale	2°·450	5°·250	4°·900	3°·500	3°·150	2°·100	2°·100	2°·450
Free ammonia, mlgrms. per litre	0·080	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.
Albumenoid ammonia, mlgrms. per litre ..	0·040	0·040	Trace.	Trace.	0·144	0·040	0·048	0·048
Nitric acid, mlgrms. per litre (as ammonia)	21·000	22·500	18·750	15·000	13·500	6·900	7·500	10 800
Apparent quality of the water as inferred from the results obtained on examination	..	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.

Remarks—(1) Sediment contains large amount of vegetable debris. The amount of free ammonia is higher than the prescribed limit of safety; this, coupled with the fact that the amount of chlorine is very close to the outside limit of safety, I hesitate to pronounce the water to be free from suspicion of contamination by organic matter.

(2) The catchment area should be carefully guarded, nitric acid being very high.

(3) The amount of nitric acid present seems to point to some old contamination and it is recommended that the well be thoroughly cleaned.

20. Holding in mind the fact that the night-soil trenching was stopped in December 1889, I think there can be no manner of doubt that the chemical analyses show that year by year the amount of nitric acid due to the fœcal matter *filtering* through the soil and becoming changed into nitrates, had decreased in proportion to the change effected in a mass no longer added to.

21. I would here point out that the Chemical Examiner's warning as to danger in 1890, 1891 and 1892 led only to the cleaning of the well—not to an exploration of the area included in the drainage cone of the well.

22. I need hardly say that, granting the fœcal matter contained the specific agent of dysentery, its conveyance through a porous sub-soil to a distance of 85 yards from so large an area of fœcal covered ground may be regarded as practically certain. Taking the average population of 1886 to 1889 at 155 per diem, there would have been deposited here 189·4 tons of urine and 56·8 tons of fœces at the rate of 12 oz. per male Hindu adult per diem.

23. But the use of the well being constant, it is evident from statement No. 1 that there were intervals of *comparative* freedom from the disease in the jail. If diagram No. 3 be regarded, it will be seen that these periods corresponded with seasons of presumably low water levels due to deficient rainfall. It may, however, be contended that the period of rainfall and the outbreak of dysentery do not exactly coincide. This may be fairly ascribed to the fact that the sub-soil water rise would occur at an interval of some weeks after the setting in of the monsoon. Thus within six weeks of the opening of the south-west monsoon in June (diagram No. 2) the drinking water-well is said to rise 12 feet and reach its maximum of 13 feet from the surface in the month of August. It must be remembered it is not necessary in such an argument to require that the rate of attacks should be proportionate to the rainfall—as numerous factors would operate in determining numbers; it is sufficient to show that the starting of the epidemics had a relation to the monsoon and the fluctuation of the water level. Taking these facts into consideration, and that the dampness of the superficial soil would favour the influence of previous defilement of the soil, I think there is every reason to conclude that the incidence of the monsoon rainfall and the subsequent rise of the sub-soil water were coincident with the periods of the epidemics.

24. Here it must be remembered that the sub-soil water level or at least a line of moist earth would in all probability be between 3 feet and 13 feet—the water level of the outside well and of the inside well respectively of the earthen floors—forming the wards, and that the condition referred to above as to conservancy ensured contamination of the flooring—*vide* diagram No. 4.

25. It is necessary for me to add that the wards have no basement, and if anything are below the general surface of the ground, and that only one-half of two blocks has recently had concrete floors.

26. I have thus far attempted to trace a possible relation between damp sub-soil, infected floors and buildings, and the retention of infection. As to the actual mode of entrance to the system, irrespective of entrance of infected particles from blankets and hands, I may remark in reference to a theory lately promulgated by Dr. Manson that Párvatípuram is infested in a marked manner with musquitoes.

27. That the causative agent could have also been water-borne is, I think, sufficiently demonstrated in paragraph 22. With reference to diagram No. 3, bearing in mind the fact that the analyses show a steady decline of the degree of contamination of the wells from year to year, and granting a decline *pari passu*, with diminished rainfall, of dysentery in 1889, 1890 and 1891 and a slight fluctuation in 1892, 1893, how is the intense condition of 1894, 1895 up to date, to be accounted for, with comparatively no great contrast, when compared with former years, as to rainfall? I ascribe this fact to a change in the configuration and under drainage of the soil.

28. I cannot ascertain the date further than it was in the first period of tenure of office by Colonel Porteous, that he directed a ditch to be dug round the jail for the purpose of preventing escapes. This ditch during 1892, 1893, was gradually filled up. It formed the limit of the patch of the night-soil depôt on one side. The filling in of this trench seems to me to have acted injuriously in not preventing, at the very period when, on account of the bad structure of alternate bands of the well it was most important, a free exit of the ground water otherwise than towards the drinking-water well. This state of affairs is illustrated by the accompanying diagram No. 4.

29. But, during the continuance of the epidemic, the superintendent boiled the water, and hence it may be assumed that this factor may be put aside. But, when the quantity of boiled water is taken into account, it is at once seen that this was an inefficient protection, and one which indeed simply served to withdraw attention from desirable directions. No extra wood was employed; yet six pots or 53 gallons per day [subsequently stated to be ten pots] were supposed to be boiled for the use of men, or an average of ·24 gallon per man. This would certainly not have sufficed *fully* for drinking purposes. It is further worth remembering that the amount of wood allowed in jails is not one atom too much for cooking purposes, and that even this amount of water would require 47 pounds of wood. In any case, any consideration of the efficacy of the boiling water may be fairly neglected, in consideration of the following circumstances.

30. I found it was the custom to draw water from the well, and store it in the bathing cistern. In my view, a prisoner drew water for the cleaning of his hands, &c., and deliberately drank some of it. It goes without saying that unless the prisoners had a very conscientious belief in the efficacy of boiled water, they would not go up to the office where the water was stored in a chatty, *so long as this source was open to them.* Further, on examining the wards at night time, I found that the drinking water was kept without a cover within the wards, and that a solitary earthen lotha was kept for general use; therefore, should a prisoner wish to drink at night time, he dipped hands that may, a moment before, have been in contact with infective matter into the water.

31. Full proof that the dysentery was, amongst the other modes suggested, water-borne can only be inferred from the chemical analysis. I forwarded the water for examination by Mr. Hankin, the Bacteriological Expert, and although the amœba of dysentery has never yet been identified in water, he very kindly did his best to segregate it, with, however, no positive results.

32. As to the influence which overcrowding had on this epidemic, although undoubtedly it must, in aiding the numerical incidence of foci of infection, have been a factor that cannot be neglected, it is evident from diagram No. 3 where the relation of the incidence of dysentery and population is compared, that it was not a factor that was of importance, in the absence of the favouring condition of the normal fluctuation of sub-soil water-level following a normal monsoon.

33. Irrespective of the defect as to earthen floors when taken into consideration with the high range of fluctuation of the sub-soil water, the buildings present defects as to perflation, the arrangement being that instead of windows opposite each other, they are arranged on one side with a ventilating opening at a height of ten feet above on the opposite. In the remodelled halves of the two blocks however, this had been attended to and windows are made opposite, thus securing correct perflation. The difference in the atmosphere of the wards as improved, and that in their original state as to air purity is striking when all the convicts are present, the stench in the latter at night time being most marked.

34. The following statement shows that in 1894, the cubic space available was decidedly below the standard of 600 feet per head during three months of the year, but that, subsequently, the amount has been, under special arrangement as to transfer by the Inspector-General of Prisons, within legitimate limits:—

Months.	Cubic space engaged by each man in 1894.	Cubic space engaged by each man in 1895.
May	..	599·90
June	450·76	602·26
July	455·08	579·39
August	461·04	653·12
September	560·48	..
October	620·91	..

35. But it appears to me that the measurements made by the Public Works Department are not completely trustworthy. Thus, instead of the triangular space of the roof being allowed for in the calculation shown on the boards outside the wards, the whole space is apparently assumed as a cube. Thus the measurement of one of these wards is, according to this mode, 49′ × 17′ × 19′ giving with 26 men 608·7 cubic feet. But the actual measurement below the roof is 48′ 6″ × 17′ 4″ × 13′ 8″ and the triangle of the roof is $48' 6'' \times 6' 10'' \times \frac{17' 4''}{2}$ giving a total of 552·3 cubic feet per head. But it is universally acknowledged that no height above 13 feet should be regarded in dwellings as available cubic space for breathing purposes; therefore, the space that by this calculation was available at the time of my visit was $\frac{48' 6'' \times 17' 4'' \times 13'}{26}$ = 420·3 cubic feet per head.

36. I have examined the Párvatípuram Local Fund hospital statistics, and think there is no reason to regard the village as specially liable to dysentery.

37. From diagram No. 2, it would appear that there was no relation between malaria infection and the outbreak of dysentery.

38. *Measures suggested.*—I advised instant abandonment of the drinking-water well in favour of Mr. Thornton's or the Missionary's well; but the Superintendent represented difficulties as to closing it on account of the labour necessary to bring water from the site I suggested, and I doubt therefore whether, in consideration of the fact that dysentery still continues in the jail, it is not still possible for the prisoners to more or less use this water. *This abandonment of the well for all jail purposes is certainly essential.* But, lest by any means the convicts should obtain water thence, it would be advisable to practise disinfection by permanganate of potash (1—40,000) after the manner advised by Mr. Hankin, at intervals of, say, every fortnight.

If the jail is to be retained, a well in a site beyond the drainage cone of the old fœcal deposits should certainly be chosen. Such a site is to be found immediately beyond Mr. Thornton's present house, in an area which I showed to the Local Fund hospital assistant at Párvatípuram. To get over the difficulty as to transport, the water should be raised by pumping to an elevated cistern to the jail and there be distributed by pipes throughout, so as to make the jail independent of any water on the spot. Particular care should be taken that the prisoners do not use for any but gardening purposes the water of the garden well.

2*ndly*. The basement of each ward should be raised 3 feet, and be made impervious by a flooring of concrete plastered with cement. The surrounding surface of the wards should be well metalled. Drains for removal of rain water should also be provided.

3*rdly*. The ditch should be re-opened at once, and an outlet be arranged,—a condition that is possible.

4*thly*. All clothing of the prisoners should undergo a complete and careful process of disinfection by a solution of perchloride of mercury, and subsequently no clothing should be stored for subsequent issue without the same precaution being followed.

5*thly*. All walls should be completely freed of the existing plaster, and be then disinfected with perchloride solution and new plaster be provided.

6*thly*. The whole of the patched and ragged now used blankets and jackets, should be destroyed.

39. Either these measures, *in addition to the present intention of enlarging* the compound and so improving perflation should be carried out, or the jail should be abandoned. In my opinion, this abolition is the preferable policy. The conception that it is necessary to retain these hill-men in Párvatípuram, lest on their going to the Coast they should get fever and break down in health, is an ancient and untenable superstition. I was fully satisfied that the hill-men in the jail of Vizagapatam were in far better condition than those at Párvatípuram. Moreover, it is absurd to consider that the climate can in any way approach that of the hills. In any case, it is paradoxical that the Párvatípuram jail should, as has been the practice, send prisoners to Vizagapatam on medical grounds if "climate" be so important a factor. I inspected the hill prisoners at the Vizagapatam jail who were direct committals, and those who were sent there on medical grounds or were sick on arrival—being sent to relieve the congestion at Párvatípuram. Here is a statement of their condition as found on my inspection, which bears out the allegation as to bad state of health on admission, and exhibits the improvement undergone:

—	Anæmia.		Enlargement of spleen.		Spongy gums.		Retraction and atrophy of gums.		Total.
	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	
Recent admissions	3	25·0	3	25·0	3	25·0	1	8·3	12
Below six months	1	1·4	2	2·9	5	7·2	3	4·3	69
Above do.	3	3·1	..	..	..	..	..	..	97

40. I have not the slightest hesitation in saying that the chances of the survival of the prisoners in Vizagapatam are far greater than in Párvatípuram, and in this opinion Surgeon-Lieutenant-Colonel Leapingwell, who has a large experience in the district, agrees with me. I show here a statement of weighments as supplied by him:—

	Average duration of confinement.	Average weight gained.
	MOS. D.	
Those committed to the Central Jail directly from Vizagapatam	3 6	7·96
Those transferred to the Central Jail from the Párvatípuram Hill Jail	3 2	7·28

41. The surroundings of Párvatípuram show that, during the wet weather and the continuance of irrigation, no one but a man from the district of Tanjore would feel happy in such surroundings. The abolition of this jail seems to me therefore the wisest course, and this could easily be effected, as the East Coast Railway is about to run a line to this place, and transfers from the hills could therefore be readily made. At the same time, whilst I believe these prisoners would be under better conditions at Vizagapatam, it must always be expected that their state of health would fluctuate more than in the case of the ordinary prisoners of the plains, not only because confinement is probably particularly irksome to this class, but because, so far as I am yet informed, the population in its free state lives under hygienic conditions that induce a special liability to intestinal affections. The history of this class has always been that great mortality has attended their confinement. Indeed, their transfer from Vizagapatam to the specially built Párvatípuram Jail is thus accounted for in the Vizagapatam District Manual:—

"Others, hill men, will be sent to the new prison at Párvatípuram, which was constructed with a view to its providing accommodation for one hundred Jeyporeans (the present mortality amongst this class when confined in a jail on the Coast being truly deplorable)."

42. This account, it should be remembered, refers to the *old* jail at Vizagapatam, and shows that at this period the dysentery germ had attached itself to that locality, just as it has now to Párvatípuram, and would undoubtedly again in the present Vizagapatam jail, were sanitary precautions against its segregation and destruction neglected.

43. The conclusions therefore to which I would arrive as to the prevalence of dysentery are as follows:—

(*a*) That the convicts admitted from the hill tracts are received in an unhealthy condition due to the influence of malaria and state of scurvy.

(*b*) That prolonged residence in jail either at Vizagapatam or at Párvatípuram, ensures a cure of these conditions.

(*c*) That in the Párvatípuram jail, there exist hygienic faults which permit of the retention of vitality and distribution of the causative agent of dysentery (which by reason of former absence of care as to segregation and destruction has been introduced in the buildings, water and soil) and that the convicts of recent admission, whilst still in a condition rendering them peculiarly susceptible to dysentery, are thereby affected.

(*d*) That the Párvatípuram hill jail is not a hill jail, and does not offer either by its sanitary arrangements, or its climate, any good reason for retaining convicts here.

(*e*) That practical experience shows that, under the climatic conditions and the hygienic arrangements of the jail at Vizagapatam, the stage of predisposition to dysentery may in the modern jail be safely passed by such convicts, and that, if care be taken to always segregate (as in cholera) dysenteric motions, there is no reason why Vizagapatam should not continue to be a safe locality for their retention.

(*f*) That the class of medical care and the hygienic conditions obtainable in Vizagapatam being better than in Párvatípuram, it is advisable the convicts, if transferred from a true hill climate at all, should be sent to the former station.

Order—No. 2334, Judicial, dated 14th November 1895.

The interesting reports from the Sanitary Commissioner and the Inspector-General of Jails read above, though they do not render it possible to predicate with any real certainty the causes of the constant outbreaks of dysentery in the Párvatípuram jail, show with sufficient clearness that the jail premises are tainted with dysenteric germs, and that the abandonment of the jail, at least temporarily, is unavoidable.

2. Both officers adduce a series of forcible arguments in favour of its permanent abandonment, but the Government considers that, before this step is definitely decided upon, it is necessary to ascertain, from actual experience extending over some considerable period, what will be the effect upon the health of convicts from above the ghâts of confinement in prisons situated upon the Coast.

3. The Párvatípuram jail should accordingly be temporarily abandoned as a place of confinement for convicts, and its present inmates should be removed partly to the jail at Vizagapatam and partly to that at Rajahmundry as the Inspector-General may be able most conveniently to arrange. After their removal to these places, the state of their healths should be most carefully watched and recorded in full detail. It is believed that the hill men confined in the Párvatípuram jail were formerly permitted a daily allowance of opium, and that their ill-health in other jails has been ascribed to their deprivation of the drug. The Inspector-General will be requested to report whether this allowance is still made. If it is, it should be continued to this class of prisoners after their transfer to jails on the plains, and, if it is not, information should be furnished as to the reasons which led to its discontinuance.

4. Pending the completion of the arrangements for this transfer of the prisoners, the jail well should be disinfected with permanganate of potash on Dr. Hankin's system as recommended in paragraph 38 of the Sanitary Commissioner's memorandum, and the old clothing and blankets now in use should be destroyed and replaced by others. It would appear that the Superintendent of the jail was responsible for the unsatisfactory condition of these latter, and the attention of the Inspector-General will be called to the point.

5. The repairs and alterations now going on in the jail should be stopped at once. As, however, it may eventually be found necessary to again use the jail should the health of the prisoners when confined near the Coast or at Rajahmundry be found as unsatisfactory as it has proved in former years, or should any difficulty as to accommodation arise hereafter, the Inspector-General will be requested to take steps to have estimates prepared and kept ready, not only for the works the execution of which has already been sanctioned, but also for the other improvements suggested by the Sanitary Commissioner in paragraph 38 of his memorandum, and for draining the jail premises. Some of these are small undertakings which could probably be carried out departmentally.

6. The Government is not prepared to adopt the recommendation of the Inspector-General that the jail well should be retained as a drinking-water supply without a more careful trial of the quality of the water, and he will be requested to arrange for further analysis of this; the results of these should be reported to Government. Orders will thereafter be passed upon his letter upon the subject of filters read in G.O., No. 1990, dated 24th September 1895.

7. The sanitary arrangements in the wards at night appear, from the papers before Government, to be unsatisfactory. The corners which are used as latrines should certainly be floored with some impervious material, and should be supplied with drains so that they can be cleaned without difficulty. It would probably be sanitarily preferable to have detached latrine wards as is the case at the Madras Lunatic Asylum, and the matter is commended to the consideration of the Inspector-General. Estimates for carrying out these improvements should be included with those already referred to in paragraph 5 *supra*.

8. In the second of the letters read above the Sanitary Commissioner suggest that the Inspector-General of Jails should be placed in communication with the Sanitary Board in order that the existing water-supplies in jails should be improved and altered. The Government does not consider that any cause for general dissatisfaction with these supplies has been shown, but the Inspector-General will be requested to report shortly upon those of them that are in his opinion at present defective, and upon the remedies that might be adopted.

9. It appears from the present papers that the prisoners themselves frequently foul their own drinking-water, or carelessly drink that which has already been rendered impure. The danger of this occurring with the supplies put into the cells at night might perhaps be obviated by placing in each cell a tap connected with a supply placed outside the wards. Bathing water should be frequently renewed where possible and run off as soon as it has been used.

10. The following telegram will be despatched to the Inspector-General of Prisons:—

706. "Parvatipuram Jail to be abandoned temporarily. Stop works there."

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Inspector-General of Prisons.
" Sanitary Commissioner.
" Public Works Department.
" Accountant-General.

Exd. S. J. Pereira.

Gobt. of {1895} Madras.

JUDICIAL.

Issued

Recd. *Encl.*

G.O., No. 2334, 14th Nov. 1895.

NOVEMBER.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

Read—again the following papers :—

G.O., No. 1165, Judicial, dated 29th May 1895.

G.O., No. 1990, Judicial, dated 24th September 1895.

Read—also the following papers :—

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated 10th October 1895, No. 1796-S.

With reference to my report on the Párvatípuram Jail, dated 7th October 1895, and forwarded to you through the Inspector-General of Prisons, I have the honour to respectfully state that there can be no manner of doubt that the arrangements for water-supply in the jails of this Presidency are half a century behind the sanitary requirements of the age, and that, at a time when Government will shortly consider the budget for 1896–97, I would venture, as a matter of duty, in continuation of my letter, No. 1755-S, dated 22nd September 1894, paragraph 5, to again draw attention to this matter.

2. The unsatisfactory condition of health in which the convicts at Párvatípuram are received could not fail to have been aggravated by the use of drinking-water liable to contamination—a contamination that would have been *very greatly guarded against*, had the well been built with the slightest regard to hygienic dictates. Even when it was attempted to shield them from the effects of impure water by boiling it, the open bathing cisterns (as was the case in the epidemic of cholera in 1893 in the Trichinopoly Central Jail) formed a source of weakness, which defeated the object in view, by affording facilities for drinking-water specifically contaminated in spite of precautions to the opposite.

3. Considering the great expense that must be caused to Government should jails be attacked by epidemics, I am convinced that early measures with regard to remodelling the existing water-supplies and abolishing open bathing cisterns, so as to take advantage—to a reasonable extent in regard to finance—of the knowledge of the day would prove of ulility not only in diminishing mortality, but in the long run in effecting economy.

4. Even if Government were not prepared to undertake improvement in these matters in a number of jails at once, it would at least be feasible to have estimates and plans prepared and effect improvement from year to year. If Government approved of this suggestion, I would respectfully advice that the Inspector-General of Prisons be placed in communication with the sanitary board on the subject.

From A. G. CARDEW, Esq., M.A., Inspector-General of Prisons, to the Chief Secretary to Government, dated Madras, 14th October 1895, No. 1244-C.

I have the honour to forward, for the consideration and orders of Government, the accompanying letter, No. 1749-S, dated 7th October 1895, with enclosures from the Sanitary Commissioner, Madras, giving the results of his inspection of the Párvatípuram Jail. Surgeon-Lieutenant-Colonel King visited the jail at the height of the unhealthy season, and his observations appear to be of much value. I have since had the advantage of meeting him and of discussing the subject of his report with him.

2. The main results of the Sanitary Commissioner's visit may be said to be two in number, namely, (1st) that the hill-men who form the population of the Právatípuram Jail are admitted in a scorbutic condition and improve in general health during confinement, (2nd) that in spite of this improvement due to good food, &c., they have died in large numbers owing to the site and water-supply of the jail being infected with the specific agent of dysentery.

3. The first of these conclusions is specially valuable, as coming from an impartial and qualified observer. It is of much importance to have a reliable opinion in support of the view that the scorbutic taint is not jail-bred, but is found in prisoners on their first arrival and diminishes during confinement. The state of health of the prisoners received is thus such as to render them specially subject and prone to such a disease as dysentery.

4. The second of Dr. King's conclusions is also of importance, but not all the arguments by which it is supported can be wholly accepted. There is every reason to believe that, as he states, the *site* of the Párvatípuram jail is infected with the dysenteric germ. Dysentery was prevalent there so long ago as 1888 and up to the close of 1889 the whole of the night-soil was buried in pits in the garden. But the Sanitary Commissioner's attempt to trace a connection between the outbreaks of dysentery in 1894 and 1895 and the water-supply does not appear to me to be successful. The pollution of the drinking-water well by filtration from the pits where night-soil was buried prior to 1890 must be due, if it exists, to the germs being carried through by water. Such filtration and the consequent outbreak of dysentery would thus occur in years of heavy rainfall. If, however, either diagram No. 1 or diagram No. 3 is examined, there is no connection apparent between the amount of the rainfall and the death-rate from dysentery and diarrhœa. Thus the death-rate from these causes was very high in 1888, when the rainfall was the lowest in the decade; it was lowest in 1886 and 1893, when the rainfall was highest (diagram No. 3). If the outbreaks of 1888, 1894 and 1895 were due to the washing through of infective matter from the old night-soil pits to the well, it is impossible to see why such unfortunate results occurred in those years, while in other years of heavier rainfall there was less dysentery and diarrhœa. Again the infection of the well water from the night-soil pits would naturally be greatest when the night-soil matter was new. The table of water analyses contained in paragraph 19 of the report shows that the supply of nitrates has been diminishing annually since 1890, and if these nitrates come from the old night-soil pits at all, the chances of infection with the dysenteric poison also must have diminished. Yet the worst outbreaks of dysentery have occurred in 1894 and 1895.

