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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W DEPARTMENT

G.O. No.	561	Press.
B.P. No.		Mis.

Dated 1-3-1981 197.

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561
GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

1st March 1881, No. 561 W.

Buildings and Roads.
Civil Works.

Read the following paper:—

No. 5. From the Engineer-in-Chief, Madras Harbour Works, dated 25th January 1881.

No. 6. ORDER THEREON, 1st March 1881, No. 561 W.

THE Right Honorable the Governor in Council has perused with interest Mr. Parkes' report on the erosions north of the harbour and the best method of dealing with them.

2. It seems desirable, in view of future possible encroachment of the sea in this direction, that the longitudinal revetment should be continued for some further distance, its effect and the progress of erosion being constantly watched, and the extension of the sea wall made contingent on these observations and the orders on them.

3. The question raised by Mr. Parkes in paragraph 20 of his report as to the value of reclaimed land to the south being in some way shown as a set off against the expenditure due to the erosion on the north of the harbour will be deferred for future consideration.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Engineer-in-Chief, Madras Harbour Works.
" Superintendent, Madras Harbour Works.
" Marine Department.

Exd. E. C. Shunker.
Spurs Copies

BUILDINGS AND LOADS
CIVIL WORKS.

Govt. of (1881) Madras.

PUBLIC WORKS.

The ENGINEER-IN-CHIEF,
MADRAS HARBOUR WORKS,

Dist. Mch, 1st.

1881.

1881.

C. O. 1881. No. 501. M.

MARCH.

Dec 5-3.

Excavated north of the harbour and the best
method of dealing with them. - Passing orders
on Mr. Parker's report on the --.

From.

W. Parker, Esq. M. Inst. C.E.
Engineer in Chief
Madras Harbour Works

To.

Colonel R. H. Sankar, C.B. & C.
Secretary to Government, P.W. Dept.
Fort Saint George.

Madras 25th January 1881.

Sir,

In compliance with the
request verbally made to me by you
I have the honor to submit the
following remarks on the changes
of the shore line north of the
Harbour.

1. The Report.

2. Since I reported to the
Government of Madras upon this
subject on the 25th February 1879,
the rough stone revetment has been

completed as far as the Police
Tannah, and as it withstood
the heavy seas of last winter
without damage the protection of
that portion of the shore may be
considered completed, subject to the
possibility of some further addition
of stone being required if future
seas should produce any damaging
effect upon it. The length of the
revetment is 1650 feet and the cost
Rs 144,344.

3. In my report above
alluded to of 25th February 1874 I
stated with regard to the portion
of shore immediately to the Northward
of this "There then follows another
half mile where property of some
value may be threatened in two or
three years, and the question of

80.
"protecting it may then be considered
"with such new light as the
"observations made in that interval
"may throw upon it."

4. I think the information
given by the observations made in
the last two years is of considerable
importance and calculated to place
a more definite limit to the
liabilities of the Government than
was possible when I made that report.

5. There can be no doubt that
the accumulation on the shore to
the South of the Harbour must be
balanced by an erosion to the
North so far as the changes are
due to an interruption of the
longshore movement of sand by
the Harbour Piers. But as to
the position and amount of that

5/5

erosion and the extent to which it is complicated by changes due to other causes, there was really two years ago very little to guide us. The want however has now been to some extent supplied.

b. The general result of the two years 1877 and 1878 was an erosion over the half mile in question and over a further length of 7500 feet Northward of it of an average width of about 125 feet. It was fair presumption in the absence of other evidence, and considering that the result was not inconsistent with known causes, that erosion might continue to proceed at the same annual rate in future years and for such a result I then recommended that the Government should be prepared.

But the experience of the two following years has not confirmed this presumption. The accompanying tracing No 1 shows the lines of high water for some distance north of the Tannah for the Septembers (when the erosions due to the South West Monsoons were at the maxima) of the years 1876, 1878, 1879, 1880. We have no record of the state of the beach in September 1875, but from careful enquiries made in 1876 it was clear that no special erosion had up to that time been noticed, so that September 1876 may fairly be taken as a starting point. There was erosion in that year due to the Harbour Works but it appears to have been confined to the immediate neighbourhood of

56 1/2

the Railway station.

7. It will be seen that while the erosion between 1876 and 1878 was considerable, there is little change on the whole from 1878 to 1879 and 1880. Further North, beyond the village of Houdiapettah, the erosion which took place between 1876 and 1879 was for a length of about 1800 feet actually regained in 1880. Beyond that again there appears to have been little change.

8. From these facts it is quite clear that any erosion which may be due to the Harbour Works is not of that annually progressive character which was assumed as possible from a comparison of the lines of 1876 and 1878. Further

56/8
the whole erosive effect was
exhausted in those two years, or
whether the absence of progressive
erosion in the two following years
is due to some exceptional or
temporary cause, is at present
doubtful. It is most desirable
that the periodical surveys be
continued with a view of determining
this question, and with it, the
liability of the Government for the
loss of land.

Q. In the mean time the
observations already made have
brought out clearly the fact that
there are temporary changes going on
on such a scale as to disguise the
evidence of progressive change unless
the latter be analyzed with some
care. Tracing No 2 shows the

9
effects of the successive North
East and South West monsoons, a
blue shade denoting the erosions
in the latter, and a yellow shade
the accumulations in the former,
and it will be seen that they
nearly balance one another.

10. This shows clearly what
is the normal result of the
regular monsoons and it follows
that if we find during the period
of one monsoon an effect - the
contrary of that result, it must
be due to some exceptional cause -
Thus in the early part of November
1880 there was a serious erosion
of the shore near the Police Tannah.
The burst of the North East monsoon
has been unusually violent and

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erosion was the result, though the moderate seas that followed from the same direction produced accumulation. This apparent anomaly is quite explicable from known causes. A sea from the North East is calculated to produce two effects; one, an alongshore movement of sand from North to South, causing accumulation against any obstacle such as a groyne, or where for any reason the wave action is checked; the other a transverse movement by which the beach is flattened and a consequent erosion of the shore line takes place compensated for by an accumulation below water. It takes a more than ordinarily heavy sea to produce the latter effect while

the ordinary monsoon surf¹¹
produces the former. The South
East seas which prevail during
the South West monsoon cause
an alongshore movement from
South to North and consequent
erosion on the Northern side
of an obstacle, an effect at
first sight identical with that
of the North East storm wave, but
really quite distinct from it.

11. Now for any interference
with the normal alternate alongshore
movements the Harbour Works are
admittedly responsible, but they
have no effect whatever on the
transverse movements due to
the storm waves - at least at
such a distance from the works

as the part now in question. The land has always been held subject to liability to such occasional encroachments, and the Harbour Works have not altered the conditions except in so far as any waste due to the preponderance of southerly over northerly alongshore movement may have brought the belt liable to change under storm influence closer in shore and nearer to valuable property.

12. What I have stated above will show that the Harbour Works cannot be fairly made responsible for all the erosion that takes place north of their site, and it gives some indication of the mode in which the question of responsibility may

13
be determined - An effect contrary
to the normal effect of the monsoon
within the limits of which it
occurs, is certainly not due to
the influence of the Harbour
works - on the other hand such
changes as are shown by a
comparison of the shore at any
time with its state at the corre-
sponding period of the previous
year are presumably to be
attributed to the Harbour works,
but this presumption may be
rebutted by evidence of exceptional
conditions during that period. We
have not yet had experience of
the effect of May storms - They
would probably act in the same
direction as the following South
West monsoon, and thus tend
to exhibit a result in excess

15

of the normal monsoon effect, and consequently an exaggeration of Harbour Works liability.

13. Applying these principles to the question immediately before the Government viz how to deal with the half mile of shore immediately to the North of the Police Tannah, I would again call attention to the fact that there has been no increase of erosion for two years except what is due to storm wave action in November last. It might at first sight be suggested that this absence of erosion is due to the groynes which have been constructed in the interval, but there is no indication of that characteristic form of the coast line which

12

grypes produce where the sand
is subject to an alongshore movement,
and I am inclined to think they
have produced little or no effect.
Certainly there is nothing to indicate
that any addition to them would
be followed by any beneficial result.

14. Two claims for compensation
have been made, but in both cases
the claimants submit plans which
show that a large proportion of
their property had already disappear-
ed before the Harbour Works commenced,
and it is therefore clear that the
Harbour Works are not liable for the
whole of their losses, even if they
could substantiate any part of
them.

15. It is however evidently
most undesirable that the question
should be brought before the

law courts. It is one which would¹⁶
be far more profitable to the
lawyers than to either of the
litigants, and a decision in one
case would hardly be applicable to
others so that it would be of
little practical value.

16. There are two ways of
avoiding this 1st by forming an
efficient physical protection against
further erosion, or, 2^d, by the
Harbour Authorities purchasing
the land and taking the risk
upon themselves.

17. The first object might
be accomplished by continuing
the revetment, but this is liable
to two objections 1. It would be
to incur a certain expense to
avoid a doubtful risk, for some

weight must be given to the consideration that erosion has now ceased for two years. 2. It would in great measure defeat its own object for the greater portion of the land to be protected is used either as timber depots or as building sites for fishermen's huts, and for both these purposes a clear sandy beach is indispensable for landing timber and catamarans. A rough stone revetment would be a complete barrier in either case, and render the authorities liable for "consequential damages".

18. I think however it would be desirable to give some protection to the corner immediately within the present abrupt end to the revetment, near to which is a brick house of some value, but

18.
this is already being done with
the stone now on the ground in
the groynes at a trifling expense.
Beyond this I would deprecate
the construction of further pro-
tective works at any rate until
future changes of the shore line
show the necessity for them.