5. An attempt to explain away this difficulty is made in paragraphs 27 and 28 of Dr. King's report where it is suggested that prior to 1894 much of the rainfall falling on the night-soil pits was carried off by a trench which Colonel Porteous in December 1889 ordered to be dug to render the escape of convicts more difficult. The ditch was not dug till 1890, and therefore cannot have affected the years 1888 and 1889, in which a light rainfall was accompanied by heavy dysentery and a heavy rainfall was coupled with reduced amount of sickness, respectively. Nor can the ditch, I think, have really had the effect attributed to it in 1894 and 1895, for the ditch is said to have been filled in during 1892–93 and there was little trace of it when I first visited the Jail in December 1892. Nevertheless 1893 was the healthiest year of the decade, and sickness did not begin till August 1894. It is thus, I think, impossible to trace a direct connection between the night-soil pits and the drinking-water well. The diminution of nitrates in the latter may reasonably be attributed to the well being cleaned out.

6. It will further be observed that the Sanitary Commissioner's diagrams Nos. 1 and 3 relate, for reasons which he gives, to statistics of dysentery and diarrhœa combined. But a consideration of the mortality from dysentry alone, diarrhœa being excluded, does not confirm the view, which he expresses, of contamination of the well from the old night-soil pits in years of heavy rainfall. It shows a fairly steady amount of the disease from 1889 to 1893 followed by a sudden outbreak in 1894–95. The following are the figures of deaths and death-rate from dysentery alone in 1888 and subsequent years. No earlier returns have yet been traced.

	Number of deaths from dysentery.	Death-rate from dysentery per mille.
1888	5	30·5
1889	2	10·1
1890	4	19·7
1891	3	16·0
1892	3	14·7
1893	2	11·7
1894	16	74·4
1895	*11	†55

7. It appears to me that, it is impossible, in the light of these figures, to consider the Sanitary Commissioner's theory a sufficient explanation of the sudden outbreak of August 1894 which has been repeated in the present year. Each year the night-soil matter in the old pits has been diminishing, as the processes of conversion into soil proceeded; each year there has been a certain amount of dysentery in the jail; but it is not until the last two years of the series that the disease suddenly breaks forth in alarming proportions. The immediate causes of this sudden epidemic of dysentery in 1894 and 1895 is, it seems to me, as obscure as ever. But as there is no doubt that the site of the jail received dysenteric pollution in the past and as it is now the prevalent opinion that the germ can be revivified by favourable climatic conditions, especially damp and warmth, there would be nothing remarkable in a recrudescence of the disease occurring in the months following the burst of the south-west monsoon. Why the recrudescence of 1894 and 1895 proved so violent, we cannot say; but the infection of the jail with dysentery in past years is apparently alone a sufficient explanation of the appearance of the disease. Dr. King's conclusions in paragraph 43 of his report may, therefore, be safely adopted without accepting the special explanation of water contamination which is suggested in earlier paragraphs.

7. It may be noted here (1) that the overcrowding of prisoners in 1894 cannot reasonably be supposed to be the cause of the sickness of that year, because there has been an equal amount of sickness in 1895, when no overcrowding has occurred; (2) similarly that the crowded state of the jail yards due to additional buildings could hardly have been avoided during 1894, because the old sheds could not be removed until the new buildings were ready for the convicts to occupy; (3) that the removal of the chunam floors of the old blocks and the substitution of floors of rammed earth was specially ordered by Mr. Grimes when he visited the jail in March 1887. The new blocks have been provided with concrete floors and all the blocks have pials of the prescribed height.

8. The seriousness of the present state of health of the jail will be apparent from the following figures:—

Month.	Number of deaths. 1894.	Number of deaths. 1895.	Cause of death. 1894.	Cause of death. 1895.
January	..	1	....	Pneumonia.
February	..	..	....	....
March	1	1	Remittent fever	Anæmia.
April	..	1	....	Do.
May	..	1	....	Sunstroke.
June	..	3	....	Dysentery.
July	..	2	....	Pneumonia and beriberi.
August	13	8	7 Dysentery	6 Dysentery.
			1 Diarrhœa	
			3 Anæmia and debility	2 Pericarditis.
			1 Remittent fever	
			1 Cirrhosis of liver	
September	6	4	5 Dysentery	2 Dysentery.
			1 Diarrhœa	2 Pericarditis.
October	3	?	1 Dysentery	....
			1 Diarrhœa	....
			1 Beriberi	....
November	3	?	2 Dysentery	....
			1 Anæmia	....
December	3	?	2 Dysentery	....
			1 Phthesis	....
Total ..	29	‡ 20		

* First nine months. † Approximate. ‡ For nine months.

Thus the mortality of 1895 has so far been equal to that of 1894, in spite of a smaller average population. It is hardly possible to allow this state of things to continue, and the necessity of either abandoning the Párvatípuram jail or of carrying out the improvements recommended by the Sanitary Commissioner in addition to those already approved by Government in G.O., No. 510, Judicial, dated 8th March 1895, seems to be undeniable.

9. The Sanitary Commissioner is strongly in favour of the abandonment of the jail. He has not stated very fully his reasons, but the following points may be noted:—

(1) The condition of health of the prisoners received at Párvatípuram is such as to demand a considerable degree of professional skill and knowledge. In Mr. Henderson we probably had as good a Medical Officer as we can ever expect to get from the class to which he belonged (Warrant Medical Subordinate). I have no doubt that he did his utmost to stop the sickness and Dr. King has (in a separate note) recorded the opinion that he was in no way to blame. But Mr. Henderson's professional knowledge and education were limited. He never seems to have recognised the presence of the scorbutic taint, which the Sanitary Commissioner states is clearly proved from the *post mortem* appearances and other records. If the hill prisoners, who now are sent to Párvatípuram, were confined at Vizagapatam, a much higher degree of medical skill and knowledge would be brought to bear on their treatment.

(2) The situation of Párvatípuram, 60 miles from a line of rail, is so remote that it is particularly difficult to supervise the jail. It does not appear ever before to have been inspected by the Sanitary Commissioner. The District Medical Officer of Vizagapatam can visit it very seldom. Postal communication is slow and the jail is thus necessarily left much to itself. Almost everything depends on the care and judgment of the Superintendent and Medical officer, who is, after all, only a subordinate of limited education.

(3) The selection of Párvatípuram as a site for a jail, and especially of a jail for hill men, was bad. The country is water-logged; the town lies low; at night the whole place is wrapped in fog; and the hills round shut it in and make it hot. Bobbili would have been a much better site, and the position of the Vizagapatam Jail is very much superior.

(4) The Párvatípuram jail is now infected with dysentery and it may be difficult to eradicate the taint.

10. These seem to be weighty reasons for abandoning Párvatípuram. But it must be remembered that in the past hill prisoners did nearly as badly at Vizagapatam as they have lately done at Párvatípuram. References to the ill-health at Vizagapatam will be found in G.O., No. 1641, Judicial, dated 22nd June 1886. I am inclined to agree with the view of the Sanitary Commissioner that the conception of the health of hill-men suffering specially when near the coast is a superstition, but the evidence on this point is not free from doubt and the Vizagapatam jail has been fortunate of late years in having a particularly capable and careful Superintendent. If the Párvatípuram jail were permanently closed, fresh buildings would be necessary at Vizagapatam, and it would be a serious matter to erect those buildings and then to find that the health of the hill-men was after all no better or worse at Vizagapatam than at Párvatípuram.

11. I have received from the Superintending Engineer, a few days ago, a revised estimate amounting to Rs. 40,900 for the works contemplated at Párvatípuram. Of this amount about Rs. 16,000 have already been spent on extensions of blocks and on the provision of a fresh hospital. Work on the hospital is now in progress, and when that is finished the main wall has to be thrown out on the north, south and east sides and a new office built. I do not forward these plans and estimates at present as I am now proceeding to Párvatípuram and I wish to examine them on the spot.

12. The additional measures recommended by Dr. King are stated in paragraph 38 of his report. Instead of abandoning the well, it would be cheaper and equally efficacious to procure the Pasteur filter recommended in my letter No. 5402, dated 5th September 1895. The Government will observe that the water has already been

subjected to bacteriological analysis by Mr. Hankin, and the Sanitary Commissioner informs me that it was "rich in common microbes." I accordingly resubmit the enclosures to my letter last named.

13. The cost of other recommendations made by Dr. King is uncertain, but would probably not be very great. The convicts would have to be moved into camp for a time during the disinfection of the wards. The new camping ground, acquisition of which was recently sanctioned by Government, was handed over to the jail on the first instant.

14. If the Government considers that the objections to Párvatípuram which are stated in paragraph 9 *supra* are so strong as to render it undesirable at present to spend more money on that site, while it would be unwise to add extra buildings to the Vizagapatam District Jail until the suitability of the climate to hill-men is assured, there is a middle course which may be adopted: As has been recently done at Cuddapah, the Párvatípuram jail may be temporarily and tentatively closed. There is at present sufficient room in the Vizagapatam jail for the hill-convicts as well as for the prisoners ordinarily received there. There is, moreover, accommodation in the Rajahmundry Central Jail which is now only a few hours by rail from Vizagapatam for at least 300 prisoners more than are at present received there. In the event of scarcity arising and of the number of admissions increasing, the Párvatípuram jail could be at once re-occupied, while its temporary abandonment would enable a practical test to be applied to the suitability of the Vizagapatam jail to hill-men. Meantime the dysenteric germ on the Párvatípuram site would have time to die out.

15. This is the solution of the question which appears to me to have most to recommend it. Further expenditure on the buildings at Párvatípuram would be saved, and if later it was decided permanently to abandon the place, and to add to the Vizagapatam jail, the cost of such additions would not be much, if at all, greater than the work which as yet to be done at Párvatípuram.

16. The issue of early orders deciding the future of the Párvatípuram jail is in any case desirable, and I shall be glad if they can be communicated by wire. If it is resolved to adhere to Párvatípuram the plans and estimates amounting to Rs. 40,900 which are referred to in paragraph 11 *supra* will then be at once submitted for approval and early provision of funds. The Public Works Department should also be desired to prepare a further estimate for providing those blocks at present without it, with an impervious cement flooring, as recommended in paragraph 38 (2) of the Sanitary Commissioner's letter, and for constructing drains throughout the jail. I request also that the sanction asked for in my letter No. 5402, dated 5th September, may be accorded. If, on the other hand, it is resolved temporarily or permanently to evacuate the Párvatípuram jail, orders to stop further expenditure on the works there should be communicated by telegram. The sickly season being now nearly over, there is no immediate urgency regarding the removal of prisoners from Párvatípuram, and all details connected with this matter can be settled later. I may add that as most of the prisoners received at Párvatípuram come from Koraput, and necessarily descend the Pottinghi ghât to Salur, they could as easily be marched to Vizianagram (about 30 miles) whence the East Coast Railway takes two hours to Vizagapatam, as to Párvatípuram which is about 25 miles from Salur.

Enclosure.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government (through the Inspector-General of Prisons), dated 7th October 1895, No. 1749-S.

With reference to G.O., No. 1165, dated 29th May 1895, Judicial, paragraph 10, I have the honour to forward herewith a report on the subject of the Párvatípuram jails. As the Inspector-General of Prisons informs me that the epidemic is still present, to save time I forward it through him.

2. I inspected the jail at the end of July last. Delay was caused by the bottles of water sent to the Chemical Examiner having been smashed *en route*, and a second sample had therefore to be supplied. It was then so late in August that I determined to secure the statistics for that month. Certain other information required did not reach me till the 23rd September. I was not aware that the sickness was still continuing, as my office is not supplied with returns from the Párvatípuram jail.

3. It having been recently suggested to the Inspector-General of Prisons that the disease suffered from is beri-beri, I would state that, whilst the conditions present would certainly be such as to favour the occurrence of this disease, neither by inspection of the prisoners nor *post mortem* statements was there anything to lead me to believe that, if it existed at all, it had anything to do with the sickness under investigation.

Memorandum on the sanitary condition of the Párvatípuram Hill Jail.

Former conditions.—The Inspector-General of Prisons having in his letter, No. 3805, dated 1st July 1895, informed me that epidemic dysentery had again appeared in the Párvatípuram jail, I undertook the inspection of this jail earlier than desired by G.O., No. 1165, Judicial, dated 29th May 1895, paragraph 10, with the object of examining conditions as they existed during the prevalence of the sickness, as, indeed, was suggested to me by the Inspector-General of Prisons. I inspected the jail and prisoners on the 25th and 26th July 1895.

2. The following statement shows the mortality from all causes and from dysentery and diarrhœa in this jail since 1886. The latter should have been exhibited separately, but time does not permit a reference to the jail on this point:—

	Death-rate from all causes.	Death-rate from dysentery and diarrhœa.
1886	50·24	21·53
1887	110·76	24·61
1888	115·80	36·57
1889	81·26	30·47
1890	59·14	24·64
1891	53·06	21·22
1892	24·48	19·57
1893	17·55	17·55
1894	125·88	93·24
1895 up to September	85·36	45·19

3. From the above statement it will be seen that neither in regard to general mortality nor to the special disease of epidemic dysentery is the condition of affairs brought to light in the Government Order referred to a new matter.

4. The first point demanding attention seemed to me to be the ascertaining whether the disease suffered from was really the specific disease of dysentery or other affection of the intestines. A perusal of the *post mortem* records left no manner of doubt that the diagnosis made by the medical officer was correct. Moreover, there was no doubt that in the year 1894 the disease had assumed the scorbutic type in many cases. Records for 1895 showed that this complication had disappeared, and that the ordinary, but a severe, type of epidemic dysentery remained.

5. In 1894, the District Sanitary officer, Vizagapatam, and the Inspector-General of Prisons had made inquiries and had effected improvements in the general hygienic condition of the prisoners. Several faulty details as to diet were remedied on the suggestion of the District Sanitary officer, and, in recognition of the scorbutic condition of many of the prisoners, lime pickle was issued, and special attention was paid to the nature of the vegetables forming part of the diet. Particular stress was laid upon the indubitable over-crowding of prisoners in the jail and the imperfect perflation brought about by reckless erection of sheds within the jail walls.

6. *Present condition.*—To care as to diet it is but reasonable to attribute the alterations of the type of dysentery observed; the full influence of better perflation had not yet been secured at time of inspection as the main wall had not yet been completed, but the obstructing buildings within the compound had been removed. Moreover, the population of the jail has been maintained within the prescribed limits, so that in the matter of improvement of diet and over-crowding—subject to the above remarks—it may be granted that prisoners were under almost as good conditions as the remedying of these serious defects would bring about.

7. The following table exhibits the result of examination of the prisoners as to existence of "sponginess of the gums" confined at the time my inspection, classified according to length of residence in jail:—

Whence transferred to jail.		Length of residence in jail.					
Hill tracts (above ghâts).	Low country (below ghâts).	Under one month.	Above one and under two months.	Above two and under three months.	Above three and under four months.	Above four and under five months.	Five months.
16	9	10	5	6	1	2	1

8. In addition to the above, 44 or 20·4 per cent. of the total jail strength suffered from atrophy and retraction of the gums, 11 or 5·1 per cent. also suffered from various grades of anæmia, and 14 or 6·5 per cent. from enlargement of the spleen.

9. The above statement goes to show that 32 per cent. of the prisoners had suffered or were suffering from a condition that would ordinarily be recognized as land scurvy, the spongy gums representing an acute stage of the disease, the retracted and atrophied gums without concomitant bleeding or ulceration proving that the disease had been undergone, but that the patient was convalescent.

10. *State of diet.*—As already stated, such errors in the hygiene of diet as existed were remedied under Surgeon-Lieutenant-Colonel Leapingwell's advice. The diet on inspection by me was of excellent quality, with one exception. Further, the Inspector-General, after careful examination of the figures as to weighments, has expressed the opinion that no "fudging" of the figures had been practised, and that there was consequently no reason to think that deficient diet was a factor. The following figures bear out this statement:—

Months.	Net result of weighment.		Months.	Net result of weighment.	
	Gain.	Loss.		Gain.	Loss.
January 1895	3·54	..	May 1895	3·96	..
February ,, ...	4·14	..	June ,, ...	2·78	..
March ,, ...	4·96	..	July ,, ...	2·65	..
April ,, ...	4·85	..	August ,, ...	3·05	..

11. The exception to which I allude was the state of the ragi flour. It was found stored in kerosine tins and possessed a *very strong* acetous odour. On my pointing this out to the Superintendent, he met with arguments that are not without weight. I believe, as he urged, that natives in certain parts of the country prefer their ragi-pudding in a state of some acidity. It can well be conceived that there is a stage in the advance towards fermentation where the changes in the starch would be such as to favour digestion, but I should regard the fixing of such a stage as a refinement in chemical research. Whilst admitting this much, I consider the acetous state in which the flour was found not safe, and that it would be liable to produce catarrhal affections of the intestine. I pointed out the remedy to the Superintendent, namely, not confining the flour after grinding, but permitting free air access by spreading it out and securing dryness as quickly as possible. In this matter the method followed at Coimbatore is commendable where, although the practice is to wash the ragi entire, the whole is placed on a cement surface permitting of quick and thorough drying in the sun after washing. This is a matter, however, I do not think need be regarded as an important factor in the case, in view of the result of examination of weighments, otherwise than as affording pre-disposition of the intestinal tract to infection.

12. Taking the above facts into consideration, together with the statement of period of confinement in table No. 2, it is evident that far from the period of confinement in jail having a deleterious effect, the opposite is the result; consequently, the conclusion must be arrived at that the state of land scurvy is more or less the normal condition of the prisoners when admitted. Clear evidence was obtained on this point by my subsequent inspection of direct committals to the Vizagapatam jail of the same class of hill-men with the difference, as I shall show further on, that improvement in Vizagapatam jail is far more rapid than in Párvatípuram. That otherwise than in a period of famine, a body of men should be received in this condition is certainly startling; but evidence from old reports at Párvatípuram show that this is a normal condition of a large portion of the hill-men received. For confirmation it would, however, be necessary to prove that the hill-men do suffer from this condition before admission. On this point no evidence is available and I cannot further delay this report with regard to this important point. Evidence must be gathered slowly and carefully and this shall be attended to. In the meantime, I have gathered

The condition of prisoners on admission.

evidence as to the diet used by the poor classes of the hill-men, but this has been rendered in a form that would prevent positive assertion being made by me. So far as I can judge there would, notwithstanding the use of meat at intervals, be a tendency to lack of albumenoids and of vegetable salts-roots taking the place of succulent vegetables. I may here state that I am by no means a believer in land scurvy being so much due to the absence of vegetable diet as it is usually assumed. The defect of the supply of vegetable salts usually exists, but coincident with this my experience with natives would go to show a lack of sufficient, or easily assimilable, albumenoids in the diet—a condition that would be aggravated in this case by exposure to malaria. There are no available statistics as to the death-rate of these hill-men, and but little can be procured as to their health state from hospitals situated in their midst. *The fact remains however that a large proportion of the hill-men received both at the Párvatipuram jail and Vizagapatam jail are subject to the condition named.* Certain records show that during their transfer from the hills in former days the prisoners were subjected to evil hygienic conditions, but these matters have been attended to.

13. There is evidence therefore to show that the prisoners from the hill tracts are received to a considerable extent in a state of health pointing to the *probability* that their diet, although sufficient as to bulk, for some reason as yet not correctly ascertained, is erroneous as to constituents. This condition of health is one which would predispose to affections of the intestinal tract.

14. The following statement shows that there was no special preference for attacks in blocks—nor according to occupation—though there was protection by prolonged residence, showing that susceptibility diminished as time of residence advanced, as a result of improvement of health. The value of this statement throughout is less than I would wish, as the proportion to the population under each head is not stated. As to the influence of residence in special blocks also the statement is not, as remarked further on, of much value as no roster as to residence was maintained. The statement simply shows the block in which the convicts lived on the day of applying for treatment.

Statement showing blocks from which dysentery cases were admitted during outbreak of 1894–95, with occupation, residence and length of residence in jail of the prisoners.

Blocks.							Occupation.						
1	2	3	4	I sheds.	W sheds.	Hospital.	Ragi grinding.	Garden.	Water gang.	Cooks.	Weavers.	Blacksmiths.	Toty gang.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1894.													
3	6	4	4	3	4	..	4	5	3	2	1	1	2
1895.													
2	3	3	3	..	..	1	1	1	4	..	1	..	..

Occupation—*cont.*					Hill or low country.		Residence in jail.						
Coir picking.	Water drawers.	Building gang.	In hospital.	Invalid gang.	Hill.	Low country.	Under one month.	One to three months.	Three to six months.	Six months to one year.	One to two years.	Two to three years.	Above three years.
15	16	17	18	19	20	21	22	23	24	25	26	27	28
1894.													
2	1	1	..	2	19	6	8	10	7	..	..	..	..
1895.													
2	..	..	1	2	8	4	5	4	2	1	..	..	..

15. Before discussing the why and wherefore of this prevalence of dysentery, it is necessary to bear in mind that dysentery and diarrhœa, which are commonly classed together in the lay mind, are two different things, and that the former is an infectious disease in the sense that cholera or typhoid fever is; that is, it is conveyable by the bowel excretions, and is produced by a living organism as to the identity of which, as usual, there is some doubt but is generally granted to be an amœba. Once this special organism be introduced, there is reason to believe that it is not readily destroyed, and that its infective powers are maintained under certain favouring conditions.

The nature of epidemic dysentery.

16. There had in 1894 and former years existed over-crowding in the wards, and dysentery was present. Dysenteric motions must have been frequently passed in the wards before application for treatment was made.

The evidence of prior infection.

17. Even if segregation of such cases were practised, in consideration of native habits, the contamination of the blankets and of the pyals in which they sleep would have been inevitable. These blankets were ascertained not to be retained with individual prisoners; so that were a blanket infected it might be handed to seven men in a week. The blankets inspected were patched with old fragments of others and were frequently little better than a heap of rags. In addition the prisoners were provided with cumbly jackets for wear during the cold weather. It was ascertained that when they went out in the rain, these jackets were worn and no care was taken to see that they were substituted by dry clothing. Thus, granting men were subjected to mere drizzles at intervals, infectivity of disease-bearing particles would be maintained, irrespective of the influence of cold and damp in bringing about a favouring condition of catarrh of the intestine. Again, the floors of the building with two exceptions are earthen, as also the pyals on which the prisoners lie. In the corner of the wards upon the level of the floor were placed the arrangements for night conservancy. This consisted of wooden tubs—an objectionably porous substance to employ for this purpose. *No special surface was prepared, and droppings and washings* from the ablutions of prisoners soaked the floor at this spot. In this connection I may state that it is impossible to differentiate the result of the floors of two of the wards being now covered with concrete, as there was no way of proving in which division of the blocks the prisoners slept on nights. Such conditions would, of course, favour the retention of vitality of the infective agent.

Favouring conditions for retention of vitality of infections agent.

18. The soil of the site is of red gravel and porous. There is reason to believe that it was long occupied as a fort prior to its use as a jail. Such occupation would certainly not favour the freedom from organic impurity of the soil, or from importation of infective organisms. *It is a well recognised fact that wards of hospitals and buildings such as barracks, where dysentery has prevailed for a long period, do not readily get free from contamination.*

The sanitary features of the locality.

19. The most striking feature of the locality is the great range of fluctuation of the sub-soil water. When at its highest level for the year, the water in the garden-well and in a well immediately outside the jail stands at about 3 feet from the surface, whilst the highest level of the water in the drinking-well is 13 feet and the greatest fall 29 feet. This special well from which drinking water is obtained is made upon the most erroneous principles it is possible to conceive. It consists of alternate bands of masonry with dry brick intervals so that in receiving water from a distance, it would reach the interior of the well at as near the level at which it arrives as consistent with the existence of bands of 3 feet of masonry—this even being pervious. The base of the cone of this well may be said to extend 2,560 feet, being 160 times the multiple of its range of depression. In examining the area of this cone, I found that a space of 52,926 square feet had been for many years used as a night-soil depôt for the permanent deposit of night-soil. When this was commenced I could not ascertain, but its use was stopped by Colonel Porteous after an enquiry as to the state of health of the prisoners—*vide* G.O., No. 526, Judicial, dated 20th March 1890. This night-soil trenching ground is but 85 yards from the well. Considering the length of time that has elapsed since these pits were abandoned, it would seem to follow, as a matter of course, that the contents should now be fully decomposed. It, however, was found on attempting to dig the foundation of the walls of the new hospital building that imperfectly changed night-soil was present. At my request the Superintendent dug pits in this area, with the result of exposing matter that was still recognizable as fœcal in considerable amount. There was thus, prior to 1890, a mass of night-soil within a pervious sub-soil and within the drainage cone of the well, which observation in July 1895 shows is still but imperfectly changed. Whether or not this condition of affairs did affect the purity of the well supply can luckily be settled by an appeal to the chemical analyses constantly maintained. Records on this point are available from 1890 as shown below :—

—	Párvatí-puram jail well reported on 20th January 1890.	Párvatí-puram jail water reported on 26th February 1891.	Filtered water from Párvatí-puram hill jail well reported on 23rd February 1892.	Drinking water from Párvatí-puram hill jail well reported on 16th February 1893.	Párvatí-puram jail drinking water well reported on 10th April 1894.	Filtered drinking water, Párvatípuram, reported on 17th May 1895.	Unfiltered drinking water, Párvatípuram reported on 17th May 1895.	The hill jail, Párvatípuram, 17th August 1895.
1	2	3	4	5	6	7	8	9
Total solids, grms. per litre.	0·370	0·470	0·320	0·370	0·305	0·330	0·340	0·380
Volatile solids, grms. per litre	0·160	0·150	0·150	0·170	0·115	0·140	0·140	0·100
Chlorine solids, grms. per litre	0·041	0·046	0·039	0·041	0·031	0·031	0·031	0·042
Total hardness, Clark's scale.	7°·700	9°·100	4°·900	4°·200	3°·150	4°·550	4°·550	5°·950
Permanent hardness, Clark's scale	2°·450	5°·250	4°·900	3°·500	3°·150	2°·100	2°·100	2°·450
Free ammonia, mlgrms. per litre	0·080	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.
Albumenoid ammonia, mlgrms. per litre ..	0·040	0·040	Trace.	Trace.	0·144	0·040	0·048	0·048
Nitric acid, mlgrms. per litre (as ammonia)	21·000	22·500	18·750	15·000	13·500	6·900	7·500	10 800
Apparent quality of the water as inferred from the results obtained on examination	..	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.

Remarks—(1) Sediment contains large amount of vegetable debris. The amount of free ammonia is higher than the prescribed limit of safety; this, coupled with the fact that the amount of chlorine is very close to the outside limit of safety, I hesitate to pronounce the water to be free from suspicion of contamination by organic matter.

(2) The catchment area should be carefully guarded, nitric acid being very high.

(3) The amount of nitric acid present seems to point to some old contamination and it is recommended that the well be thoroughly cleaned.

20. Holding in mind the fact that the night-soil trenching was stopped in December 1889, I think there can be no manner of doubt that the chemical analyses show that year by year the amount of nitric acid due to the fœcal matter *filtering* through the soil and becoming changed into nitrates, had decreased in proportion to the change effected in a mass no longer added to.

21. I would here point out that the Chemical Examiner's warning as to danger in 1890, 1891 and 1892 led only to the cleaning of the well—not to an exploration of the area included in the drainage cone of the well.

22. I need hardly say that, granting the fœcal matter contained the specific agent of dysentery, its conveyance through a porous sub-soil to a distance of 85 yards from so large an area of fœcal covered ground may be regarded as practically certain. Taking the average population of 1886 to 1889 at 155 per diem, there would have been deposited here 189·4 tons of urine and 56·8 tons of fœces at the rate of 12 oz. per male Hindu adult per diem.

23. But the use of the well being constant, it is evident from statement No. 1 that there were intervals of *comparative* freedom from the disease in the jail. If diagram No. 3 be regarded, it will be seen that these periods corresponded with seasons of presumably low water levels due to deficient rainfall. It may, however, be contended that the period of rainfall and the outbreak of dysentery do not exactly coincide. This may be fairly ascribed to the fact that the sub-soil water rise would occur at an interval of some weeks after the setting in of the monsoon. Thus within six weeks of the opening of the south-west monsoon in June (diagram No. 2) the drinking water-well is said to rise 12 feet and reach its maximum of 13 feet from the surface in the month of August. It must be remembered it is not necessary in such an argument to require that the rate of attacks should be proportionate to the rainfall—as numerous factors would operate in determining numbers; it is sufficient to show that the starting of the epidemics had a relation to the monsoon and the fluctuation of the water level. Taking these facts into consideration, and that the dampness of the superficial soil would favour the influence of previous defilement of the soil, I think there is every reason to conclude that the incidence of the monsoon rainfall and the subsequent rise of the sub-soil water were coincident with the periods of the epidemics.

24. Here it must be remembered that the sub-soil water level or at least a line of moist earth would in all probability be between 3 feet and 13 feet—the water level of the outside well and of the inside well respectively of the earthen floors—forming the wards, and that the condition referred to above as to conservancy ensured contamination of the flooring—*vide* diagram No. 4.

25. It is necessary for me to add that the wards have no basement, and if anything are below the general surface of the ground, and that only one-half of two blocks has recently had concrete floors.

26. I have thus far attempted to trace a possible relation between damp sub-soil, infected floors and buildings, and the retention of infection. As to the actual mode of entrance to the system, irrespective of entrance of infected particles from blankets and hands, I may remark in reference to a theory lately promulgated by Dr. Manson that Párvatípuram is infested in a marked manner with musquitoes.

27. That the causative agent could have also been water-borne is, I think, sufficiently demonstrated in paragraph 22. With reference to diagram No. 3, bearing in mind the fact that the analyses show a steady decline of the degree of contamination of the wells from year to year, and granting a decline *pari passu*, with diminished rainfall, of dysentery in 1889, 1890 and 1891 and a slight fluctuation in 1892, 1893, how is the intense condition of 1894, 1895 up to date, to be accounted for, with comparatively no great contrast, when compared with former years, as to rainfall? I ascribe this fact to a change in the configuration and under drainage of the soil.

28. I cannot ascertain the date further than it was in the first period of tenure of office by Colonel Porteous, that he directed a ditch to be dug round the jail for the purpose of preventing escapes. This ditch during 1892, 1893, was gradually filled up. It formed the limit of the patch of the night-soil depôt on one side. The filling in of this trench seems to me to have acted injuriously in not preventing, at the very period when, on account of the bad structure of alternate bands of the well it was most important, a free exit of the ground water otherwise than towards the drinking-water well. This state of affairs is illustrated by the accompanying diagram No. 4.

29. But, during the continuance of the epidemic, the superintendent boiled the water, and hence it may be assumed that this factor may be put aside. But, when the quantity of boiled water is taken into account, it is at once seen that this was an inefficient protection, and one which indeed simply served to withdraw attention from desirable directions. No extra wood was employed; yet six pots or 53 gallons per day [subsequently stated to be ten pots] were supposed to be boiled for the use of men, or an average of ·24 gallon per man. This would certainly not have sufficed *fully* for drinking purposes. It is further worth remembering that the amount of wood allowed in jails is not one atom too much for cooking purposes, and that even this amount of water would require 47 pounds of wood. In any case, any consideration of the efficacy of the boiling water may be fairly neglected, in consideration of the following circumstances.

30. I found it was the custom to draw water from the well, and store it in the bathing cistern. In my view, a prisoner drew water for the cleaning of his hands, &c., and deliberately drank some of it. It goes without saying that unless the prisoners had a very conscientious belief in the efficacy of boiled water, they would not go up to the office where the water was stored in a chatty, *so long as this source was open to them.* Further, on examining the wards at night time, I found that the drinking water was kept without a cover within the wards, and that a solitary earthen lotha was kept for general use; therefore, should a prisoner wish to drink at night time, he dipped hands that may, a moment before, have been in contact with infective matter into the water.

31. Full proof that the dysentery was, amongst the other modes suggested, water-borne can only be inferred from the chemical analysis. I forwarded the water for examination by Mr. Hankin, the Bacteriological Expert, and although the amœba of dysentery has never yet been identified in water, he very kindly did his best to segregate it, with, however, no positive results.

32. As to the influence which overcrowding had on this epidemic, although undoubtedly it must, in aiding the numerical incidence of foci of infection, have been a factor that cannot be neglected, it is evident from diagram No. 3 where the relation of the incidence of dysentery and population is compared, that it was not a factor that was of importance, in the absence of the favouring condition of the normal fluctuation of sub-soil water-level following a normal monsoon.

33. Irrespective of the defect as to earthen floors when taken into consideration with the high range of fluctuation of the sub-soil water, the buildings present defects as to perflation, the arrangement being that instead of windows opposite each other, they are arranged on one side with a ventilating opening at a height of ten feet above on the opposite. In the remodelled halves of the two blocks however, this had been attended to and windows are made opposite, thus securing correct perflation. The difference in the atmosphere of the wards as improved, and that in their original state as to air purity is striking when all the convicts are present, the stench in the latter at night time being most marked.

34. The following statement shows that in 1894, the cubic space available was decidedly below the standard of 600 feet per head during three months of the year, but that, subsequently, the amount has been, under special arrangement as to transfer by the Inspector-General of Prisons, within legitimate limits:—

Months.	Cubic space engaged by each man in 1894.	Cubic space engaged by each man in 1895.
May	..	599·90
June	450·76	602·26
July	455·08	579·39
August	461·04	653·12
September	560·48	..
October	620·91	..

35. But it appears to me that the measurements made by the Public Works Department are not completely trustworthy. Thus, instead of the triangular space of the roof being allowed for in the calculation shown on the boards outside the wards, the whole space is apparently assumed as a cube. Thus the measurement of one of these wards is, according to this mode, 49′ × 17′ × 19′ giving with 26 men 608·7 cubic feet. But the actual measurement below the roof is 48′ 6″ × 17′ 4″ × 13′ 8″ and the triangle of the roof is $48' 6'' \times 6' 10'' \times \frac{17' 4''}{2}$ giving a total of 552·3 cubic feet per head. But it is universally acknowledged that no height above 13 feet should be regarded in dwellings as available cubic space for breathing purposes; therefore, the space that by this calculation was available at the time of my visit was $\frac{48' 6'' \times 17' 4'' \times 13'}{26}$ = 420·3 cubic feet per head.

36. I have examined the Párvatípuram Local Fund hospital statistics, and think there is no reason to regard the village as specially liable to dysentery.

37. From diagram No. 2, it would appear that there was no relation between malaria infection and the outbreak of dysentery.

38. *Measures suggested.*—I advised instant abandonment of the drinking-water well in favour of Mr. Thornton's or the Missionary's well; but the Superintendent represented difficulties as to closing it on account of the labour necessary to bring water from the site I suggested, and I doubt therefore whether, in consideration of the fact that dysentery still continues in the jail, it is not still possible for the prisoners to more or less use this water. *This abandonment of the well for all jail purposes is certainly essential.* But, lest by any means the convicts should obtain water thence, it would be advisable to practise disinfection by permanganate of potash (1—40,000) after the manner advised by Mr. Hankin, at intervals of, say, every fortnight.

If the jail is to be retained, a well in a site beyond the drainage cone of the old fœcal deposits should certainly be chosen. Such a site is to be found immediately beyond Mr. Thornton's present house, in an area which I showed to the Local Fund hospital assistant at Párvatípuram. To get over the difficulty as to transport, the water should be raised by pumping to an elevated cistern to the jail and there be distributed by pipes throughout, so as to make the jail independent of any water on the spot. Particular care should be taken that the prisoners do not use for any but gardening purposes the water of the garden well.

2*ndly*. The basement of each ward should be raised 3 feet, and be made impervious by a flooring of concrete plastered with cement. The surrounding surface of the wards should be well metalled. Drains for removal of rain water should also be provided.

3*rdly*. The ditch should be re-opened at once, and an outlet be arranged,—a condition that is possible.

4*thly*. All clothing of the prisoners should undergo a complete and careful process of disinfection by a solution of perchloride of mercury, and subsequently no clothing should be stored for subsequent issue without the same precaution being followed.

5*thly*. All walls should be completely freed of the existing plaster, and be then disinfected with perchloride solution and new plaster be provided.

6*thly*. The whole of the patched and ragged now used blankets and jackets, should be destroyed.

39. Either these measures, *in addition to the present intention of enlarging* the compound and so improving perflation should be carried out, or the jail should be abandoned. In my opinion, this abolition is the preferable policy. The conception that it is necessary to retain these hill-men in Párvatípuram, lest on their going to the Coast they should get fever and break down in health, is an ancient and untenable superstition. I was fully satisfied that the hill-men in the jail of Vizagapatam were in far better condition than those at Párvatípuram. Moreover, it is absurd to consider that the climate can in any way approach that of the hills. In any case, it is paradoxical that the Párvatípuram jail should, as has been the practice, send prisoners to Vizagapatam on medical grounds if "climate" be so important a factor. I inspected the hill prisoners at the Vizagapatam jail who were direct committals, and those who were sent there on medical grounds or were sick on arrival—being sent to relieve the congestion at Párvatípuram. Here is a statement of their condition as found on my inspection, which bears out the allegation as to bad state of health on admission, and exhibits the improvement undergone:

—	Anæmia.		Enlargement of spleen.		Spongy gums.		Retraction and atrophy of gums.		Total.
	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	
Recent admissions	3	25·0	3	25·0	3	25·0	1	8·3	12
Below six months	1	1·4	2	2·9	5	7·2	3	4·3	69
Above do.	3	3·1	..	..	..	..	..	..	97

40. I have not the slightest hesitation in saying that the chances of the survival of the prisoners in Vizagapatam are far greater than in Párvatípuram, and in this opinion Surgeon-Lieutenant-Colonel Leapingwell, who has a large experience in the district, agrees with me. I show here a statement of weighments as supplied by him:—

	Average duration of confinement.	Average weight gained.
	MOS. D.	
Those committed to the Central Jail directly from Vizagapatam	3 6	7·96
Those transferred to the Central Jail from the Párvatípuram Hill Jail	3 2	7·28

41. The surroundings of Párvatípuram show that, during the wet weather and the continuance of irrigation, no one but a man from the district of Tanjore would feel happy in such surroundings. The abolition of this jail seems to me therefore the wisest course, and this could easily be effected, as the East Coast Railway is about to run a line to this place, and transfers from the hills could therefore be readily made. At the same time, whilst I believe these prisoners would be under better conditions at Vizagapatam, it must always be expected that their state of health would fluctuate more than in the case of the ordinary prisoners of the plains, not only because confinement is probably particularly irksome to this class, but because, so far as I am yet informed, the population in its free state lives under hygienic conditions that induce a special liability to intestinal affections. The history of this class has always been that great mortality has attended their confinement. Indeed, their transfer from Vizagapatam to the specially built Párvatípuram Jail is thus accounted for in the Vizagapatam District Manual:—

"Others, hill men, will be sent to the new prison at Párvatípuram, which was constructed with a view to its providing accommodation for one hundred Jeyporeans (the present mortality amongst this class when confined in a jail on the Coast being truly deplorable)."

42. This account, it should be remembered, refers to the *old* jail at Vizagapatam, and shows that at this period the dysentery germ had attached itself to that locality, just as it has now to Párvatípuram, and would undoubtedly again in the present Vizagapatam jail, were sanitary precautions against its segregation and destruction neglected.

43. The conclusions therefore to which I would arrive as to the prevalence of dysentery are as follows:—

(*a*) That the convicts admitted from the hill tracts are received in an unhealthy condition due to the influence of malaria and state of scurvy.

(*b*) That prolonged residence in jail either at Vizagapatam or at Párvatípuram, ensures a cure of these conditions.

(*c*) That in the Párvatípuram jail, there exist hygienic faults which permit of the retention of vitality and distribution of the causative agent of dysentery (which by reason of former absence of care as to segregation and destruction has been introduced in the buildings, water and soil) and that the convicts of recent admission, whilst still in a condition rendering them peculiarly susceptible to dysentery, are thereby affected.

(*d*) That the Párvatípuram hill jail is not a hill jail, and does not offer either by its sanitary arrangements, or its climate, any good reason for retaining convicts here.

(*e*) That practical experience shows that, under the climatic conditions and the hygienic arrangements of the jail at Vizagapatam, the stage of predisposition to dysentery may in the modern jail be safely passed by such convicts, and that, if care be taken to always segregate (as in cholera) dysenteric motions, there is no reason why Vizagapatam should not continue to be a safe locality for their retention.

(*f*) That the class of medical care and the hygienic conditions obtainable in Vizagapatam being better than in Párvatípuram, it is advisable the convicts, if transferred from a true hill climate at all, should be sent to the former station.

Order—No. 2334, Judicial, dated 14th November 1895.

The interesting reports from the Sanitary Commissioner and the Inspector-General of Jails read above, though they do not render it possible to predicate with any real certainty the causes of the constant outbreaks of dysentery in the Párvatípuram jail, show with sufficient clearness that the jail premises are tainted with dysenteric germs, and that the abandonment of the jail, at least temporarily, is unavoidable.

2. Both officers adduce a series of forcible arguments in favour of its permanent abandonment, but the Government considers that, before this step is definitely decided upon, it is necessary to ascertain, from actual experience extending over some considerable period, what will be the effect upon the health of convicts from above the ghâts of confinement in prisons situated upon the Coast.

3. The Párvatípuram jail should accordingly be temporarily abandoned as a place of confinement for convicts, and its present inmates should be removed partly to the jail at Vizagapatam and partly to that at Rajahmundry as the Inspector-General may be able most conveniently to arrange. After their removal to these places, the state of their healths should be most carefully watched and recorded in full detail. It is believed that the hill men confined in the Párvatípuram jail were formerly permitted a daily allowance of opium, and that their ill-health in other jails has been ascribed to their deprivation of the drug. The Inspector-General will be requested to report whether this allowance is still made. If it is, it should be continued to this class of prisoners after their transfer to jails on the plains, and, if it is not, information should be furnished as to the reasons which led to its discontinuance.

4. Pending the completion of the arrangements for this transfer of the prisoners, the jail well should be disinfected with permanganate of potash on Dr. Hankin's system as recommended in paragraph 38 of the Sanitary Commissioner's memorandum, and the old clothing and blankets now in use should be destroyed and replaced by others. It would appear that the Superintendent of the jail was responsible for the unsatisfactory condition of these latter, and the attention of the Inspector-General will be called to the point.

5. The repairs and alterations now going on in the jail should be stopped at once. As, however, it may eventually be found necessary to again use the jail should the health of the prisoners when confined near the Coast or at Rajahmundry be found as unsatisfactory as it has proved in former years, or should any difficulty as to accommodation arise hereafter, the Inspector-General will be requested to take steps to have estimates prepared and kept ready, not only for the works the execution of which has already been sanctioned, but also for the other improvements suggested by the Sanitary Commissioner in paragraph 38 of his memorandum, and for draining the jail premises. Some of these are small undertakings which could probably be carried out departmentally.

6. The Government is not prepared to adopt the recommendation of the Inspector-General that the jail well should be retained as a drinking-water supply without a more careful trial of the quality of the water, and he will be requested to arrange for further analysis of this; the results of these should be reported to Government. Orders will thereafter be passed upon his letter upon the subject of filters read in G.O., No. 1990, dated 24th September 1895.

7. The sanitary arrangements in the wards at night appear, from the papers before Government, to be unsatisfactory. The corners which are used as latrines should certainly be floored with some impervious material, and should be supplied with drains so that they can be cleaned without difficulty. It would probably be sanitarily preferable to have detached latrine wards as is the case at the Madras Lunatic Asylum, and the matter is commended to the consideration of the Inspector-General. Estimates for carrying out these improvements should be included with those already referred to in paragraph 5 *supra*.

8. In the second of the letters read above the Sanitary Commissioner suggest that the Inspector-General of Jails should be placed in communication with the Sanitary Board in order that the existing water-supplies in jails should be improved and altered. The Government does not consider that any cause for general dissatisfaction with these supplies has been shown, but the Inspector-General will be requested to report shortly upon those of them that are in his opinion at present defective, and upon the remedies that might be adopted.

9. It appears from the present papers that the prisoners themselves frequently foul their own drinking-water, or carelessly drink that which has already been rendered impure. The danger of this occurring with the supplies put into the cells at night might perhaps be obviated by placing in each cell a tap connected with a supply placed outside the wards. Bathing water should be frequently renewed where possible and run off as soon as it has been used.

10. The following telegram will be despatched to the Inspector-General of Prisons:—

706. "Parvatipuram Jail to be abandoned temporarily. Stop works there."

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Inspector-General of Prisons.
" Sanitary Commissioner.
" Public Works Department.
" Accountant-General.

Exd. S. J. Pereira.

Govt. of {1895} Madras.

JUDICIAL.

Issued

Recd. *Encl.*

G.O., No. 2334, 14th Nov. 1895.

NOVEMBER.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

Read—again the following papers :—

G.O., No. 1165, Judicial, dated 29th May 1895.

G.O., No. 1990, Judicial, dated 24th September 1895.

Read—also the following papers :—

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated 10th October 1895, No. 1796-S.

With reference to my report on the Párvatípuram Jail, dated 7th October 1895, and forwarded to you through the Inspector-General of Prisons, I have the honour to respectfully state that there can be no manner of doubt that the arrangements for water-supply in the jails of this Presidency are half a century behind the sanitary requirements of the age, and that, at a time when Government will shortly consider the budget for 1896–97, I would venture, as a matter of duty, in continuation of my letter, No. 1755-S, dated 22nd September 1894, paragraph 5, to again draw attention to this matter.

2. The unsatisfactory condition of health in which the convicts at Párvatípuram are received could not fail to have been aggravated by the use of drinking-water liable to contamination—a contamination that would have been *very greatly guarded against*, had the well been built with the slightest regard to hygienic dictates. Even when it was attempted to shield them from the effects of impure water by boiling it, the open bathing cisterns (as was the case in the epidemic of cholera in 1893 in the Trichinopoly Central Jail) formed a source of weakness, which defeated the object in view, by affording facilities for drinking-water specifically contaminated in spite of precautions to the opposite.

3. Considering the great expense that must be caused to Government should jails be attacked by epidemics, I am convinced that early measures with regard to remodelling the existing water-supplies and abolishing open bathing cisterns, so as to take advantage—to a reasonable extent in regard to finance—of the knowledge of the day would prove of ulility not only in diminishing mortality, but in the long run in effecting economy.

4. Even if Government were not prepared to undertake improvement in these matters in a number of jails at once, it would at least be feasible to have estimates and plans prepared and effect improvement from year to year. If Government approved of this suggestion, I would respectfully advice that the Inspector-General of Prisons be placed in communication with the sanitary board on the subject.

From A. G. CARDEW, Esq., M.A., Inspector-General of Prisons, to the Chief Secretary to Government, dated Madras, 14th October 1895, No. 1244-C.

I have the honour to forward, for the consideration and orders of Government, the accompanying letter, No. 1749-S, dated 7th October 1895, with enclosures from the Sanitary Commissioner, Madras, giving the results of his inspection of the Párvatípuram Jail. Surgeon-Lieutenant-Colonel King visited the jail at the height of the unhealthy season, and his observations appear to be of much value. I have since had the advantage of meeting him and of discussing the subject of his report with him.

2. The main results of the Sanitary Commissioner's visit may be said to be two in number, namely, (1st) that the hill-men who form the population of the Právatípuram Jail are admitted in a scorbutic condition and improve in general health during confinement, (2nd) that in spite of this improvement due to good food, &c., they have died in large numbers owing to the site and water-supply of the jail being infected with the specific agent of dysentery.

3. The first of these conclusions is specially valuable, as coming from an impartial and qualified observer. It is of much importance to have a reliable opinion in support of the view that the scorbutic taint is not jail-bred, but is found in prisoners on their first arrival and diminishes during confinement. The state of health of the prisoners received is thus such as to render them specially subject and prone to such a disease as dysentery.

4. The second of Dr. King's conclusions is also of importance, but not all the arguments by which it is supported can be wholly accepted. There is every reason to believe that, as he states, the *site* of the Párvatípuram jail is infected with the dysenteric germ. Dysentery was prevalent there so long ago as 1888 and up to the close of 1889 the whole of the night-soil was buried in pits in the garden. But the Sanitary Commissioner's attempt to trace a connection between the outbreaks of dysentery in 1894 and 1895 and the water-supply does not appear to me to be successful. The pollution of the drinking-water well by filtration from the pits where night-soil was buried prior to 1890 must be due, if it exists, to the germs being carried through by water. Such filtration and the consequent outbreak of dysentery would thus occur in years of heavy rainfall. If, however, either diagram No. 1 or diagram No. 3 is examined, there is no connection apparent between the amount of the rainfall and the death-rate from dysentery and diarrhœa. Thus the death-rate from these causes was very high in 1888, when the rainfall was the lowest in the decade; it was lowest in 1886 and 1893, when the rainfall was highest (diagram No. 3). If the outbreaks of 1888, 1894 and 1895 were due to the washing through of infective matter from the old night-soil pits to the well, it is impossible to see why such unfortunate results occurred in those years, while in other years of heavier rainfall there was less dysentery and diarrhœa. Again the infection of the well water from the night-soil pits would naturally be greatest when the night soil matter was new. The table of water analyses contained in paragraph 19 of the report shows that the supply of nitrates has been diminishing annually since 1890, and if these nitrates come from the old night-soil pits at all, the chances of infection with the dysenteric poison also must have diminished. Yet the worst outbreaks of dysentery have occurred in 1894 and 1895.

5. An attempt to explain away this difficulty is made in paragraphs 27 and 28 of Dr. King's report where it is suggested that prior to 1894 much of the rainfall falling on the night-soil pits was carried off by a trench which Colonel Porteous in December 1889 ordered to be dug to render the escape of convicts more difficult. The ditch was not dug till 1890, and therefore cannot have affected the years 1888 and 1889, in which a light rainfall was accompanied by heavy dysentery and a heavy rainfall was coupled with reduced amount of sickness, respectively. Nor can the ditch, I think, have really had the effect attributed to it in 1894 and 1895, for the ditch is said to have been filled in during 1892–93 and there was little trace of it when I first visited the Jail in December 1892. Nevertheless 1893 was the healthiest year of the decade, and sickness did not begin till August 1894. It is thus, I think, impossible to trace a direct connection between the night-soil pits and the drinking-water well. The diminution of nitrates in the latter may reasonably be attributed to the well being cleaned out.

6. It will further be observed that the Sanitary Commissioner's diagrams Nos. 1 and 3 relate, for reasons which he gives, to statistics of dysentery and diarrhœa combined. But a consideration of the mortality from dysentry alone, diarrhœa being excluded, does not confirm the view, which he expresses, of contamination of the well from the old night-soil pits in years of heavy rainfall. It shows a fairly steady amount of the disease from 1889 to 1893 followed by a sudden outbreak in 1894–95. The following are the figures of deaths and death-rate from dysentery alone in 1888 and subsequent years. No earlier returns have yet been traced.

	Number of deaths from dysentery.	Death-rate from dysentery per mille.
1888	5	30·5
1889	2	10·1
1890	4	19·7
1891	3	16·0
1892	3	14·7
1893	2	11·7
1894	16	74·4
1895	* 11	† 55

7. It appears to me that, it is impossible, in the light of these figures, to consider the Sanitary Commissioner's theory a sufficient explanation of the sudden outbreak of August 1894 which has been repeated in the present year. Each year the night-soil matter in the old pits has been diminishing, as the processes of conversion into soil proceeded; each year there has been a certain amount of dysentery in the jail; but it is not until the last two years of the series that the disease suddenly breaks forth in alarming proportions. The immediate causes of this sudden epidemic of dysentery in 1894 and 1895 is, it seems to me, as obscure as ever. But as there is no doubt that the site of the jail received dysenteric pollution in the past and as it is now the prevalent opinion that the germ can be revivified by favourable climatic conditions, especially damp and warmth, there would be nothing remarkable in a recrudescence of the disease occurring in the months following the burst of the south-west monsoon. Why the recrudescence of 1894 and 1895 proved so violent, we cannot say; but the infection of the jail with dysentery in past years is apparently alone a sufficient explanation of the appearance of the disease. Dr. King's conclusions in paragraph 43 of his report may, therefore, be safely adopted without accepting the special explanation of water contamination which is suggested in earlier paragraphs.

7. It may be noted here (1) that the overcrowding of prisoners in 1894 cannot reasonably be supposed to be the cause of the sickness of that year, because there has been an equal amount of sickness in 1895, when no overcrowding has occurred; (2) similarly that the crowded state of the jail yards due to additional buildings could hardly have been avoided during 1894, because the old sheds could not be removed until the new buildings were ready for the convicts to occupy; (3) that the removal of the chunam floors of the old blocks and the substitution of floors of rammed earth was specially ordered by Mr. Grimes when he visited the jail in March 1887. The new blocks have been provided with concrete floors and all the blocks have pials of the prescribed height.

8. The seriousness of the present state of health of the jail will be apparent from the following figures:—

Month.	Number of deaths. 1894.	Number of deaths. 1895.	Cause of death. 1894.	Cause of death. 1895.
January	..	1	....	Pneumonia.
February	..	..	....	....
March	1	1	Remittent fever	Anœmia.
April	..	1	....	Do.
May	..	1	....	Sunstroke.
June	..	3	....	Dysentery.
July	..	2	....	Pneumonia and beriberi.
August	13	8	7 Dysentery	6 Dysentery.
			1 Diarrhœa	
			3 Anœmia and debility	2 Pericarditis.
			1 Remittent fever	
			1 Cirrhosis of liver	
September	6	4	5 Dysentery	2 Dysentery.
			1 Diarrhœa	2 Pericarditis.
October	3	?	1 Dysentery	....
			1 Diarrhœa	....
			1 Beriberi	....
November	3	?	2 Dysentery	....
			1 Anœmia	....
December	3	?	2 Dysentery	....
			1 Phthesis	....
Total ..	29	‡ 20		

* First nine months. † Approximate. ‡ For nine months.

Thus the mortality of 1895 has so far been equal to that of 1894, in spite of a smaller average population. It is hardly possible to allow this state of things to continue, and the necessity of either abandoning the Párvatípuram jail or of carrying out the improvements recommended by the Sanitary Commissioner in addition to those already approved by Government in G.O., No. 510, Judicial, dated 8th March 1895, seems to be undeniable.

9. The Sanitary Commissioner is strongly in favour of the abandonment of the jail. He has not stated very fully his reasons, but the following points may be noted:—

(1) The condition of health of the prisoners received at Párvatípuram is such as to demand a considerable degree of professional skill and knowledge. In Mr. Henderson we probably had as good a Medical Officer as we can ever expect to get from the class to which he belonged (Warrant Medical Subordinate). I have no doubt that he did his utmost to stop the sickness and Dr. King has (in a separate note) recorded the opinion that he was in no way to blame. But Mr. Henderson's professional knowledge and education were limited. He never seems to have recognised the presence of the scorbutic taint, which the Sanitary Commissioner states is clearly proved from the *post mortem* appearances and other records. If the hill prisoners, who now are sent to Párvatípuram, were confined at Vizagapatam, a much higher degree of medical skill and knowledge would be brought to bear on their treatment.

(2) The situation of Párvatípuram, 60 miles from a line of rail, is so remote that it is particularly difficult to supervise the jail. It does not appear ever before to have been inspected by the Sanitary Commissioner. The District Medical Officer of Vizagapatam can visit it very seldom. Postal communication is slow and the jail is thus necessarily left much to itself. Almost everything depends on the care and judgment of the Superintendent and Medical officer, who is, after all, only a subordinate of limited education.

(3) The selection of Párvatípuram as a site for a jail, and especially of a jail for hill men, was bad. The country is water-logged; the town lies low; at night the whole place is wrapped in fog; and the hills round shut it in and make it hot. Bobbili would have been a much better site, and the position of the Vizagapatam Jail is very much superior.

(4) The Párvatípuram jail is now infected with dysentery and it may be difficult to eradicate the taint.

10. These seem to be weighty reasons for abandoning Párvatípuram. But it must be remembered that in the past hill prisoners did nearly as badly at Vizagapatam as they have lately done at Párvatípuram. References to the ill-health at Vizagapatam will be found in G.O., No. 1641, Judicial, dated 22nd June 1886. I am inclined to agree with the view of the Sanitary Commissioner that the conception of the health of hill-men suffering specially when near the coast is a superstition, but the evidence on this point is not free from doubt and the Vizagapatam jail has been fortunate of late years in having a particularly capable and careful Superintendent. If the Párvatípuram jail were permanently closed, fresh buildings would be necessary at Vizagapatam, and it would be a serious matter to erect those buildings and then to find that the health of the hill-men was after all no better or worse at Vizagapatam than at Párvatípuram.

11. I have received from the Superintending Engineer, a few days ago, a revised estimate amounting to Rs. 40,900 for the works contemplated at Párvatípuram. Of this amount about Rs. 16,000 have already been spent on extensions of blocks and on the provision of a fresh hospital. Work on the hospital is now in progress, and when that is finished the main wall has to be thrown out on the north, south and east sides and a new office built. I do not forward these plans and estimates at present as I am now proceeding to Párvatípuram and I wish to examine them on the spot.

12. The additional measures recommended by Dr. King are stated in paragraph 38 of his report. Instead of abandoning the well, it would be cheaper and equally efficacious to procure the Pasteur filter recommended in my letter No. 5402, dated 5th September 1895. The Government will observe that the water has already been

subjected to bacteriological analysis by Mr. Hankin, and the Sanitary Commissioner informs me that it was "rich in common microbes." I accordingly resubmit the enclosures to my letter last named.

13. The cost of other recommendations made by Dr. King is uncertain, but would probably not be very great. The convicts would have to be moved into camp for a time during the disinfection of the wards. The new camping ground, acquisition of which was recently sanctioned by Government, was handed over to the jail on the first instant.

14. If the Government considers that the objections to Párvatípuram which are stated in paragraph 9 *supra* are so strong as to render it undesirable at present to spend more money on that site, while it would be unwise to add extra buildings to the Vizagapatam District Jail until the suitability of the climate to hill-men is assured, there is a middle course which may be adopted. As has been recently done at Cuddapah, the Párvatípuram jail may be temporarily and tentatively closed. There is at present sufficient room in the Vizagapatam jail for the hill-convicts as well as for the prisoners ordinarily received there. There is, moreover, accommodation in the Rajahmundry Central Jail which is now only a few hours by rail from Vizagapatam for at least 300 prisoners more than are at present received there. In the event of scarcity arising and of the number of admissions increasing, the Párvatípuram jail could be at once re-occupied, while its temporary abandonment would enable a practical test to be applied to the suitability of the Vizagapatam jail to hill-men. Meantime the dysenteric germ on the Párvatípuram site would have time to die out.

15. This is the solution of the question which appears to me to have most to recommend it. Further expenditure on the buildings at Párvatípuram would be saved, and if later it was decided permanently to abandon the place, and to add to the Vizagapatam jail, the cost of such additions would not be much, if at all, greater than the work which as yet to be done at Párvatípuram.

16. The issue of early orders deciding the future of the Párvatípuram jail is in any case desirable, and I shall be glad if they can be communicated by wire. If it is resolved to adhere to Párvatípuram the plans and estimates amounting to Rs. 40,900 which are referred to in paragraph 11 *supra* will then be at once submitted for approval and early provision of funds. The Public Works Department should also be desired to prepare a further estimate for providing those blocks at present without it, with an impervious cement flooring, as recommended in paragraph 38 (2) of the Sanitary Commissioner's letter, and for constructing drains throughout the jail. I request also that the sanction asked for in my letter No. 5402, dated 5th September, may be accorded. If, on the other hand, it is resolved temporarily or permanently to evacuate the Párvatípuram jail, orders to stop further expenditure on the works there should be communicated by telegram. The sickly season being now nearly over, there is no immediate urgency regarding the removal of prisoners from Párvatípuram, and all details connected with this matter can be settled later. I may add that as most of the prisoners received at Párvatípuram come from Koraput, and necessarily descend the Pottinghi ghât to Salur, they could as easily be marched to Vizianagram (about 30 miles) whence the East Coast Railway takes two hours to Vizagapatam, as to Párvatípuram which is about 25 miles from Salur.

Enclosure.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government (through the Inspector-General of Prisons), dated 7th October 1895, No. 1749-S.

With reference to G.O., No. 1165, dated 29th May 1895, Judicial, paragraph 10, I have the honour to forward herewith a report on the subject of the Párvatípuram jails. As the Inspector-General of Prisons informs me that the epidemic is still present, to save time I forward it through him.

2. I inspected the jail at the end of July last. Delay was caused by the bottles of water sent to the Chemical Examiner having been smashed *en route*, and a second sample had therefore to be supplied. It was then so late in August that I determined to secure the statistics for that month. Certain other information required did not reach me till the 23rd September. I was not aware that the sickness was still continuing, as my office is not supplied with returns from the Párvatípuram jail.

3. It having been recently suggested to the Inspector-General of Prisons that the disease suffered from is beri-beri, I would state that, whilst the conditions present would certainly be such as to favour the occurrence of this disease, neither by inspection of the prisoners nor *post mortem* statements was there anything to lead me to believe that, if it existed at all, it had anything to do with the sickness under investigation.

Memorandum on the sanitary condition of the Párvatipuram Hill Jail.

Former conditions.—The Inspector-General of Prisons having in his letter, No. 3805, dated 1st July 1895, informed me that epidemic dysentery had again appeared in the Párvatipuram jail, I undertook the inspection of this jail earlier than desired by G.O., No. 1165, Judicial, dated 29th May 1895, paragraph 10, with the object of examining conditions as they existed during the prevalence of the sickness, as, indeed, was suggested to me by the Inspector-General of Prisons. I inspected the jail and prisoners on the 25th and 26th July 1895.

2. The following statement shows the mortality from all causes and from dysentery and diarrhœa in this jail since 1886. The latter should have been exhibited separately, but time does not permit a reference to the jail on this point;—

	Death-rate from all causes.	Death-rate from dysentery and diarrhœa.
1886	50·24	21·53
1887	110·76	24·61
1888	115·80	36·57
1889	81·26	30·47
1890	59·14	24·64
1891	53·06	21·22
1892	24·48	19·57
1893	17·55	17·55
1894	125·88	93·24
1895 up to September	85·36	45·19

3. From the above statement it will be seen that neither in regard to general mortality nor to the special disease of epidemic dysentery is the condition of affairs brought to light in the Government Order referred to a new matter.

4. The first point demanding attention seemed to me to be the ascertaining whether the disease suffered from was really the specific disease of dysentery or other affection of the intestines. A perusal of the *post mortem* records left no manner of doubt that the diagnosis made by the medical officer was correct. Moreover, there was no doubt that in the year 1894 the disease had assumed the scorbutic type in many cases. Records for 1895 showed that this complication had disappeared, and that the ordinary, but a severe, type of epidemic dysentery remained.

5. In 1894, the District Sanitary officer, Vizagapatam, and the Inspector-General of Prisons had made inquiries and had effected improvements in the general hygienic condition of the prisoners. Several faulty details as to diet were remedied on the suggestion of the District Sanitary officer, and, in recognition of the scorbutic condition of many of the prisoners, lime pickle was issued, and special attention was paid to the nature of the vegetables forming part of the diet. Particular stress was laid upon the indubitable over-crowding of prisoners in the jail and the imperfect perflation brought about by reckless erection of sheds within the jail walls.

6. *Present condition.*—To care as to diet it is but reasonable to attribute the alterations of the type of dysentery observed; the full influence of better perflation had not yet been secured at time of inspection as the main wall had not yet been completed, but the obstructing buildings within the compound had been removed. Moreover, the population of the jail has been maintained within the prescribed limits, so that in the matter of improvement of diet and over-crowding—subject to the above remarks—it may be granted that prisoners were under almost as good conditions as the remedying of these serious defects would bring about.

7. The following table exhibits the result of examination of the prisoners as to existence of "sponginess of the gums" confined at the time my inspection, classified according to length of residence in jail;—

Whence transferred to jail.		Length of residence in jail.					
Hill tracts (above ghâts).	Low country (below ghâts).	Under one month.	Above one and under two months.	Above two and under three months.	Above three and under four months.	Above four and under five months.	Five months.
16	9	10	5	6	1	2	1

8. In addition to the above, 44 or 20·4 per cent. of the total jail strength suffered from atrophy and retraction of the gums, 11 or 5·1 per cent. also suffered from various grades of anæmia, and 14 or 6·5 per cent. from enlargement of the spleen.

9. The above statement goes to show that 32 per cent. of the prisoners had suffered or were suffering from a condition that would ordinarily be recognized as land scurvy, the spongy gums representing an acute stage of the disease, the retracted and atrophied gums without concomitant bleeding or ulceration proving that the disease had been undergone, but that the patient was convalescent.

10. *State of diet.*—As already stated, such errors in the hygiene of diet as existed were remedied under Surgeon-Lieutenant-Colonel Leapingwell's advice. The diet on inspection by me was of excellent quality, with one exception. Further, the Inspector-General, after careful examination of the figures as to weighments, has expressed the opinion that no "fudging" of the figures had been practised, and that there was consequently no reason to think that deficient diet was a factor. The following figures bear out this statement:—

Months.	Net result of weighment.		Months.	Net result of weighment.	
	Gain.	Loss.		Gain.	Loss.
January 1895	3·54	..	May 1895	3·96	..
February ,, ...	4·14	..	June ,, ...	2·78	..
March ,, ...	4·96	..	July ,, ...	2·65	..
April ,, ...	4·85	..	August ,, ...	3·05	..

11. The exception to which I allude was the state of the ragi flour. It was found stored in kerosine tins and possessed a *very strong* acetous odour. On my pointing this out to the Superintendent, he met with arguments that are not without weight. I believe, as he urged, that natives in certain parts of the country prefer their ragi-pudding in a state of some acidity. It can well be conceived that there is a stage in the advance towards fermentation where the changes in the starch would be such as to favour digestion, but I should regard the fixing of such a stage as a refinement in chemical research. Whilst admitting this much, I consider the acetous state in which the flour was found not safe, and that it would be liable to produce catarrhal affections of the intestine. I pointed out the remedy to the Superintendent, namely, not confining the flour after grinding, but permitting free air access by spreading it out and securing dryness as quickly as possible. In this matter the method followed at Coimbatore is commendable where, although the practice is to wash the ragi entire, the whole is placed on a cement surface permitting of quick and thorough drying in the sun after washing. This is a matter, however, I do not think need be regarded as an important factor in the case, in view of the result of examination of weighments, otherwise than as affording pre-disposition of the intestinal tract to infection.

12. Taking the above facts into consideration, together with the statement of period of confinement in table No. 2, it is evident that far from the period of confinement in jail having a deleterious effect, the opposite is the result; consequently, the conclusion must be arrived at that the state of land scurvy is more or less the normal condition of the prisoners when admitted. Clear evidence was obtained on this point by my subsequent inspection of direct committals to the Vizagapatam jail of the same class of hill-men with the difference, as I shall show further on, that improvement in Vizagapatam jail is far more rapid than in Párvatípuram. That otherwise than in a period of famine, a body of men should be received in this condition is certainly startling; but evidence from old reports at Párvatípuram show that this is a normal condition of a large portion of the hill-men received. For confirmation it would, however, be necessary to prove that the hill-men do suffer from this condition before admission. On this point no evidence is available and I cannot further delay this report with regard to this important point. Evidence must be gathered slowly and carefully and this shall be attended to. In the meantime, I have gathered

The condition of prisoners on admission.

evidence as to the diet used by the poor classes of the hill-men, but this has been rendered in a form that would prevent positive assertion being made by me. So far as I can judge there would, notwithstanding the use of meat at intervals, be a tendency to lack of albumenoids and of vegetable salts-roots taking the place of succulent vegetables. I may here state that I am by no means a believer in land scurvy being so much due to the absence of vegetable diet as it is usually assumed. The defect of the supply of vegetable salts usually exists, but coincident with this my experience with natives would go to show a lack of sufficient, or easily assimilable, albumenoids in the diet—a condition that would be aggravated in this case by exposure to malaria. There are no available statistics as to the death-rate of these hill-men, and but little can be procured as to their health state from hospitals situated in their midst. *The fact remains however that a large proportion of the hill-men received both at the Pârvatipuram jail and Vizagapatam jail are subject to the condition named.* Certain records show that during their transfer from the hills in former days the prisoners were subjected to evil hygienic conditions, but these matters have been attended to.

13. There is evidence therefore to show that the prisoners from the hill tracts are received to a considerable extent in a state of health pointing to the *probability* that their diet, although sufficient as to bulk, for some reason as yet not correctly ascertained, is erroneous as to constituents. This condition of health is one which would predispose to affections of the intestinal tract.

14. The following statement shows that there was no special preference for attacks in blocks—nor according to occupation—though there was protection by prolonged residence, showing that susceptibility diminished as time of residence advanced, as a result of improvement of health. The value of this statement throughout is less than I would wish, as the proportion to the population under each head is not stated. As to the influence of residence in special blocks also the statement is not, as remarked further on, of much value as no roster as to residence was maintained. The statement simply shows the block in which the convicts lived on the day of applying for treatment.

Statement showing blocks from which dysentery cases were admitted during outbreak of 1894–95, with occupation, residence and length of residence in jail of the prisoners.

	Blocks.							Occupation.						
	1	2	3	4	I sheds.	W sheds.	Hospital.	Ragi grinding.	Garden.	Water gang.	Cooks.	Weavers.	Blacksmiths.	Toty gang.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1894.														
	3	6	4	4	3	4	..	4	5	3	2	1	1	2
1895.														
	2	3	3	3	..	..	1	1	1	4	..	1	..	..

	Occupation—*cont.*					Hill or low country.		Residence in jail.						
	Coir picking.	Water drawers.	Building gang.	In hospital.	Invalid gang.	Hill.	Low country.	Under one month.	One to three months.	Three to six months.	Six months to one year.	One to two years.	Two to three years.	Above three years.
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1894.														
	2	1	1	..	2	19	6	8	10	7	..	..	..	..
1895.														
	2	..	..	1	2	8	4	5	4	2	1	..	..	..

15. Before discussing the why and wherefore of this prevalence of dysentery, it is necessary to bear in mind that dysentery and diarrhœa, which are commonly classed together in the lay mind, are two different things, and that the former is an infectious disease in the sense that cholera or typhoid fever is; that is, it is conveyable by the bowel excretions, and is produced by a living organism as to the identity of which, as usual, there is some doubt but is generally granted to be an amœba. Once this special organism be introduced, there is reason to believe that it is not readily destroyed, and that its infective powers are maintained under certain favouring conditions.

The nature of epidemic dysentery.

16. There had in 1894 and former years existed over-crowding in the wards, and dysentery was present. Dysenteric motions must have been frequently passed in the wards before application for treatment was made.

The evidence of prior infection.

17. Even if segregation of such cases were practised, in consideration of native habits, the contamination of the blankets and of the pyals in which they sleep would have been inevitable. These blankets were ascertained not to be retained with individual prisoners; so that were a blanket infected it might be handed to seven men in a week. The blankets inspected were patched with old fragments of others and were frequently little better than a heap of rags. In addition the prisoners were provided with cumbly jackets for wear during the cold weather. It was ascertained that when they went out in the rain, these jackets were worn and no care was taken to see that they were substituted by dry clothing. Thus, granting men were subjected to mere drizzles at intervals, infectivity of disease-bearing particles would be maintained, irrespective of the influence of cold and damp in bringing about a favouring condition of catarrh of the intestine. Again, the floors of the building with two exceptions are earthen, as also the pyals on which the prisoners lie. In the corner of the wards upon the level of the floor were placed the arrangements for night conservancy. This consisted of wooden tubs—an objectionably porous substance to employ for this purpose. *No special surface was prepared, and droppings and washings* from the ablutions of prisoners soaked the floor at this spot. In this connection I may state that it is impossible to differentiate the result of the floors of two of the wards being now covered with concrete, as there was no way of proving in which division of the blocks the prisoners slept on nights. Such conditions would, of course, favour the retention of vitality of the infective agent.

Favouring conditions for retention of vitality of infections agent.

18. The soil of the site is of red gravel and porous. There is reason to believe that it was long occupied as a fort prior to its use as a jail. Such occupation would certainly not favour the freedom from organic impurity of the soil, or from importation of infective organisms. *It is a well recognised fact that wards of hospitals and buildings such as barracks, where dysentery has prevailed for a long period, do not readily get free from contamination.*

The sanitary features of the locality.

19. The most striking feature of the locality is the great range of fluctuation of the sub-soil water. When at its highest level for the year, the water in the garden-well and in a well immediately outside the jail stands at about 3 feet from the surface, whilst the highest level of the water in the drinking-well is 13 feet and the greatest fall 29 feet This special well from which drinking water is obtained is made upon the most erroneous principles it is possible to conceive. It consists of alternate bands of masonry with dry brick intervals so that in receiving water from a distance, it would reach the interior of the well at as near the level at which it arrives as consistent with the existence of bands of 3 feet of masonry—this even being pervious. The base of the cone of this well may be said to extend 2,560 feet, being 160 times the multiple of its range of depression. In examining the area of this cone, I found that a space of 52,926 square feet had been for many years used as a night-soil depôt for the permanent deposit of night-soil. When this was commenced I could not ascertain, but its use was stopped by Colonel Porteous after an enquiry as to the state of health of the prisoners—*vide* G.O., No. 526, Judicial, dated 20th March 1890. This night-soil trenching ground is but 85 yards from the well. Considering the length of time that has elapsed since these pits were abandoned, it would seem to follow, as a matter of course, that the contents should now be fully decomposed. It, however, was found on attempting to dig the foundation of the walls of the new hospital building that imperfectly changed night-soil was present. At my request the Superintendent dug pits in this area, with the result of exposing matter that was still recognizable as fœcal in considerable amount. There was thus, prior to 1890, a mass of night-soil within a pervious sub-soil and within the drainage cone of the well, which observation in July 1895 shows is still but imperfectly changed. Whether or not this condition of affairs did affect the purity of the well supply can luckily be settled by an appeal to the chemical analyses constantly maintained. Records on this point are available from 1890 as shown below:—

—	Párvatí-puram jail well reported on 20th January 1890.	Párvatí-puram jail water reported on 26th February 1891.	Filtered water from Párvatí-puram hill jail well reported on 23rd February 1892.	Drinking water from Párvatí-puram hill jail well reported on 16th February 1893.	Párvatí-puram jail drinking water well reported on 10th April 1894.	Filtered drinking water, Párvatípuram, reported on 17th May 1895.	Unfiltered drinking water, Párvatípuram reported on 17th May 1895.	The hill jail, Párvatípuram, 17th August 1895.
1	2	3	4	5	6	7	8	9
Total solids, grms. per litre.	0·370	0·470	0·320	0·370	0·305	0·330	0·340	0·380
Volatile solids, grms. per litre	0·160	0·150	0·150	0·170	0·115	0·140	0·140	0·100
Chlorine solids, grms. per litre	0·041	0·046	0·039	0·041	0·031	0·031	0·031	0·042
Total hardness, Clark's scale.	7°·700	9°·100	4°·900	4°·200	3°·150	4°·550	4°·550	5°·950
Permanent hardness, Clark's scale	2°·450	5°·250	4°·900	3°·500	3°·150	2°·100	2°·100	2°·450
Free ammonia, mlgrms. per litre	0·080	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.
Albumenoid ammonia, mlgrms. per litre ..	0·040	0·040	Trace.	Trace.	0·144	0·040	0·048	0·048
Nitric acid, mlgrms. per litre (as ammonia)	21·000	22·500	18·750	15·000	13·500	6·900	7·500	10·800
Apparent quality of the water as inferred from the results obtained on examination	..	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.

Remarks—(1) Sediment contains large amount of vegetable debris. The amount of free ammonia is higher than the prescribed limit of safety; this, coupled with the fact that the amount of chlorine is very close to the outside limit of safety, I hesitate to pronounce the water to be free from suspicion of contamination by organic matter.

(2) The catchment area should be carefully guarded, nitric acid being very high.

(3) The amount of nitric acid present seems to point to some old contamination and it is recommended that the well be thoroughly cleaned.

20. Holding in mind the fact that the night-soil trenching was stopped in December 1889, I think there can be no manner of doubt that the chemical analyses show that year by year the amount of nitric acid due to the fœcal matter *filtering* through the soil and becoming changed into nitrates, had decreased in proportion to the change effected in a mass no longer added to.

21. I would here point out that the Chemical Examiner's warning as to danger in 1890, 1891 and 1892 led only to the cleaning of the well—not to an exploration of the area included in the drainage cone of the well.

22. I need hardly say that, granting the fœcal matter contained the specific agent of dysentery, its conveyance through a porous sub-soil to a distance of 85 yards from so large an area of fœcal covered ground may be regarded as practically certain. Taking the average population of 1886 to 1889 at 155 per diem, there would have been deposited here 189·4 tons of urine and 56·8 tons of fœces at the rate of 12 oz. per male Hindu adult per diem.

23. But the use of the well being constant, it is evident from statement No. 1 that there were intervals of *comparative* freedom from the disease in the jail. If diagram No. 3 be regarded, it will be seen that these periods corresponded with seasons of presumably low water levels due to deficient rainfall. It may, however, be contended that the period of rainfall and the outbreak of dysentery do not exactly coincide. This may be fairly ascribed to the fact that the sub-soil water rise would occur at an interval of some weeks after the setting in of the monsoon. Thus within six weeks of the opening of the south-west monsoon in June (diagram No. 2) the drinking water-well is said to rise 12 feet and reach its maximum of 13 feet from the surface in the month of August. It must be remembered it is not necessary in such an argument to require that the rate of attacks should be proportionate to the rainfall—as numerous factors would operate in determining numbers; it is sufficient to show that the starting of the epidemics had a relation to the monsoon and the fluctuation of the water level. Taking these facts into consideration, and that the dampness of the superficial soil would favour the influence of previous defilement of the soil, I think there is every reason to conclude that the incidence of the monsoon rainfall and the subsequent rise of the sub-soil water were coincident with the periods of the epidemics.

24. Here it must be remembered that the sub-soil water level or at least a line of moist earth would in all probability be between 3 feet and 13 feet—the water level of the outside well and of the inside well respectively of the earthen floors—forming the wards, and that the condition referred to above as to conservancy ensured contamination of the flooring—*vide* diagram No. 4.

25. It is necessary for me to add that the wards have no basement, and if anything are below the general surface of the ground, and that only one-half of two blocks has recently had concrete floors.

26. I have thus far attempted to trace a possible relation between damp sub-soil, infected floors and buildings, and the retention of infection. As to the actual mode of entrance to the system, irrespective of entrance of infected particles from blankets and hands, I may remark in reference to a theory lately promulgated by Dr. Manson that Párvatípuram is infested in a marked manner with musquitoes.

27. That the causative agent could have also been water-borne is, I think, sufficiently demonstrated in paragraph 22. With reference to diagram No. 3, bearing in mind the fact that the analyses show a steady decline of the degree of contamination of the wells from year to year, and granting a decline *pari passu*, with diminished rainfall, of dysentery in 1889, 1890 and 1891 and a slight fluctuation in 1892, 1893, how is the intense condition of 1894, 1895 up to date, to be accounted for, with comparatively no great contrast, when compared with former years, as to rainfall? I ascribe this fact to a change in the configuration and under drainage of the soil.

28. I cannot ascertain the date further than it was in the first period of tenure of office by Colonel Porteous, that he directed a ditch to be dug round the jail for the purpose of preventing escapes. This ditch during 1892, 1893, was gradually filled up. It formed the limit of the patch of the night-soil depôt on one side. The filling in of this trench seems to me to have acted injuriously in not preventing, at the very period when, on account of the bad structure of alternate bands of the well it was most important, a free exit of the ground water otherwise than towards the drinking-water well. This state of affairs is illustrated by the accompanying diagram No. 4.

29. But, during the continuance of the epidemic, the superintendent boiled the water, and hence it may be assumed that this factor may be put aside. But, when the quantity of boiled water is taken into account, it is at once seen that this was an inefficient protection, and one which indeed simply served to withdraw attention from desirable directions. No extra wood was employed; yet six pots or 53 gallons per day [subsequently stated to be ten pots] were supposed to be boiled for the use of men, or an average of ·24 gallon per man. This would certainly not have sufficed *fully* for drinking purposes. It is further worth remembering that the amount of wood allowed in jails is not one atom too much for cooking purposes, and that even this amount of water would require 47 pounds of wood. In any case, any consideration of the efficacy of the boiling water may be fairly neglected, in consideration of the following circumstances.

30. I found it was the custom to draw water from the well, and store it in the bathing cistern. In my view, a prisoner drew water for the cleaning of his hands, &c., and deliberately drank some of it. It goes without saying that unless the prisoners had a very conscientious belief in the efficacy of boiled water, they would not go up to the office where the water was stored in a chatty, *so long as this source was open to them.* Further, on examining the wards at night time, I found that the drinking water was kept without a cover within the wards, and that a solitary earthen lotha was kept for general use; therefore, should a prisoner wish to drink at night time, he dipped hands that may, a moment before, have been in contact with infective matter into the water.

31. Full proof that the dysentery was, amongst the other modes suggested, water-borne can only be inferred from the chemical analysis. I forwarded the water for examination by Mr. Hankin, the Bacteriological Expert, and although the amœba of dysentery has never yet been identified in water, he very kindly did his best to segregate it, with, however, no positive results.

32. As to the influence which overcrowding had on this epidemic, although undoubtedly it must, in aiding the numerical incidence of foci of infection, have been a factor that cannot be neglected, it is evident from diagram No. 3 where the relation of the incidence of dysentery and population is compared, that it was not a factor that was of importance, in the absence of the favouring condition of the normal fluctuation of sub-soil water-level following a normal monsoon.

33. Irrespective of the defect as to earthen floors when taken into consideration with the high range of fluctuation of the sub-soil water, the buildings present defects as to perflation, the arrangement being that instead of windows opposite each other, they are arranged on one side with a ventilating opening at a height of ten feet above on the opposite. In the remodelled halves of the two blocks however, this had been attended to and windows are made opposite, thus securing correct perflation. The difference in the atmosphere of the wards as improved, and that in their original state as to air purity is striking when all the convicts are present, the stench in the latter at night time being most marked.

34. The following statement shows that in 1894, the cubic space available was decidedly below the standard of 600 feet per head during three months of the year, but that, subsequently, the amount has been, under special arrangement as to transfer by the Inspector-General of Prisons, within legitimate limits:—

Months.	Cubic space engaged by each man in 1894.	Cubic space engaged by each man in 1895.
May	..	599·90
June	450·76	602·26
July	455·08	579·39
August	461·04	653·12
September	560·48	..
October	620·91	..

35. But it appears to me that the measurements made by the Public Works Department are not completely trustworthy. Thus, instead of the triangular space of the roof being allowed for in the calculation shown on the boards outside the wards, the whole space is apparently assumed as a cube. Thus the measurement of one of these wards is, according to this mode, 49′ × 17′ × 19′ giving with 26 men 608·7 cubic feet. But the actual measurement below the roof is 48′ 6″ × 17′ 4″ × 13′ 8″ and the triangle of the roof is 48′ 6″ × 6′ 10″ × $\frac{17' 4''}{2}$ giving a total of 552·3 cubic feet per head. But it is universally acknowledged that no height above 13 feet should be regarded in dwellings as available cubic space for breathing purposes; therefore, the space that by this calculation was available at the time of my visit was $\frac{48' 6'' \times 17' 4'' \times 13'}{26}$ = 420·3 cubic feet per head.

36. I have examined the Párvatípuram Local Fund hospital statistics, and think there is no reason to regard the village as specially liable to dysentery.

37. From diagram No. 2, it would appear that there was no relation between malaria infection and the outbreak of dysentery.

38. *Measures suggested.*—I advised instant abandonment of the drinking-water well in favour of Mr. Thornton's or the Missionary's well; but the Superintendent represented difficulties as to closing it on account of the labour necessary to bring water from the site I suggested, and I doubt therefore whether, in consideration of the fact that dysentery still continues in the jail, it is not still possible for the prisoners to more or less use this water. *This abandonment of the well for all jail purposes is certainly essential.* But, lest by any means the convicts should obtain water thence, it would be advisable to practise disinfection by permanganate of potash (1—40,000) after the manner advised by Mr. Hankin, at intervals of, say, every fortnight.

If the jail is to be retained, a well in a site beyond the drainage cone of the old fœcal deposits should certainly be chosen. Such a site is to be found immediately beyond Mr. Thornton's present house, in an area which I showed to the Local Fund hospital assistant at Párvatípuram. To get over the difficulty as to transport, the water should be raised by pumping to an elevated cistern to the jail and there be distributed by pipes throughout, so as to make the jail independent of any water on the spot. Particular care should be taken that the prisoners do not use for any but gardening purposes the water of the garden well.

2*ndly*. The basement of each ward should be raised 3 feet, and be made impervious by a flooring of concrete plastered with cement. The surrounding surface of the wards should be well metalled. Drains for removal of rain water should also be provided.

3*rdly*. The ditch should be re-opened at once, and an outlet be arranged,—a condition that is possible.

4*thly*. All clothing of the prisoners should undergo a complete and careful process of disinfection by a solution of perchloride of mercury, and subsequently no clothing should be stored for subsequent issue without the same precaution being followed.

5*thly*. All walls should be completely freed of the existing plaster, and be then disinfected with perchloride solution and new plaster be provided.

6*thly*. The whole of the patched and ragged now used blankets and jackets, should be destroyed.

39. Either these measures, *in addition to the present intention of enlarging* the compound and so improving perflation should be carried out, or the jail should be abandoned. In my opinion, this abolition is the preferable policy. The conception that it is necessary to retain these hill-men in Párvatípuram, lest on their going to the Coast they should get fever and break down in health, is an ancient and untenable superstition. I was fully satisfied that the hill-men in the jail of Vizagapatam were in far better condition than those at Párvatípuram. Moreover, it is absurd to consider that the climate can in any way approach that of the hills. In any case, it is paradoxical that the Párvatípuram jail should, as has been the practice, send prisoners to Vizagapatam on medical grounds if "climate" be so important a factor. I inspected the hill prisoners at the Vizagapatam jail who were direct committals, and those who were sent there on medical grounds or were sick on arrival—being sent to relieve the congestion at Párvatípuram. Here is a statement of their condition as found on my inspection, which bears out the allegation as to bad state of health on admission, and exhibits the improvement undergone:

—	Anæmia.		Enlargement of spleen.		Spongy gums.		Retraction and atrophy of gums.		Total.
	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	
Recent admissions	3	25·0	3	25·0	3	25·0	1	8·3	12
Below six months	1	1·4	2	2·9	5	7·2	3	4·3	69
Above do.	3	3·1	..	..	..	..	..	..	97

40. I have not the slightest hesitation in saying that the chances of the survival of the prisoners in Vizagapatam are far greater than in Párvatípuram, and in this opinion Surgeon-Lieutenant-Colonel Leapingwell, who has a large experience in the district, agrees with me. I show here a statement of weighments as supplied by him:—

	Average duration of confinement.	Average weight gained.
	MOS. D.	
Those committed to the Central Jail directly from Vizagapatam	3 6	7·96
Those transferred to the Central Jail from the Párvatípuram Hill Jail	3 2	7·28

41. The surroundings of Párvatípuram show that, during the wet weather and the continuance of irrigation, no one but a man from the district of Tanjore would feel happy in such surroundings. The abolition of this jail seems to me therefore the wisest course, and this could easily be effected, as the East Coast Railway is about to run a line to this place, and transfers from the hills could therefore be readily made. At the same time, whilst I believe these prisoners would be under better conditions at Vizagapatam, it must always be expected that their state of health would fluctuate more than in the case of the ordinary prisoners of the plains, not only because confinement is probably particularly irksome to this class, but because, so far as I am yet informed, the population in its free state lives under hygienic conditions that induce a special liability to intestinal affections. The history of this class has always been that great mortality has attended their confinement. Indeed, their transfer from Vizagapatam to the specially built Párvatípuram Jail is thus accounted for in the Vizagapatam District Manual:—

"Others, hill men, will be sent to the new prison at Párvatípuram, which was constructed with a view to its providing accommodation for one hundred Jeyporeans (the present mortality amongst this class when confined in a jail on the Coast being truly deplorable)."

42. This account, it should be remembered, refers to the *old* jail at Vizagapatam, and shows that at this period the dysentery germ had attached itself to that locality, just as it has now to Párvatípuram, and would undoubtedly again in the present Vizagapatam jail, were sanitary precautions against its segregation and destruction neglected.

43. The conclusions therefore to which I would arrive as to the prevalence of dysentery are as follows:—

(*a*) That the convicts admitted from the hill tracts are received in an unhealthy condition due to the influence of malaria and state of scurvy.

(*b*) That prolonged residence in jail either at Vizagapatam or at Párvatípuram, ensures a cure of these conditions.

(*c*) That in the Párvatípuram jail, there exist hygienic faults which permit of the retention of vitality and distribution of the causative agent of dysentery (which by reason of former absence of care as to segregation and destruction has been introduced in the buildings, water and soil) and that the convicts of recent admission, whilst still in a condition rendering them peculiarly susceptible to dysentery, are thereby affected.

(*d*) That the Párvatípuram hill jail is not a hill jail, and does not offer either by its sanitary arrangements, or its climate, any good reason for retaining convicts here.

(*e*) That practical experience shows that, under the climatic conditions and the hygienic arrangements of the jail at Vizagapatam, the stage of predisposition to dysentery may in the modern jail be safely passed by such convicts, and that, if care be taken to always segregate (as in cholera) dysenteric motions, there is no reason why Vizagapatam should not continue to be a safe locality for their retention.

(*f*) That the class of medical care and the hygienic conditions obtainable in Vizagapatam being better than in Párvatípuram, it is advisable the convicts, if transferred from a true hill climate at all, should be sent to the former station.

Order—No. 2334, Judicial, dated 14th November 1895.

The interesting reports from the Sanitary Commissioner and the Inspector-General of Jails read above, though they do not render it possible to predicate with any real certainty the causes of the constant outbreaks of dysentery in the Párvatípuram jail, show with sufficient clearness that the jail premises are tainted with dysenteric germs, and that the abandonment of the jail, at least temporarily, is unavoidable.

2. Both officers adduce a series of forcible arguments in favour of its permanent abandonment, but the Government considers that, before this step is definitely decided upon, it is necessary to ascertain, from actual experience extending over some considerable period, what will be the effect upon the health of convicts from above the ghâts of confinement in prisons situated upon the Coast.

3. The Párvatípuram jail should accordingly be temporarily abandoned as a place of confinement for convicts, and its present inmates should be removed partly to the jail at Vizagapatam and partly to that at Rajahmundry as the Inspector-General may be able most conveniently to arrange. After their removal to these places, the state of their healths should be most carefully watched and recorded in full detail. It is believed that the hill men confined in the Párvatípuram jail were formerly permitted a daily allowance of opium, and that their ill-health in other jails has been ascribed to their deprivation of the drug. The Inspector-General will be requested to report whether this allowance is still made. If it is, it should be continued to this class of prisoners after their transfer to jails on the plains, and, if it is not, information should be furnished as to the reasons which led to its discontinuance.

4. Pending the completion of the arrangements for this transfer of the prisoners, the jail well should be disinfected with permanganate of potash on Dr. Hankin's system as recommended in paragraph 38 of the Sanitary Commissioner's memorandum, and the old clothing and blankets now in use should be destroyed and replaced by others. It would appear that the Superintendent of the jail was responsible for the unsatisfactory condition of these latter, and the attention of the Inspector-General will be called to the point.

5. The repairs and alterations now going on in the jail should be stopped at once. As, however, it may eventually be found necessary to again use the jail should the health of the prisoners when confined near the Coast or at Rajahmundry be found as unsatisfactory as it has proved in former years, or should any difficulty as to accommodation arise hereafter, the Inspector-General will be requested to take steps to have estimates prepared and kept ready, not only for the works the execution of which has already been sanctioned, but also for the other improvements suggested by the Sanitary Commissioner in paragraph 38 of his memorandum, and for draining the jail premises. Some of these are small undertakings which could probably be carried out departmentally.

6. The Government is not prepared to adopt the recommendation of the Inspector-General that the jail well should be retained as a drinking-water supply without a more careful trial of the quality of the water, and he will be requested to [illegible] arrange for further analysis of this; the results of these should be reported to Government. Orders so improv[illegible] thereafter be [illegible] upon his letter upon the subject of filters read in G.O., th[illegible]ration is the preferable policy. will [illegible] be passed.
No. 1990, dated 24th Sept[illegible]ember 1895.

7. The sanitary arrangements in the wards at night appear, from the papers before Government, to be unsatisfactory. The corners which are used as latrines should certainly be floored with some impervious material, and should be supplied with drains so that they can be cleaned without difficulty. It would probably be sanitarily preferable to have detached latrine wards as is the case at the Madras Lunatic Asylum, and the matter is commended to the consideration of the Inspector-General. Estimates for carrying out these improvements should be included with those already referred to in paragraph 5 *supra*.

8. In the second of the letters read above the Sanitary Commissioner suggest that the Inspector-General of Jails should be placed in communication with the Sanitary Board in order that the existing water-supplies in jails should be improved and altered. The Government does not consider that any cause for general dissatisfaction with these supplies has been shown, but the Inspector-General will be requested to report shortly upon those of them that are in his opinion at present defective, and upon the remedies that might be adopted.

9. It appears from the present papers that the prisoners themselves frequently foul their own drinking-water, or carelessly drink that which has already been rendered impure. The danger of this occurring with the supplies put into the cells at night might perhaps be obviated by placing in each cell a tap connected with a supply placed outside the wards. Bathing water should be frequently renewed where possible and run off as soon as it has been used.

10. The following telegram will be despatched to the Inspector-General of Prisons:—

706. "Parvatipuram Jail to be abandoned temporarily. Stop works there."

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Inspector-General of Prisons.
" Sanitary Commissioner.
" Public Works Department.
" Accountant-General.

Exd. S. J. Pereira.

Govt. of {1895} Madras.

JUDICIAL.

Issued

Recd. 11.5.C

DW 9134/95 Encl.

G.O., No. 2334, 14th Nov. 1895.

No 3073 W & P/29 Nov 1895.

Comm. & the
Sr. I Rule for
information & guidance.
C/I.P.

NOVEMBER.

5.E1.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.

Thus the mortality of 1895 has so far been equal to that of 1894, in spite of a smaller average population. It is hardly possible to allow this state of things to continue, and the necessity of either abandoning the Párvatípuram jail or of carrying out the improvements recommended by the Sanitary Commissioner in addition to those already approved by Government in G.O., No. 510, Judicial, dated 8th March 1895, seems to be undeniable.

9. The Sanitary Commissioner is strongly in favour of the abandonment of the jail. He has not stated very fully his reasons, but the following points may be noted:—

(1) The condition of health of the prisoners received at Párvatípuram is such as to demand a considerable degree of professional skill and knowledge. In Mr. Henderson we probably had as good a Medical Officer as we can ever expect to get from the class to which he belonged (Warrant Medical Subordinate). I have no doubt that he did his utmost to stop the sickness and Dr. King has (in a separate note) recorded the opinion that he was in no way to blame. But Mr. Henderson's professional knowledge and education were limited. He never seems to have recognised the presence of the scorbutic taint, which the Sanitary Commissioner states is clearly proved from the *post mortem* appearances and other records. If the hill prisoners, who now are sent to Párvatípuram, were confined at Vizagapatam, a much higher degree of medical skill and knowledge would be brought to bear on their treatment.

(2) The situation of Párvatípuram, 60 miles from a line of rail, is so remote that it is particularly difficult to supervise the jail. It does not appear ever before to have been inspected by the Sanitary Commissioner. The District Medical Officer of Vizagapatam can visit it very seldom. Postal communication is slow and the jail is thus necessarily left much to itself. Almost everything depends on the care and judgment of the Superintendent and Medical officer, who is, after all, only a subordinate of limited education.

(3) The selection of Párvatípuram as a site for a jail, and especially of a jail for hill men, was bad. The country is water-logged; the town lies low; at night the whole place is wrapped in fog; and the hills round shut it in and make it hot. Bobbili would have been a much better site, and the position of the Vizagapatam Jail is very much superior.

(4) The Párvatípuram jail is now infected with dysentery and it may be difficult to eradicate the taint.

10. These seem to be weighty reasons for abandoning Párvatípuram. But it must be remembered that in the past hill prisoners did nearly as badly at Vizagapatam as they have lately done at Párvatípuram. References to the ill-health at Vizagapatam will be found in G.O., No. 1641, Judicial, dated 22nd June 1886. I am inclined to agree with the view of the Sanitary Commissioner that the conception of the health of hill-men suffering specially when near the coast is a superstition, but the evidence on this point is not free from doubt and the Vizagapatam jail has been fortunate of late years in having a particularly capable and careful Superintendent. If the Párvatípuram jail were permanently closed, fresh buildings would be necessary at Vizagapatam, and it would be a serious matter to erect those buildings and then to find that the health of the hill-men was after all no better or worse at Vizagapatam than at Párvatípuram.

11. I have received from the Superintending Engineer, a few days ago, a revised estimate amounting to Rs. 40,900 for the works contemplated at Párvatípuram. Of this amount about Rs. 16,000 have already been spent on extensions of blocks and on the provision of a fresh hospital. Work on the hospital is now in progress, and when that is finished the main wall has to be thrown out on the north, south and east sides and a new office built. I do not forward these plans and estimates at present as I am now proceeding to Párvatípuram and I wish to examine them on the spot.

12. The additional measures recommended by Dr. King are stated in paragraph 38 of his report. Instead of abandoning the well, it would be cheaper and equally efficacious to procure the Pasteur filter recommended in my letter No. 5402, dated 5th September 1895. The Government will observe that the water has already been

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

Read—again the following papers :—

G.O., No. 1165, Judicial, dated 29th May 1895.

G.O., No. 1990, Judicial, dated 24th September 1895.

Read—also the following papers :—

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated 10th October 1895, No. 1796-S.

With reference to my report on the Párvatípuram Jail, dated 7th October 1895, and forwarded to you through the Inspector-General of Prisons, I have the honour to respectfully state that there can be no manner of doubt that the arrangements for water-supply in the jails of this Presidency are half a century behind the sanitary requirements of the age, and that, at a time when Government will shortly consider the budget for 1896–97, I would venture, as a matter of duty, in continuation of my letter, No. 1755-S, dated 22nd September 1894, paragraph 5, to again draw attention to this matter.

2. The unsatisfactory condition of health in which the convicts at Párvatípuram are received could not fail to have been aggravated by the use of drinking-water liable to contamination—a contamination that would have been *very greatly guarded against*, had the well been built with the slightest regard to hygienic dictates. Even when it was attempted to shield them from the effects of impure water by boiling it, the open bathing cisterns (as was the case in the epidemic of cholera in 1893 in the Trichinopoly Central Jail) formed a source of weakness, which defeated the object in view, by affording facilities for drinking-water specifically contaminated in spite of precautions to the opposite.

3. Considering the great expense that must be caused to Government should jails be attacked by epidemics, I am convinced that early measures with regard to remodelling the existing water-supplies and abolishing open bathing cisterns, so as to take advantage—to a reasonable extent in regard to finance—of the knowledge of the day would prove of ulility not only in diminishing mortality, but in the long run in effecting economy.

4. Even if Government were not prepared to undertake improvement in these matters in a number of jails at once, it would at least be feasible to have estimates and plans prepared and effect improvement from year to year. If Government approved of this suggestion, I would respectfully advice that the Inspector-General of Prisons be placed in communication with the sanitary board on the subject.

From A. G. CARDEW, Esq, M.A., Inspector-General of Prisons, to the Chief Secretary to Government, dated Madras, 14th October 1895, No. 1244-C.

I have the honour to forward, for the consideration and orders of Government, the accompanying letter, No. 1749-S, dated 7th October 1895, with enclosures from the Sanitary Commissioner, Madras, giving the results of his inspection of the Párvatípuram Jail. Surgeon-Lieutenant-Colonel King visited the jail at the height of the unhealthy season, and his observations appear to be of much value. I have since had the advantage of meeting him and of discussing the subject of his report with him.

2. The main results of the Sanitary Commissioner's visit may be said to be two in number, namely, (1st) that the hill-men who form the population of the Právatípuram Jail are admitted in a scorbutic condition and improve in general health during confinement, (2nd) that in spite of this improvement due to good food, &c., they have died in large numbers owing to the site and water-supply of the jail being infected with the specific agent of dysentery.

3. The first of these conclusions is specially valuable, as coming from an impartial and qualified observer. It is of much importance to have a reliable opinion in support of the view that the scorbutic taint is not jail-bred, but is found in prisoners on their first arrival and diminishes during confinement. The state of health of the prisoners received is thus such as to render them specially subject and prone to such a disease as dysentery.

4. The second of Dr. King's conclusions is also of importance, but not all the arguments by which it is supported can be wholly accepted. There is every reason to believe that, as he states, the *site* of the Párvatípuram jail is infected with the dysenteric germ. Dysentery was prevalent there so long ago as 1888 and up to the close of 1889 the whole of the night-soil was buried in pits in the garden. But the Sanitary Commissioner's attempt to trace a connection between the outbreaks of dysentery in 1894 and 1895 and the water-supply does not appear to me to be successful. The pollution of the drinking-water well by filtration from the pits where night-soil was buried prior to 1890 must be due, if it exists, to the germs being carried through by water. Such filtration and the consequent outbreak of dysentery would thus occur in years of heavy rainfall. If, however, either diagram No. 1 or diagram No. 3 is examined, there is no connection apparent between the amount of the rainfall and the death-rate from dysentery and diarrhœa. Thus the death-rate from these causes was very high in 1888, when the rainfall was the lowest in the decade; it was lowest in 1886 and 1893, when the rainfall was highest (diagram No. 3). If the outbreaks of 1888, 1894 and 1895 were due to the washing through of infective matter from the old night-soil pits to the well, it is impossible to see why such unfortunate results occurred in those years, while in other years of heavier rainfall there was less dysentery and diarrhœa. Again the infection of the well water from the night-soil pits would naturally be greatest when the night soil matter was new. The table of water analyses contained in paragraph 19 of the report shows that the supply of nitrates has been diminishing annually since 1890, and if these nitrates come from the old night-soil pits at all, the chances of infection with the dysenteric poison also must have diminished. Yet the worst outbreaks of dysentery have occurred in 1894 and 1895.

5. An attempt to explain away this difficulty is made in paragraphs 27 and 28 of Dr. King's report where it is suggested that prior to 1894 much of the rainfall falling on the night-soil pits was carried off by a trench which Colonel Porteous in December 1889 ordered to be dug to render the escape of convicts more difficult. The ditch was not dug till 1890, and therefore cannot have affected the years 1888 and 1889, in which a light rainfall was accompanied by heavy dysentery and a heavy rainfall was coupled with reduced amount of sickness, respectively. Nor can the ditch, I think, have really had the effect attributed to it in 1894 and 1895, for the ditch is said to have been filled in during 1892–93 and there was little trace of it when I first visited the Jail in December 1892. Nevertheless 1893 was the healthiest year of the decade, and sickness did not begin till August 1894. It is thus, I think, impossible to trace a direct connection between the night-soil pits and the drinking-water well. The diminution of nitrates in the latter may reasonably be attributed to the well being cleaned out.

6. It will further be observed that the Sanitary Commissioner's diagrams Nos. 1 and 3 relate, for reasons which he gives, to statistics of dysentery and diarrhœa combined. But a consideration of the mortality from dysentry alone, diarrhœa being excluded, does not confirm the view, which he expresses, of contamination of the well from the old night-soil pits in years of heavy rainfall. It shows a fairly steady amount of the disease from 1889 to 1893 followed by a sudden outbreak in 1894–95. The following are the figures of deaths and death-rate from dysentery alone in 1888 and subsequent years. No earlier returns have yet been traced.

	Number of deaths from dysentery.	Death-rate from dysentery per mille.
1888	5	30·5
1889	2	10·1
1890	4	19·7
1891	3	16·0
1892	3	14·7
1893	2	11·7
1894	16	74·4
1895	* 11	† 55

7. It appears to me that, it is impossible, in the light of these figures, to consider the Sanitary Commissioner's theory a sufficient explanation of the sudden outbreak of August 1894 which has been repeated in the present year. Each year the night-soil matter in the old pits has been diminishing, as the processes of conversion into soil proceeded; each year there has been a certain amount of dysentery in the jail; but it is not until the last two years of the series that the disease suddenly breaks forth in alarming proportions. The immediate causes of this sudden epidemic of dysentery in 1894 and 1895 is, it seems to me, as obscure as ever. But as there is no doubt that the site of the jail received dysenteric pollution in the past and as it is now the prevalent opinion that the germ can be revivified by favourable climatic conditions, especially damp and warmth, there would be nothing remarkable in a recrudescence of the disease occurring in the months following the burst of the south-west monsoon. Why the recrudescence of 1894 and 1895 proved so violent, we cannot say; but the infection of the jail with dysentery in past years is apparently alone a sufficient explanation of the appearance of the disease. Dr. King's conclusions in paragraph 43 of his report may, therefore, be safely adopted without accepting the special explanation of water contamination which is suggested in earlier paragraphs.

7. It may be noted here (1) that the overcrowding of prisoners in 1894 cannot reasonably be supposed to be the cause of the sickness of that year, because there has been an equal amount of sickness in 1895, when no overcrowding has occurred; (2) similarly that the crowded state of the jail yards due to additional buildings could hardly have been avoided during 1894, because the old sheds could not be removed until the new buildings were ready for the convicts to occupy; (3) that the removal of the chunam floors of the old blocks and the substitution of floors of rammed earth was specially ordered by Mr. Grimes when he visited the jail in March 1887. The new blocks have been provided with concrete floors and all the blocks have pials of the prescribed height.

8. The seriousness of the present state of health of the jail will be apparent from the following figures:—

Month.	Number of deaths.		Cause of death.	
	1894.	1895.	1894.	1895.
January	..	1	....	Pneumonia.
February	..	..	....	....
March	1	1	Remittent fever	Anœmia.
April	..	1	....	Do.
May	..	1	....	Sunstroke.
June	..	3	....	Dysentery.
July	..	2	....	Pneumonia and beriberi.
August	13	8	7 Dysentery	6 Dysentery.
			1 Diarrhœa	2 Pericarditis.
			3 Anœmia and debility	
			1 Remittent fever	
			1 Cirrhosis of liver	
September	6	4	5 Dysentery	2 Dysentery.
			1 Diarrhœa	2 Pericarditis.
October	3	?	1 Dysentery	....
			1 Diarrhœa	....
			1 Beriberi	....
November	3	?	2 Dysentery	....
			1 Anœmia	....
December	3	?	2 Dysentery	....
			1 Phthesis	....
Total ..	29	‡ 20		

* First nine months. † Approximate. ‡ For nine months.

Govt. of {1895} Madras.

JUDICIAL.

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Recd. *Encl.*

G.O., No. 2334, 14th Nov. 1895.

NOVEMBER.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.

GOVERNMENT OF MADRAS.

PENSION DEPARTMENT.

Read—the following papers :—

From the District Judge of South Canara, dated 16th March 1895, No. 303.

Abstract.—Submitting an application for pension on behalf of Adoor Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur.

Certificate and report from the Accountant-General, dated 17th May 1895, No. 82-A.D.J.

Abstract.—Certifying that A. Venkataramanaya's qualifying service in superior grades has been duly proved for 26 years 2 months and 17 days, and that a superannuation pension of Rs. 20 per mensem is admissible under articles 502 and 518 (*b*) of the Civil Service Regulations.

Endorsement from the Accountant-General, dated 23rd May 1895, No. 75-I.A.E.

Abstract.—Forwarding a copy of the appeal petition presented to the Hon'ble the Judges of the High Court by A. Venkataramanaya against his compulsory retirement from the service.

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Abstract.—Requesting the District Judge of South Canara to obtain and forward, for the information of Government, a copy of the proceedings of the High Court on A. Venkataramanaya's appeal, dated 6th April 1895.

Letter from the District and Sessions Judge, South Canara, dated 7th August 1895, No. 776.

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Telegram from A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara District, dated 21st August 1895.

Abstract.—Requesting that orders on his pension application may be deferred pending receipt of a memorial from him.

Petition from A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara District, dated 21st August 1895.

Abstract.—Submitting a duplicate copy of his memorial, dated 21st August 1895.

Endorsement of the Judicial Department, dated 24th September 1895, No. 2239.

Abstract.—Transferring to the Pension Department letter from the Registrar of the High Court of Judicature, Appellate Side, Madras, forwarding a memorial from A. Venkataramanaya, dated 21st August 1895, submitting his explanation in regard to the accusation made against him that he accepted Rs. 400 from four clerks junior to him as an inducement to retire from the service.

Order—No. 1220, Pension, dated 19th October 1895.

It has been found by the District Judge of South Canara that the applicant for pension, A. Venkataramanaya, Head Clerk of the District Munsif's Court, Puttur, accepted the sum of Rs. 400 from four clerks junior to him as an inducement to retire from the service; and Government sees no reason to doubt that the above finding was fully justified.

2. There is no reason to suppose that the applicant and those with whom he effected negotiations were ignorant of the well-known regulations which prohibit such transactions, and doubtless every one concerned knew that he was doing wrong. The conduct of the clerks who made payments to Venkataramanaya has been duly noticed by the District Judge, and it is unnecessary for Government to pass any orders in their case. In regard to the applicant, however, it is observed that his misconduct was not limited to breach of rule, but this initial offence was further aggravated by his subsequent withdrawal of his resignation and by his making false and malicious accusations against the head of the office in which he was employed.

3. Upon full consideration of all the facts of the case His Excellency the Governor in Council has arrived at the conclusion that A. Venkataramanaya has forfeited all claim to pension and his application is accordingly rejected.

(True Extract.)

(Signed) W. B. AYLING,
Ag. Asst. Secy. to Government.

To the Accountant-General.
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„ the Public Department, with spare copies,
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Exd. C. M. Brisson.

610 Copies.

GOVERNMENT OF MADRAS.

PENSION DEPARTMENT.

Read—the following papers:—

From the District Judge of South Canara, dated 16th March 1895, No. 303.

Abstract.—Submitting an application for pension on behalf of Adoor Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur.

Certificate and report from the Accountant-General, dated 17th May 1895, No. 82-A.D.J.

Abstract.—Certifying that A. Venkataramanaya's qualifying service in superior grades has been duly proved for 26 years 2 months and 17 days, and that a superannuation pension of Rs. 20 per mensem is admissible under articles 502 and 518 (*b*) of the Civil Service Regulations.

Endorsement from the Accountant-General, dated 23rd May 1895, No. 75-I.A.E.

Abstract.—Forwarding a copy of the appeal petition presented to the Hon'ble the Judges of the High Court by A. Venkataramanaya against his compulsory retirement from the service.

Official Memorandum to the District Judge, South Canara, dated 10th June 1895, No. 51.

Abstract.—Requesting the District Judge of South Canara to obtain and forward, for the information of Government, a copy of the proceedings of the High Court on A. Venkataramanaya's appeal, dated 6th April 1895.

Letter from the District and Sessions Judge, South Canara, dated 7th August 1895, No. 776.

Abstract.—Forwarding a true extract of the proceedings of the High Court on A. Venkataramanaya's appeal, dated 6th April 1895, declining to interfere with the orders of the District Judge in his case.

Telegram from A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara District, dated 21st August 1895.

Abstract.—Requesting that orders on his pension application may be deferred pending receipt of a memorial from him.

Petition from A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara District, dated 21st August 1895.

Abstract.—Submitting a duplicate copy of his memorial, dated 21st August 1895.

Endorsement of the Judicial Department, dated 24th September 1895, No. 2239.

Abstract.—Transferring to the Pension Department letter from the Registrar of the High Court of Judicature, Appellate Side, Madras, forwarding a memorial from A. Venkataramanaya, dated 21st August 1895, submitting his explanation in regard to the accusation made against him that he accepted Rs. 400 from four clerks junior to him as an inducement to retire from the service.

Order—No. 1220, Pension, dated 19th October 1895.

It has been found by the District Judge of South Canara that the applicant for pension, A. Venkataramanaya, Head Clerk of the District Munsif's Court, Puttur, accepted the sum of Rs. 400 from four clerks junior to him as an inducement to retire from the service; and Government sees no reason to doubt that the above finding was fully justified.

2. There is no reason to suppose that the applicant and those with whom he effected negotiations were ignorant of the well-known regulations which prohibit such transactions, and doubtless every one concerned knew that he was doing wrong. The conduct of the clerks who made payments to Venkataramanaya has been duly noticed by the District Judge, and it is unnecessary for Government to pass any orders in their case. In regard to the applicant, however, it is observed that his misconduct was not limited to breach of rule, but this initial offence was further aggravated by his subsequent withdrawal of his resignation and by his making false and malicious accusations against the head of the office in which he was employed.

3. Upon full consideration of all the facts of the case His Excellency the Governor in Council has arrived at the conclusion that A. Venkataramanaya has forfeited all claim to pension and his application is accordingly rejected.

(True Extract.)

(Signed) W. B. AYLING,
Ag. Asst. Secy. to Government.

To the Accountant-General.
„ the District Judge of South Canara.
„ the Public Department, with spare copies,
„ the Local and Municipal Department, with spare copies,
„ the Revenue Department, with spare copies,
„ the Public Works Department, with spare copies,
} for communication to Heads of Departments under them.

Exd. C. M. Brisson.

600 Copies.

Govt. of {1895} Madras.

PENSION.

Issued

Encl.

20, 19th October 1895.

OCTOBER.

Rejecting the pension application of A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara district, inasmuch as he has forfeited all claim to pension by his misconduct in accepting Rs. 400 from clerks junior to him as an inducement to retire from the service.

Govt. of {1895} Madras.

PENSION.

Issued

Encl.

220, 19th October 1895.

OCTOBER.

Rejecting the pension application of A. Venkataramanaya, late Head Clerk, District Munsif's Court, Puttur, South Canara district, inasmuch as he has forfeited all claim to pension by his misconduct in accepting Rs. 400 from clerks junior to him as an inducement to retire from the service.

Govt. of {1895} Madras.

PENSION.

Issued

Encl.

320, 19th October 1895.

OCTOBER.

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Govt. of {1895} Madras.

PENSION.

Govt. No. 3074 Way 29 Nov. 1895

Issued

Encl.

220, 19th October 1895.

OCTOBER.

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No. 1220, PENSION, 19TH OCTOBER 1895.

GOVERNMENT OF MADRAS.

PENSION DEPARTMENT.

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(Signed) W. B. AYLING,
Ag. Asst. Secy. to Government.

To the Accountant-General.
„ the District Judge of South Canara.
„ the Public Department, with spare copies,
„ the Local and Municipal Department, with spare copies,
„ the Revenue Department, with spare copies,
„ the Public Works Department, with spare copies,
} for communication to Heads of Departments under them.

Order in the Public Dept. of 2nd November 1895, No. 905.

Communicated to all Heads of Departments, under the Chief Secretary's Letter Extract

W B Phillips
Ag: Assistant Secy
for Chief Secretary

To the Public Works Dept

Exd. C. M. Brisson.

600 Copies.

P. W. CURRENT No. 9325

31.10.95 N°-2759-95

Recd. 26.11.95

205.C.

N° 3074 Wg 29 Nov 1895

B

Recorded with the remark that the Rs. has already been communicated to the P.W. dept by the Pension dept.

D 2711

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DESPATCHED 29 NOV. 95

(a) Public dept. Pwcen D. Ser

26/11

(Copy to P.W. Sec for info)

Govt. of {1895} Madras.

PENSION.

Issued

Recd. *Encl.*

G.O., No. 1220, 19th October 1895.

OCTOBER.

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GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

Read—again the following papers :—

G.O., No. 1165, Judicial, dated 29th May 1895.

G.O., No. 1990, Judicial, dated 24th September 1895.

Read—also the following papers :—

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government, dated 10th October 1895, No. 1796-S.

With reference to my report on the Párvatípuram Jail, dated 7th October 1895, and forwarded to you through the Inspector-General of Prisons, I have the honour to respectfully state that there can be no manner of doubt that the arrangements for water-supply in the jails of this Presidency are half-a century behind the sanitary requirements of the age, and that, at a time when Government will shortly consider the budget for 1896–97, I would venture, as a matter of duty, in continuation of my letter, No. 1755-S, dated 22nd September 1894, paragraph 5, to again draw attention to this matter.

2. The unsatisfactory condition of health in which the convicts at Párvatípuram are received could not fail to have been aggravated by the use of drinking-water liable to contamination—a contamination that would have been *very greatly guarded against*, had the well been built with the slightest regard to hygienic dictates. Even when it was attempted to shield them from the effects of impure water by boiling it, the open bathing cisterns (as was the case in the epidemic of cholera in 1893 in the Trichinopoly Central Jail) formed a source of weakness, which defeated the object in view, by affording facilities for drinking-water specifically contaminated in spite of precautions to the opposite.

3. Considering the great expense that must be caused to Government should jails be attacked by epidemics, I am convinced that early measures with regard to remodelling the existing water-supplies and abolishing open bathing cisterns, so as to take advantage—to a reasonable extent in regard to finance—of the knowledge of the day would prove of ulility not only in diminishing mortality, but in the long run in effecting economy.

4. Even if Government were not prepared to undertake improvement in these matters in a number of jails at once, it would at least be feasible to have estimates and plans prepared and effect improvement from year to year. If Government approved of this suggestion, I would respectfully advice that the Inspector-General of Prisons be placed in communication with the sanitary board on the subject.

From A. G. CARDEW, Esq., M.A., Inspector-General of Prisons, to the Chief Secretary to Government, dated Madras, 14th October 1895, No. 1244-C.

I have the honour to forward, for the consideration and orders of Government, the accompanying letter, No. 1749-S, dated 7th October 1895, with enclosures from the Sanitary Commissioner, Madras, giving the results of his inspection of the Párvatípuram Jail. Surgeon-Lieutenant-Colonel King visited the jail at the height of the unhealthy season, and his observations appear to be of much value. I have since had the advantage of meeting him and of discussing the subject of his report with him.

2. The main results of the Sanitary Commissioner's visit may be said to be two in number, namely, (1st) that the hill-men who form the population of the Právatípuram Jail are admitted in a scorbutic condition and improve in general health during confinement, (2nd) that in spite of this improvement due to good food, &c., they have died in large numbers owing to the site and water-supply of the jail being infected with the specific agent of dysentery.

3. The first of these conclusions is specially valuable, as coming from an impartial and qualified observer. It is of much importance to have a reliable opinion in support of the view that the scorbutic taint is not jail-bred, but is found in prisoners on their first arrival and diminishes during confinement. The state of health of the prisoners received is thus such as to render them specially subject and prone to such a disease as dysentery.

4. The second of Dr. King's conclusions is also of importance, but not all the arguments by which it is supported can be wholly accepted. There is every reason to believe that, as he states, the *site* of the Párvatípuram jail is infected with the dysenteric germ. Dysentery was prevalent there so long ago as 1888 and up to the close of 1889 the whole of the night-soil was buried in pits in the garden. But the Sanitary Commissioner's attempt to trace a connection between the outbreaks of dysentery in 1894 and 1895 and the water-supply does not appear to me to be successful. The pollution of the drinking-water well by filtration from the pits where night-soil was buried prior to 1890 must be due, if it exists, to the germs being carried through by water. Such filtration and the consequent outbreak of dysentery would thus occur in years of heavy rainfall. If, however, either diagram No. 1 or diagram No. 3 is examined, there is no connection apparent between the amount of the rainfall and the death-rate from dysentery and diarrhœa. Thus the death-rate from these causes was very high in 1888, when the rainfall was the lowest in the decade; it was lowest in 1886 and 1893, when the rainfall was highest (diagram No. 3). If the outbreaks of 1888, 1894 and 1895 were due to the washing through of infective matter from the old night-soil pits to the well, it is impossible to see why such unfortunate results occurred in those years, while in other years of heavier rainfall there was less dysentery and diarrhœa. Again the infection of the well water from the night-soil pits would naturally be greatest when the night soil matter was new. The table of water analyses contained in paragraph 19 of the report shows that the supply of nitrates has been diminishing annually since 1890, and if these nitrates come from the old night-soil pits at all, the chances of infection with the dysenteric poison also must have diminished. Yet the worst outbreaks of dysentery have occurred in 1894 and 1895.

5. An attempt to explain away this difficulty is made in paragraphs 27 and 28 of Dr. King's report where it is suggested that prior to 1894 much of the rainfall falling on the night-soil pits was carried off by a trench which Colonel Porteous in December 1889 ordered to be dug to render the escape of convicts more difficult. The ditch was not dug till 1890, and therefore cannot have affected the years 1888 and 1889, in which a light rainfall was accompanied by heavy dysentery and a heavy rainfall was coupled with reduced amount of sickness, respectively. Nor can the ditch, I think, have really had the effect attributed to it in 1894 and 1895, for the ditch is said to have been filled in during 1892–93 and there was little trace of it when I first visited the Jail in December 1892. Nevertheless 1893 was the healthiest year of the decade, and sickness did not begin till August 1894. It is thus, I think, impossible to trace a direct connection between the night-soil pits and the drinking-water well. The diminution of nitrates in the latter may reasonably be attributed to the well being cleaned out.

6. It will further be observed that the Sanitary Commissioner's diagrams Nos. 1 and 3 relate, for reasons which he gives, to statistics of dysentery and diarrhœa combined. But a consideration of the mortality from dysentry alone, diarrhœa being excluded, does not confirm the view, which he expresses, of contamination of the well from the old night-soil pits in years of heavy rainfall. It shows a fairly steady amount of the disease from 1889 to 1893 followed by a sudden outbreak in 1894–95. The following are the figures of deaths and death-rate from dysentery alone in 1888 and subsequent years. No earlier returns have yet been traced.

	Number of deaths from dysentery.	Death-rate from dysentery per mille.
1888	5	30·5
1889	2	10·1
1890	4	19·7
1891	3	16·0
1892	3	14·7
1893	2	11·7
1894	16	74·4
1895	*11	†55

7. It appears to me that, it is impossible, in the light of these figures, to consider the Sanitary Commissioner's theory a sufficient explanation of the sudden outbreak of August 1894 which has been repeated in the present year. Each year the night-soil matter in the old pits has been diminishing, as the processes of conversion into soil proceeded; each year there has been a certain amount of dysentery in the jail; but it is not until the last two years of the series that the disease suddenly breaks forth in alarming proportions. The immediate causes of this sudden epidemic of dysentery in 1894 and 1895 is, it seems to me, as obscure as ever. But as there is no doubt that the site of the jail received dysenteric pollution in the past and as it is now the prevalent opinion that the germ can be revivified by favourable climatic conditions, especially damp and warmth, there would be nothing remarkable in a recrudescence of the disease occurring in the months following the burst of the south-west monsoon. Why the recrudescence of 1894 and 1895 proved so violent, we cannot say; but the infection of the jail with dysentery in past years is apparently alone a sufficient explanation of the appearance of the disease. Dr. King's conclusions in paragraph 43 of his report may, therefore, be safely adopted without accepting the special explanation of water contamination which is suggested in earlier paragraphs.

7. It may be noted here (1) that the overcrowding of prisoners in 1894 cannot reasonably be supposed to be the cause of the sickness of that year, because there has been an equal amount of sickness in 1895, when no overcrowding has occurred; (2) similarly that the crowded state of the jail yards due to additional buildings could hardly have been avoided during 1894, because the old sheds could not be removed until the new buildings were ready for the convicts to occupy; (3) that the removal of the chunam floors of the old blocks and the substitution of floors of rammed earth was specially ordered by Mr. Grimes when he visited the jail in March 1887. The new blocks have been provided with concrete floors and all the blocks have pials of the prescribed height.

8. The seriousness of the present state of health of the jail will be apparent from the following figures:—

Month.	Number of deaths. 1894.	Number of deaths. 1895.	Cause of death. 1894.	Cause of death. 1895.
January	..	1	....	Pneumonia.
February	..	..	....	....
March	1	1	Remittent fever	Anœmia.
April	..	1	....	Do.
May	..	1	....	Sunstroke.
June	..	3	....	Dysentery.
July	..	2	....	Pneumonia and beriberi.
August	13	8	7 Dysentery	6 Dysentery.
			1 Diarrhœa	2 Pericarditis.
			3 Anœmia and debility	
			1 Remittent fever	
			1 Cirrhosis of liver	
September	6	4	5 Dysentery	2 Dysentery.
			1 Diarrhœa	2 Pericarditis.
October	3	?	1 Dysentery	....
			1 Diarrhœa	....
			1 Beriberi	....
November	3	?	2 Dysentery	....
			1 Anœmia	....
December	3	?	2 Dysentery	....
			1 Phthesis	....
Total ..	29	‡ 20		

* First nine months. † Approximate. ‡ For nine months.

Thus the mortality of 1895 has so far been equal to that of 1894, in spite of a smaller average population. It is hardly possible to allow this state of things to continue, and the necessity of either abandoning the Párvatípuram jail or of carrying out the improvements recommended by the Sanitary Commissioner in addition to those already approved by Government in G.O., No. 510, Judicial, dated 8th March 1895, seems to be undeniable.

9. The Sanitary Commissioner is strongly in favour of the abandonment of the jail. He has not stated very fully his reasons, but the following points may be noted:—

(1) The condition of health of the prisoners received at Párvatípuram is such as to demand a considerable degree of professional skill and knowledge. In Mr. Henderson we probably had as good a Medical Officer as we can ever expect to get from the class to which he belonged (Warrant Medical Subordinate). I have no doubt that he did his utmost to stop the sickness and Dr. King has (in a separate note) recorded the opinion that he was in no way to blame. But Mr. Henderson's professional knowledge and education were limited. He never seems to have recognised the presence of the scorbutic taint, which the Sanitary Commissioner states is clearly proved from the *post mortem* appearances and other records. If the hill prisoners, who now are sent to Párvatípuram, were confined at Vizagapatam, a much higher degree of medical skill and knowledge would be brought to bear on their treatment.

(2) The situation of Párvatípuram, 60 miles from a line of rail, is so remote that it is particularly difficult to supervise the jail. It does not appear ever before to have been inspected by the Sanitary Commissioner. The District Medical Officer of Vizagapatam can visit it very seldom. Postal communication is slow and the jail is thus necessarily left much to itself. Almost everything depends on the care and judgment of the Superintendent and Medical officer, who is, after all, only a subordinate of limited education.

(3) The selection of Párvatípuram as a site for a jail, and especially of a jail for hill men, was bad. The country is water-logged; the town lies low; at night the whole place is wrapped in fog; and the hills round shut it in and make it hot. Bobbili would have been a much better site, and the position of the Vizagapatam Jail is very much superior.

(4) The Párvatípuram jail is now infected with dysentery and it may be difficult to eradicate the taint.

10. These seem to be weighty reasons for abandoning Párvatípuram. But it must be remembered that in the past hill prisoners did nearly as badly at Vizagapatam as they have lately done at Párvatípuram. References to the ill-health at Vizagapatam will be found in G.O., No. 1641, Judicial, dated 22nd June 1886. I am inclined to agree with the view of the Sanitary Commissioner that the conception of the health of hill-men suffering specially when near the coast is a superstition, but the evidence on this point is not free from doubt and the Vizagapatam jail has been fortunate of late years in having a particularly capable and careful Superintendent. If the Párvatípuram jail were permanently closed, fresh buildings would be necessary at Vizagapatam, and it would be a serious matter to erect those buildings and then to find that the health of the hill-men was after all no better or worse at Vizagapatam than at Párvatípuram.

11. I have received from the Superintending Engineer, a few days ago, a revised estimate amounting to Rs. 40,900 for the works contemplated at Párvatípuram. Of this amount about Rs. 16,000 have already been spent on extensions of blocks and on the provision of a fresh hospital. Work on the hospital is now in progress, and when that is finished the main wall has to be thrown out on the north, south and east sides and a new office built. I do not forward these plans and estimates at present as I am now proceeding to Párvatípuram and I wish to examine them on the spot.

12. The additional measures recommended by Dr. King are stated in paragraph 38 of his report. Instead of abandoning the well, it would be cheaper and equally efficacious to procure the Pasteur filter recommended in my letter No. 5402, dated 5th September 1895. The Government will observe that the water has already been

subjected to bacteriological analysis by Mr. Hankin, and the Sanitary Commissioner informs me that it was "rich in common microbes." I accordingly resubmit the enclosures to my letter last named.

13. The cost of other recommendations made by Dr. King is uncertain, but would probably not be very great. The convicts would have to be moved into camp for a time during the disinfection of the wards. The new camping ground, acquisition of which was recently sanctioned by Government, was handed over to the jail on the first instant.

14. If the Government considers that the objections to Párvatípuram which are stated in paragraph 9 *supra* are so strong as to render it undesirable at present to spend more money on that site, while it would be unwise to add extra buildings to the Vizagapatam District Jail until the suitability of the climate to hill-men is assured, there is a middle course which may be adopted. As has been recently done at Cuddapah, the Párvatípuram jail may be temporarily and tentatively closed. There is at present sufficient room in the Vizagapatam jail for the hill-convicts as well as for the prisoners ordinarily received there. There is, moreover, accommodation in the Rajahmundry Central Jail which is now only a few hours by rail from Vizagapatam for at least 300 prisoners more than are at present received there. In the event of scarcity arising and of the number of admissions increasing, the Párvatípuram jail could be at once re-occupied, while its temporary abandonment would enable a practical test to be applied to the suitability of the Vizagapatam jail to hill-men. Meantime the dysenteric germ on the Párvatípuram site would have time to die out.

15. This is the solution of the question which appears to me to have most to recommend it. Further expenditure on the buildings at Párvatípuram would be saved, and if later it was decided permanently to abandon the place, and to add to the Vizagapatam jail, the cost of such additions would not be much, if at all, greater than the work which as yet to be done at Párvatípuram.

16. The issue of early orders deciding the future of the Párvatípuram jail is in any case desirable, and I shall be glad if they can be communicated by wire. If it is resolved to adhere to Párvatípuram the plans and estimates amounting to Rs. 40,900 which are referred to in paragraph 11 *supra* will then be at once submitted for approval and early provision of funds. The Public Works Department should also be desired to prepare a further estimate for providing those blocks at present without it, with an impervious cement flooring, as recommended in paragraph 38 (2) of the Sanitary Commissioner's letter, and for constructing drains throughout the jail. I request also that the sanction asked for in my letter No. 5402, dated 5th September, may be accorded. If, on the other hand, it is resolved temporarily or permanently to evacuate the Párvatípuram jail, orders to stop further expenditure on the works there should be communicated by telegram. The sickly season being now nearly over, there is no immediate urgency regarding the removal of prisoners from Párvatípuram, and all details connected with this matter can be settled later. I may add that as most of the prisoners received at Párvatípuram come from Koraput, and necessarily descend the Pottinghi ghât to Salur, they could as easily be marched to Vizianagram (about 30 miles) whence the East Coast Railway takes two hours to Vizagapatam, as to Párvatípuram which is about 25 miles from Salur.

Enclosure.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Chief Secretary to Government (through the Inspector-General of Prisons), dated 7th October 1895, No. 1749-S.

With reference to G.O., No. 1165, dated 29th May 1895, Judicial, paragraph 10, I have the honour to forward herewith a report on the subject of the Párvatípuram jails. As the Inspector-General of Prisons informs me that the epidemic is still present, to save time I forward it through him.

2. I inspected the jail at the end of July last. Delay was caused by the bottles of water sent to the Chemical Examiner having been smashed *en route*, and a second sample had therefore to be supplied. It was then so late in August that I determined to secure the statistics for that month. Certain other information required did not reach me till the 23rd September. I was not aware that the sickness was still continuing, as my office is not supplied with returns from the Párvatipuram jail.

3. It having been recently suggested to the Inspector-General of Prisons that the disease suffered from is beri-beri, I would state that, whilst the conditions present would certainly be such as to favour the occurrence of this disease, neither by inspection of the prisoners nor *post mortem* statements was there anything to lead me to believe that, if it existed at all, it had anything to do with the sickness under investigation.

Memorandum on the sanitary condition of the Párvatipuram Hill Jail.

Former conditions.—The Inspector-General of Prisons having in his letter, No. 3805, dated 1st July 1895, informed me that epidemic dysentery had again appeared in the Párvatípuram jail, I undertook the inspection of this jail earlier than desired by G.O., No. 1165, Judicial, dated 29th May 1895, paragraph 10, with the object of examining conditions as they existed during the prevalence of the sickness, as, indeed, was suggested to me by the Inspector-General of Prisons. I inspected the jail and prisoners on the 25th and 26th July 1895.

2. The following statement shows the mortality from all causes and from dysentery and diarrhœa in this jail since 1886. The latter should have been exhibited separately, but time does not permit a reference to the jail on this point:—

	Death-rate from all causes.	Death-rate from dysentery and diarrhœa.
1886	50·24	21·53
1887	110·76	24·61
1888	115·80	36·57
1889	81·26	30·47
1890	59·14	24·64
1891	53·06	21·22
1892	24·48	19·57
1893	17·55	17·55
1894	125·88	93·24
1895 up to September	85·36	45·19

3. From the above statement it will be seen that neither in regard to general mortality nor to the special disease of epidemic dysentery is the condition of affairs brought to light in the Government Order referred to a new matter.

4. The first point demanding attention seemed to me to be the ascertaining whether the disease suffered from was really the specific disease of dysentery or other affection of the intestines. A perusal of the *post mortem* records left no manner of doubt that the diagnosis made by the medical officer was correct. Moreover, there was no doubt that in the year 1894 the disease had assumed the scorbutic type in many cases. Records for 1895 showed that this complication had disappeared, and that the ordinary, but a severe, type of epidemic dysentery remained.

5. In 1894, the District Sanitary officer, Vizagapatam, and the Inspector-General of Prisons had made inquiries and had effected improvements in the general hygienic condition of the prisoners. Several faulty details as to diet were remedied on the suggestion of the District Sanitary officer, and, in recognition of the scorbutic condition of many of the prisoners, lime pickle was issued, and special attention was paid to the nature of the vegetables forming part of the diet. Particular stress was laid upon the indubitable over-crowding of prisoners in the jail and the imperfect perflation brought about by reckless erection of sheds within the jail walls.

6. *Present condition.*—To care as to diet it is but reasonable to attribute the alterations of the type of dysentery observed; the full influence of better perflation had not yet been secured at time of inspection as the main wall had not yet been completed, but the obstructing buildings within the compound had been removed. Moreover, the population of the jail has been maintained within the prescribed limits, so that in the matter of improvement of diet and over-crowding—subject to the above remarks—it may be granted that prisoners were under almost as good conditions as the remedying of these serious defects would bring about.

7. The following table exhibits the result of examination of the prisoners as to existence of "sponginess of the gums" confined at the time my inspection, classified according to length of residence in jail:—

Whence transferred to jail.		Length of residence in jail.					
Hill tracts (above ghâts).	Low country (below ghâts).	Under one month.	Above one and under two months.	Above two and under three months.	Above three and under four months.	Above four and under five months.	Five months.
16	9	10	5	6	1	2	1

8. In addition to the above, 44 or 20·4 per cent. of the total jail strength suffered from atrophy and retraction of the gums, 11 or 5·1 per cent. also suffered from various grades of anæmia, and 14 or 6·5 per cent. from enlargement of the spleen.

9. The above statement goes to show that 32 per cent. of the prisoners had suffered or were suffering from a condition that would ordinarily be recognized as land scurvy, the spongy gums representing an acute stage of the disease, the retracted and atrophied gums without concomitant bleeding or ulceration proving that the disease had been undergone, but that the patient was convalescent.

10. *State of diet.*—As already stated, such errors in the hygiene of diet as existed were remedied under Surgeon-Lieutenant-Colonel Leapingwell's advice. The diet on inspection by me was of excellent quality, with one exception. Further, the Inspector-General, after careful examination of the figures as to weighments, has expressed the opinion that no "fudging" of the figures had been practised, and that there was consequently no reason to think that deficient diet was a factor. The following figures bear out this statement:—

Months.	Net result of weighment. Gain.	Loss.	Months.	Net result of weighment. Gain.	Loss.
January 1895	3·54	..	May 1895	3·96	..
February ,, ...	4·14	..	June ,, ...	2·78	..
March ,, ...	4·96	..	July ,, ...	2·65	..
April ,, ...	4·85	..	August ,, ...	3·05	..

11. The exception to which I allude was the state of the ragi flour. It was found stored in kerosine tins and possessed a *very strong* acetous odour. On my pointing this out to the Superintendent, he met with arguments that are not without weight. I believe, as he urged, that natives in certain parts of the country prefer their ragi-pudding in a state of some acidity. It can well be conceived that there is a stage in the advance towards fermentation where the changes in the starch would be such as to favour digestion, but I should regard the fixing of such a stage as a refinement in chemical research. Whilst admitting this much, I consider the acetous state in which the flour was found not safe, and that it would be liable to produce catarrhal affections of the intestine. I pointed out the remedy to the Superintendent, namely, not confining the flour after grinding, but permitting free air access by spreading it out and securing dryness as quickly as possible. In this matter the method followed at Coimbatore is commendable where, although the practice is to wash the ragi entire, the whole is placed on a cement surface permitting of quick and thorough drying in the sun after washing. This is a matter, however, I do not think need be regarded as an important factor in the case, in view of the result of examination of weighments, otherwise than as affording pre-disposition of the intestinal tract to infection.

12. Taking the above facts into consideration, together with the statement of period of confinement in table No. 2, it is evident that far from the period of confinement in jail having a deleterious effect, the opposite is the result; consequently, the conclusion must be arrived at that the state of land scurvy is more or less the normal condition of the prisoners when admitted. Clear evidence was obtained on this point by my subsequent inspection of direct committals to the Vizagapatam jail of the same class of hill-men with the difference, as I shall show further on, that improvement in Vizagapatam jail is far more rapid than in Párvatípuram. That otherwise than in a period of famine, a body of men should be received in this condition is certainly startling; but evidence from old reports at Párvatípuram show that this is a normal condition of a large portion of the hill-men received. For confirmation it would, however, be necessary to prove that the hill-men do suffer from this condition before admission. On this point no evidence is available and I cannot further delay this report with regard to this important point. Evidence must be gathered slowly and carefully and this shall be attended to. In the meantime, I have gathered

The condition of prisoners on admission.

evidence as to the diet used by the poor classes of the hill-men, but this has been rendered in a form that would prevent positive assertion being made by me. So far as I can judge there would, notwithstanding the use of meat at intervals, be a tendency to lack of albumenoids and of vegetable salts-roots taking the place of succulent vegetables. I may here state that I am by no means a believer in land scurvy being so much due to the absence of vegetable diet as it is usually assumed. The defect of the supply of vegetable salts usually exists, but coincident with this my experience with natives would go to show a lack of sufficient, or easily assimilable, albumenoids in the diet—a condition that would be aggravated in this case by exposure to malaria. There are no available statistics as to the death-rate of these hill-men, and but little can be procured as to their health state from hospitals situated in their midst. *The fact remains however that a large proportion of the hill-men received both at the Párvatipuram jail and Vizagapatam jail are subject to the condition named.* Certain records show that during their transfer from the hills in former days the prisoners were subjected to evil hygienic conditions, but these matters have been attended to.

13. There is evidence therefore to show that the prisoners from the hill tracts are received to a considerable extent in a state of health pointing to the *probability* that their diet, although sufficient as to bulk, for some reason as yet not correctly ascertained, is erroneous as to constituents. This condition of health is one which would predispose to affections of the intestinal tract.

14. The following statement shows that there was no special preference for attacks in blocks—nor according to occupation—though there was protection by prolonged residence, showing that susceptibility diminished as time of residence advanced, as a result of improvement of health. The value of this statement throughout is less than I would wish, as the proportion to the population under each head is not stated. As to the influence of residence in special blocks also the statement is not, as remarked further on, of much value as no roster as to residence was maintained. The statement simply shows the block in which the convicts lived on the day of applying for treatment.

Statement showing blocks from which dysentery cases were admitted during outbreak of 1894–95, with occupation, residence and length of residence in jail of the prisoners.

Blocks.							Occupation.						
1	2	3	4	I sheds.	W sheds.	Hospital.	Ragi grinding.	Garden.	Water gang.	Cooks.	Weavers.	Blacksmiths.	Toty gang.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
						1894.							
3	6	4	4	3	4	..	4	5	3	2	1	1	2
						1895.							
2	3	3	3	..	..	1	1	1	4	..	1	..	..

Occupation—*cont.*					Hill or low country.		Residence in jail.						
Coir picking.	Water drawers.	Building gang.	In hospital.	Invalid gang.	Hill.	Low country.	Under one month.	One to three months.	Three to six months.	Six months to one year.	One to two years.	Two to three years.	Above three years.
15	16	17	18	19	20	21	22	23	24	25	26	27	28
						1894.							
2	1	1	..	2	19	6	8	10	7	..	..	..	..
						1895.							
2	..	..	1	2	8	4	5	4	2	1	..	..	..

15. Before discussing the why and wherefore of this prevalence of dysentery, it is necessary to bear in mind that dysentery and diarrhœa, which are commonly classed together in the lay mind, are two different things, and that the former is an infectious disease in the sense that cholera or typhoid fever is; that is, it is conveyable by the bowel excretions, and is produced by a living organism as to the identity of which, as usual, there is some doubt but is generally granted to be an amœba. Once this special organism be introduced, there is reason to believe that it is not readily destroyed, and that its infective powers are maintained under certain favouring conditions.

The nature of epidemic dysentery.

16. There had in 1894 and former years existed over-crowding in the wards, and dysentery was present. Dysenteric motions must have been frequently passed in the wards before application for treatment was made.

The evidence of prior infection.

17. Even if segregation of such cases were practised, in consideration of native habits, the contamination of the blankets and of the pyals in which they sleep would have been inevitable. These blankets were ascertained not to be retained with individual prisoners; so that were a blanket infected it might be handed to seven men in a week. The blankets inspected were patched with old fragments of others and were frequently little better than a heap of rags. In addition the prisoners were provided with cumbly jackets for wear during the cold weather. It was ascertained that when they went out in the rain, these jackets were worn and no care was taken to see that they were substituted by dry clothing. Thus, granting men were subjected to mere drizzles at intervals, infectivity of disease-bearing particles would be maintained, irrespective of the influence of cold and damp in bringing about a favouring condition of catarrh of the intestine. Again, the floors of the building with two exceptions are earthen, as also the pyals on which the prisoners lie. In the corner of the wards upon the level of the floor were placed the arrangements for night conservancy. This consisted of wooden tubs—an objectionably porous substance to employ for this purpose. *No special surface was prepared, and droppings and washings* from the ablutions of prisoners soaked the floor at this spot. In this connection I may state that it is impossible to differentiate the result of the floors of two of the wards being now covered with concrete, as there was no way of proving in which division of the blocks the prisoners slept on nights. Such conditions would, of course, favour the retention of vitality of the infective agent.

Favouring conditions for retention of vitality of infections agent.

18. The soil of the site is of red gravel and porous. There is reason to believe that it was long occupied as a fort prior to its use as a jail. Such occupation would certainly not favour the freedom from organic impurity of the soil, or from importation of infective organisms. *It is a well recognised fact that wards of hospitals and buildings such as barracks, where dysentery has prevailed for a long period, do not readily get free from contamination.*

The sanitary features of the locality.

19. The most striking feature of the locality is the great range of fluctuation of the sub-soil water. When at its highest level for the year, the water in the garden-well and in a well immediately outside the jail stands at about 3 feet from the surface, whilst the highest level of the water in the drinking-well is 13 feet and the greatest fall 29 feet. This special well from which drinking water is obtained is made upon the most erroneous principles it is possible to conceive. It consists of alternate bands of masonry with dry brick intervals so that in receiving water from a distance, it would reach the interior of the well at as near the level at which it arrives as consistent with the existence of bands of 3 feet of masonry—this even being pervious. The base of the cone of this well may be said to extend 2,560 feet, being 160 times the multiple of its range of depression. In examining the area of this cone, I found that a space of 52,926 square feet had been for many years used as a night-soil depôt for the permanent deposit of night-soil. When this was commenced I could not ascertain, but its use was stopped by Colonel Porteous after an enquiry as to the state of health of the prisoners—*vide* G.O., No. 526, Judicial, dated 20th March 1890. This night-soil trenching ground is but 85 yards from the well. Considering the length of time that has elapsed since these pits were abandoned, it would seem to follow, as a matter of course, that the contents should now be fully decomposed. It, however, was found on attempting to dig the foundation of the walls of the new hospital building that imperfectly changed night-soil was present. At my request the Superintendent dug pits in this area, with the result of exposing matter that was still recognizable as fœcal in considerable amount. There was thus, prior to 1890, a mass of night-soil within a pervious sub-soil and within the drainage cone of the well, which observation in July 1895 shows is still but imperfectly changed. Whether or not this condition of affairs did affect the purity of the well supply can luckily be settled by an appeal to the chemical analyses constantly maintained. Records on this point are available from 1890 as shown below:—

—	Párvatí-puram jail well reported on 20th January 1890.	Párvatí-puram jail water reported on 26th February 1891.	Filtered water from Párvatí-puram hill jail well reported on 23rd February 1892.	Drinking water from Párvatí-puram hill jail well reported on 16th February 1893.	Párvatí-puram jail drinking water well reported on 10th April 1894.	Filtered drinking water, Párvatípuram, reported on 17th May 1895.	Unfiltered drinking water, Párvatípuram reported on 17th May 1895.	The hill jail, Párvatípuram, 17th August 1895.
1	2	3	4	5	6	7	8	9
Total solids, grms. per litre.	0·370	0·470	0·320	0·370	0·305	0·330	0·340	0·380
Volatile solids, grms. per litre	0·160	0·150	0·150	0·170	0·115	0·140	0·140	0·100
Chlorine solids, grms. per litre	0·041	0·046	0·039	0·041	0·031	0·031	0·031	0·042
Total hardness, Clark's scale.	7°·700	9°·100	4°·900	4°·200	3°·150	4°·550	4°·550	5°·950
Permanent hardness, Clark's scale	2°·450	5°·250	4°·900	3°·500	3°·150	2°·100	2°·100	2°·450
Free ammonia, mlgrms. per litre	0·080	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.	Trace.
Albumenoid ammonia, mlgrms. per litre ..	0·040	0·040	Trace.	Trace.	0·144	0·040	0·048	0·048
Nitric acid, mlgrms. per litre (as ammonia)	21·000	22·500	18·750	15·000	13·500	6·900	7·500	10·800
Apparent quality of the water as inferred from the results obtained on examination	..	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.	Usable.

Remarks—(1) Sediment contains large amount of vegetable debris. The amount of free ammonia is higher than the prescribed limit of safety; this, coupled with the fact that the amount of chlorine is very close to the outside limit of safety, I hesitate to pronounce the water to be free from suspicion of contamination by organic matter.

(2) The catchment area should be carefully guarded, nitric acid being very high.

(3) The amount of nitric acid present seems to point to some old contamination and it is recommended that the well be thoroughly cleaned.

20. Holding in mind the fact that the night-soil trenching was stopped in December 1889, I think there can be no manner of doubt that the chemical analyses show that year by year the amount of nitric acid due to the fœcal matter *filtering* through the soil and becoming changed into nitrates, had decreased in proportion to the change effected in a mass no longer added to.

21. I would here point out that the Chemical Examiner's warning as to danger in 1890, 1891 and 1892 led only to the cleaning of the well—not to an exploration of the area included in the drainage cone of the well.

22. I need hardly say that, granting the fœcal matter contained the specific agent of dysentery, its conveyance through a porous sub-soil to a distance of 85 yards from so large an area of fœcal covered ground may be regarded as practically certain. Taking the average population of 1886 to 1889 at 155 per diem, there would have been deposited here 189·4 tons of urine and 56·8 tons of fœces at the rate of 12 oz. per male Hindu adult per diem.

23. But the use of the well being constant, it is evident from statement No. 1 that there were intervals of *comparative* freedom from the disease in the jail. If diagram No. 3 be regarded, it will be seen that these periods corresponded with seasons of presumably low water levels due to deficient rainfall. It may, however, be contended that the period of rainfall and the outbreak of dysentery do not exactly coincide. This may be fairly ascribed to the fact that the sub-soil water rise would occur at an interval of some weeks after the setting in of the monsoon. Thus within six weeks of the opening of the south-west monsoon in June (diagram No. 2) the drinking water-well is said to rise 12 feet and reach its maximum of 13 feet from the surface in the month of August. It must be remembered it is not necessary in such an argument to require that the rate of attacks should be proportionate to the rainfall—as numerous factors would operate in determining numbers; it is sufficient to show that the starting of the epidemics had a relation to the monsoon and the fluctuation of the water level. Taking these facts into consideration, and that the dampness of the superficial soil would favour the influence of previous defilement of the soil, I think there is every reason to conclude that the incidence of the monsoon rainfall and the subsequent rise of the sub-soil water were coincident with the periods of the epidemics.

24. Here it must be remembered that the sub-soil water level or at least a line of moist earth would in all probability be between 3 feet and 13 feet—the water level of the outside well and of the inside well respectively of the earthen floors—forming the wards, and that the condition referred to above as to conservancy ensured contamination of the flooring—*vide* diagram No. 4.

25. It is necessary for me to add that the wards have no basement, and if anything are below the general surface of the ground, and that only one-half of two blocks has recently had concrete floors.

26. I have thus far attempted to trace a possible relation between damp sub-soil, infected floors and buildings, and the retention of infection. As to the actual mode of entrance to the system, irrespective of entrance of infected particles from blankets and hands, I may remark in reference to a theory lately promulgated by Dr. Manson that Párvatípuram is infested in a marked manner with musquitoes.

27. That the causative agent could have also been water-borne is, I think, sufficiently demonstrated in paragraph 22. With reference to diagram No. 3, bearing in mind the fact that the analyses show a steady decline of the degree of contamination of the wells from year to year, and granting a decline *pari passu*, with diminished rainfall, of dysentery in 1889, 1890 and 1891 and a slight fluctuation in 1892, 1893, how is the intense condition of 1894, 1895 up to date, to be accounted for, with comparatively no great contrast, when compared with former years, as to rainfall? I ascribe this fact to a change in the configuration and under drainage of the soil.

28. I cannot ascertain the date further than it was in the first period of tenure of office by Colonel Porteous, that he directed a ditch to be dug round the jail for the purpose of preventing escapes. This ditch during 1892, 1893, was gradually filled up. It formed the limit of the patch of the night-soil depôt on one side. The filling in of this trench seems to me to have acted injuriously in not preventing, at the very period when, on account of the bad structure of alternate bands of the well it was most important, a free exit of the ground water otherwise than towards the drinking-water well. This state of affairs is illustrated by the accompanying diagram No. 4.

29. But, during the continuance of the epidemic, the superintendent boiled the water, and hence it may be assumed that this factor may be put aside. But, when the quantity of boiled water is taken into account, it is at once seen that this was an inefficient protection, and one which indeed simply served to withdraw attention from desirable directions. No extra wood was employed; yet six pots or 53 gallons per day [subsequently stated to be ten pots] were supposed to be boiled for the use of men, or an average of ·24 gallon per man. This would certainly not have sufficed *fully* for drinking purposes. It is further worth remembering that the amount of wood allowed in jails is not one atom too much for cooking purposes, and that even this amount of water would require 47 pounds of wood. In any case, any consideration of the efficacy of the boiling water may be fairly neglected, in consideration of the following circumstances.

30. I found it was the custom to draw water from the well, and store it in the bathing cistern. In my view, a prisoner drew water for the cleaning of his hands, &c., and deliberately drank some of it. It goes without saying that unless the prisoners had a very conscientious belief in the efficacy of boiled water, they would not go up to the office where the water was stored in a chatty, *so long as this source was open to them*. Further, on examining the wards at night time, I found that the drinking water was kept without a cover within the wards, and that a solitary earthen lotha was kept for general use; therefore, should a prisoner wish to drink at night time, he dipped hands that may, a moment before, have been in contact with infective matter into the water.

31. Full proof that the dysentery was, amongst the other modes suggested, water-borne can only be inferred from the chemical analysis. I forwarded the water for examination by Mr. Hankin, the Bacteriological Expert, and although the amœba of dysentery has never yet been identified in water, he very kindly did his best to segregate it, with, however, no positive results.

32. As to the influence which overcrowding had on this epidemic, although undoubtedly it must, in aiding the numerical incidence of foci of infection, have been a factor that cannot be neglected, it is evident from diagram No. 3 where the relation of the incidence of dysentery and population is compared, that it was not a factor that was of importance, in the absence of the favouring condition of the normal fluctuation of sub-soil water-level following a normal monsoon.

33. Irrespective of the defect as to earthen floors when taken into consideration with the high range of fluctuation of the sub-soil water, the buildings present defects as to perflation, the arrangement being that instead of windows opposite each other, they are arranged on one side with a ventilating opening at a height of ten feet above on the opposite. In the remodelled halves of the two blocks however, this had been attended to and windows are made opposite, thus securing correct perflation. The difference in the atmosphere of the wards as improved, and that in their original state as to air purity is striking when all the convicts are present, the stench in the latter at night time being most marked.

34. The following statement shows that in 1894, the cubic space available was decidedly below the standard of 600 feet per head during three months of the year, but that, subsequently, the amount has been, under special arrangement as to transfer by the Inspector-General of Prisons, within legitimate limits:—

Months.	Cubic space engaged by each man in 1894.	Cubic space engaged by each man in 1895.
May	..	599·90
June	450·76	602·26
July	455·08	579·39
August	461·04	653·12
September	560·48	..
October	620·91	..

35. But it appears to me that the measurements made by the Public Works Department are not completely trustworthy. Thus, instead of the triangular space of the roof being allowed for in the calculation shown on the boards outside the wards, the whole space is apparently assumed as a cube. Thus the measurement of one of these wards is, according to this mode, 49′ × 17′ × 19′ giving with 26 men 608·7 cubic feet. But the actual measurement below the roof is 48′ 6″ × 17′ 4″ × 13′ 8″ and the triangle of the roof is $48' 6'' \times 6' 10'' \times \frac{17' 4''}{2}$ giving a total of 552·3 cubic feet per head. But it is universally acknowledged that no height above 13 feet should be regarded in dwellings as available cubic space for breathing purposes; therefore, the space that by this calculation was available at the time of my visit was $\frac{48' 6'' \times 17' 4'' \times 13'}{26}$ = 420·3 cubic feet per head.

36. I have examined the Párvatípuram Local Fund hospital statistics, and think there is no reason to regard the village as specially liable to dysentery.

37. From diagram No. 2, it would appear that there was no relation between malaria infection and the outbreak of dysentery.

38. *Measures suggested.*—I advised instant abandonment of the drinking-water well in favour of Mr. Thornton's or the Missionary's well; but the Superintendent represented difficulties as to closing it on account of the labour necessary to bring water from the site I suggested, and I doubt therefore whether, in consideration of the fact that dysentery still continues in the jail, it is not still possible for the prisoners to more or less use this water. *This abandonment of the well for all jail purposes is certainly essential.* But, lest by any means the convicts should obtain water thence, it would be advisable to practise disinfection by permanganate of potash (1—40,000) after the manner advised by Mr. Hankin, at intervals of, say, every fortnight.

If the jail is to be retained, a well in a site beyond the drainage cone of the old fœcal deposits should certainly be chosen. Such a site is to be found immediately beyond Mr. Thornton's present house, in an area which I showed to the Local Fund hospital assistant at Párvatípuram. To get over the difficulty as to transport, the water should be raised by pumping to an elevated cistern to the jail and there be distributed by pipes throughout, so as to make the jail independent of any water on the spot. Particular care should be taken that the prisoners do not use for any but gardening purposes the water of the garden well.

2*ndly*. The basement of each ward should be raised 3 feet, and be made impervious by a flooring of concrete plastered with cement. The surrounding surface of the wards should be well metalled. Drains for removal of rain water should also be provided.

3*rdly*. The ditch should be re-opened at once, and an outlet be arranged,—a condition that is possible.

4*thly*. All clothing of the prisoners should undergo a complete and careful process of disinfection by a solution of perchloride of mercury, and subsequently no clothing should be stored for subsequent issue without the same precaution being followed.

5*thly*. All walls should be completely freed of the existing plaster, and be then disinfected with perchloride solution and new plaster be provided.

6*thly*. The whole of the patched and ragged now used blankets and jackets, should be destroyed.

39. Either these measures, *in addition to the present intention of enlarging* the compound and so improving perflation should be carried out, or the jail should be abandoned. In my opinion, this abolition is the preferable policy. The conception that it is necessary to retain these hill-men in Párvatípuram, lest on their going to the Coast they should get fever and break down in health, is an ancient and untenable superstition. I was fully satisfied that the hill-men in the jail of Vizagapatam were in far better condition than those at Párvatípuram. Moreover, it is absurd to consider that the climate can in any way approach that of the hills. In any case, it is paradoxical that the Párvatípuram jail should, as has been the practice, send prisoners to Vizagapatam on medical grounds if "climate" be so important a factor. I inspected the hill prisoners at the Vizagapatam jail who were direct committals, and those who were sent there on medical grounds or were sick on arrival—being sent to relieve the congestion at Párvatípuram. Here is a statement of their condition as found on my inspection, which bears out the allegation as to bad state of health on admission, and exhibits the improvement undergone:

—	Anæmia.		Enlargement of spleen.		Spongy gums.		Retraction and atrophy of gums.		Total.
	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	No.	Rate per cent. of the total.	
Recent admissions	3	25·0	3	25·0	3	25·0	1	8·3	12
Below six months	1	1·4	2	2·9	5	7·2	3	4·3	69
Above do.	3	3·1	..	..	..	..	..	..	97

40. I have not the slightest hesitation in saying that the chances of the survival of the prisoners in Vizagapatam are far greater than in Párvatípuram, and in this opinion Surgeon-Lieutenant-Colonel Leapingwell, who has a large experience in the district, agrees with me. I show here a statement of weighments as supplied by him:—

	Average duration of confinement.	Average weight gained.
	MOS. D.	
Those committed to the Central Jail directly from Vizagapatam	3 6	7·96
Those transferred to the Central Jail from the Párvatípuram Hill Jail	3 2	7·28

41. The surroundings of Párvatípuram show that, during the wet weather and the continuance of irrigation, no one but a man from the district of Tanjore would feel happy in such surroundings. The abolition of this jail seems to me therefore the wisest course, and this could easily be effected, as the East Coast Railway is about to run a line to this place, and transfers from the hills could therefore be readily made. At the same time, whilst I believe these prisoners would be under better conditions at Vizagapatam, it must always be expected that their state of health would fluctuate more than in the case of the ordinary prisoners of the plains, not only because confinement is probably particularly irksome to this class, but because, so far as I am yet informed, the population in its free state lives under hygienic conditions that induce a special liability to intestinal affections. The history of this class has always been that great mortality has attended their confinement. Indeed, their transfer from Vizagapatam to the specially built Párvatípuram Jail is thus accounted for in the Vizagapatam District Manual:—

"Others, hill men, will be sent to the new prison at Párvatípuram, which was constructed with a view to its providing accommodation for one hundred Jeyporeans (the present mortality amongst this class when confined in a jail on the Coast being truly deplorable)."

42. This account, it should be remembered, refers to the *old* jail at Vizagapatam, and shows that at this period the dysentery germ had attached itself to that locality, just as it has now to Párvatípuram, and would undoubtedly again in the present Vizagapatam jail, were sanitary precautions against its segregation and destruction neglected.

43. The conclusions therefore to which I would arrive as to the prevalence of dysentery are as follows:—

(*a*) That the convicts admitted from the hill tracts are received in an unhealthy condition due to the influence of malaria and state of scurvy.

(*b*) That prolonged residence in jail either at Vizagapatam or at Párvatípuram, ensures a cure of these conditions.

(*c*) That in the Párvatípuram jail, there exist hygienic faults which permit of the retention of vitality and distribution of the causative agent of dysentery (which by reason of former absence of care as to segregation and destruction has been introduced in the buildings, water and soil) and that the convicts of recent admission, whilst still in a condition rendering them peculiarly susceptible to dysentery, are thereby affected.

(*d*) That the Párvatípuram hill jail is not a hill jail, and does not offer either by its sanitary arrangements, or its climate, any good reason for retaining convicts here.

(*e*) That practical experience shows that, under the climatic conditions and the hygienic arrangements of the jail at Vizagapatam, the stage of predisposition to dysentery may in the modern jail be safely passed by such convicts, and that, if care be taken to always segregate (as in cholera) dysenteric motions, there is no reason why Vizagapatam should not continue to be a safe locality for their retention.

(*f*) That the class of medical care and the hygienic conditions obtainable in Vizagapatam being better than in Párvatípuram, it is advisable the convicts, if transferred from a true hill climate at all, should be sent to the former station.

Order—No. 2334, Judicial, dated 14th November 1895.

The interesting reports from the Sanitary Commissioner and the Inspector-General of Jails read above, though they do not render it possible to predicate with any real certainty the causes of the constant outbreaks of dysentery in the Párvatípuram jail, show with sufficient clearness that the jail premises are tainted with dysenteric germs, and that the abandonment of the jail, at least temporarily, is unavoidable.

2. Both officers adduce a series of forcible arguments in favour of its permanent abandonment, but the Government considers that, before this step is definitely decided upon, it is necessary to ascertain, from actual experience extending over some considerable period, what will be the effect upon the health of convicts from above the ghâts of confinement in prisons situated upon the Coast.

3. The Párvatípuram jail should accordingly be temporarily abandoned as a place of confinement for convicts, and its present inmates should be removed partly to the jail at Vizagapatam and partly to that at Rajahmundry as the Inspector-General may be able most conveniently to arrange. After their removal to these places, the state of their healths should be most carefully watched and recorded in full detail. It is believed that the hill men confined in the Párvatípuram jail were formerly permitted a daily allowance of opium, and that their ill-health in other jails has been ascribed to their deprivation of the drug. The Inspector-General will be requested to report whether this allowance is still made. If it is, it should be continued to this class of prisoners after their transfer to jails on the plains, and, if it is not, information should be furnished as to the reasons which led to its discontinuance.

4. Pending the completion of the arrangements for this transfer of the prisoners, the jail well should be disinfected with permanganate of potash on Dr. Hankin's system as recommended in paragraph 38 of the Sanitary Commissioner's memorandum, and the old clothing and blankets now in use should be destroyed and replaced by others. It would appear that the Superintendent of the jail was responsible for the unsatisfactory condition of these latter, and the attention of the Inspector-General will be called to the point.

5. The repairs and alterations now going on in the jail should be stopped at once. As, however, it may eventually be found necessary to again use the jail should the health of the prisoners when confined near the Coast or at Rajahmundry be found as unsatisfactory as it has proved in former years, or should any difficulty as to accommodation arise hereafter, the Inspector-General will be requested to take steps to have estimates prepared and kept ready, not only for the works the execution of which has already been sanctioned, but also for the other improvements suggested by the Sanitary Commissioner in paragraph 38 of his memorandum, and for draining the jail premises. Some of these are small undertakings which could probably be carried out departmentally.

6. The Government is not prepared to adopt the recommendation of the Inspector-General that the jail well should be retained as a drinking-water supply without a more careful trial of the quality of the water, and he will be requested to arrange for further analysis of this; the results of these should be reported to Government. Orders will thereafter be passed upon his letter upon the subject of filters read in G.O., No. 1990, dated 24th September 1895.

7. The sanitary arrangements in the wards at night appear, from the papers before Government, to be unsatisfactory. The corners which are used as latrines should certainly be floored with some impervious material, and should be supplied with drains so that they can be cleaned without difficulty. It would probably be sanitarily preferable to have detached latrine wards as is the case at the Madras Lunatic Asylum, and the matter is commended to the consideration of the Inspector-General. Estimates for carrying out these improvements should be included with those already referred to in paragraph 5 *supra*.

8. In the second of the letters read above the Sanitary Commissioner suggest that the Inspector-General of Jails should be placed in communication with the Sanitary Board in order that the existing water-supplies in jails should be improved and altered. The Government does not consider that any cause for general dissatisfaction with these supplies has been shown, but the Inspector-General will be requested to report shortly upon those of them that are in his opinion at present defective, and upon the remedies that might be adopted.

9. It appears from the present papers that the prisoners themselves frequently foul their own drinking-water, or carelessly drink that which has already been rendered impure. The danger of this occurring with the supplies put into the cells at night might perhaps be obviated by placing in each cell a tap connected with a supply placed outside the wards. Bathing water should be frequently renewed where possible and run off as soon as it has been used.

10. The following telegram will be despatched to the Inspector-General of Prisons:—

706. "Parvatipuram Jail to be abandoned temporarily. Stop works there."

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Inspector-General of Prisons.
" Sanitary Commissioner.
" Public Works Department.
" Accountant-General.

Exd. S. J. Pereira.

Govt. of {1895} Madras.

JUDICIAL.

Issued

Recd. *Encl.*

G.O., No. 2334, 14th Nov. 1895.

NOVEMBER.

Parvatipuram Jail.

Passing orders on the reports from the Inspector-General of Prisons and the Sanitary Commissioner regarding the sanitary conditions of the —.