19. As to the second
alternative, the purchase of the
land, I think it would be most
desirable that the whole of
the property abutting on the
shore should be in the hands
of the Port authorities provided
it can be obtained at reasonable
rates. It might still be utilized
as at present, and any future question
of protection from erosion, if such
should arise, would then be deter-
mined simply on the ground of
whether it were worth the cost.

The absence of erosion for the last ⁽⁹⁾ two years places the negotiation for the purchase in a favorable position, as it precludes any assumption of urgency. I would suggest that the coast line of September 1876 might fairly be taken as the sea boundary of the area to be purchased. It is a confirmation of the correctness of this line for the purpose that it coincides with the sea boundary of the area purchased by the late Mr. Sadler in 1871, and which the Government has since purchased from his widow.

20. I may be permitted to suggest that although necessary protection of the shore line, and compensation for actual loss of land are fair charges against the

Harbour Works funds, purchase of land in anticipation of possible loss is hardly so, but the two classes of charges might be combined under a new head which should also include the returns from land gained to the south of the Harbour and within the Harbour limits. Portions of this land are now occupied (at present gratuitously) by the Municipality and the Commissariat Department. These and future occupations of a similar kind ought to bring in a revenue which may fairly be carried to account in diminution of the charges caused by erosion elsewhere.

I have the honor to be
Sir

Your most obedient servant

W Parkes—

A.C. 20.7522. 10-3-79 (orig.)
 " " 7924. 29-3-80.
 " " 1209 W. 20-5-80.
 " " 12406 W. 25-5-80.
 " " 1713 W. 19-7-80.
 " " 2720 W. 28-11-80.
 " " 2887 W. 9-12-80.
 " " 60 W. 11-1-81

P.W. No 475

25/Jan/81

+ Please

I think the longitudinal
 movement should be
 continued for some
 further distance its effect
 on the progress of erosion
 being constantly watched
 & the situation of the
 seawall being carefully
 noted in these observations &
 the observations

L.D.

John D. ...

W.P.

20/2/81

20/2/81

20/2/81

20/2/81

20/2/81

How V. ...
 H. ...
 For ...

The annexed paper
 by Mr. Parker regarding
 the progress which
 have been in progress
 north of the harbor
 works and the best
 method of dealing
 with them, is a most
 interesting contribution
 and will assist for
 very much in deciding
 on what ought to be
 done, though
 I regret being unable
 on this point to agree
 altogether with the
 recommendations and
 made

It is difficult in
 a short space to
 analyze an im-
 portant paper of
 this character and

I will therefore
merely draw attention
to what I conceive
to be the salient
point or concerns
the action to be
taken by Government

While generally
agreeing that
although there
was marked erosion
from 1876 to 1878
there has practically
been little or none
in the last 2 years,
Mr. Parker would
in consequence of
this "dispute" the
construction of
further protective
works" (para 18)
till at least future
changes of the shore
line show the
necessity for them

But (para 8) ²³ he
admits that the
absence of the erosion
in the two past
years "may be due
to some exceptional
or temporary cause"
and such temporary
cause he charges
to my mind indicates
by his observation
(para 10) that "in
the early part of
November 1880 there
was a serious storm
of the shore near
the Police Station"

Now it must be
borne in mind that
as we have had no
very serious cyclone
in Andros since
May 1872 the usual
recognized cycle
of such storms is a

Approaching its
termination, and
in fact that we may
have if not a maximum
at least a heavy storm
in the next change
of season, in the following -
Mr. Parker's tracing
No. 1 shows how great
has been the erosion
between 1876 and 1879
and as there was no
really heavy storm in
all that time, or indeed
during the last eight
years, there is nothing
I could submit to
show that the effects
of a heavy cyclone might
not be to erode the
whole line from the
Dharmah to the
Village of Sandapotta
right back across
the public road into
the compounds at the
back.

Mr. Parker's reasoning
so far as applied to
ordinary seasons may
and I think is per-
fectly sound, but the
contingency I have
mentioned is among
the events which we
must count on as being
certain to happen.

Waiting on such an
event seems to me to
be short sighted, and
I therefore still con-
sider it necessary to
press on Government
the desirability of
losing no time in
pushing on with the
constitutional reorgani-
zation, as already
recommended.

If this course be
not followed it
seems to me that
serious risk will be

incurred of our
having to meet a
very heavy bill in
the way of compensation
added to the necessity
which will then
force itself on con-
sideration of having
to carry out the
settlement

I cannot also think
that the argument
advanced by Mr.
Parker against this
settlement in para-
17, that someone
will have to meet
certain "consequential
damages" should
weigh against the
proposal; as in
the first place, even
if admitted that

Catarinas could
not use the beach
if restricted (in which
however I cannot see the reason) the
absolute amount of
compensation in
removing the fishermen
further to the north
could not be serious
and in the next, it
would be comparatively
easy to make arrange-
ments specially to
meet the requirements
of the timber merchants.
A sufficient quantity
of beach left.
In instance where
settlement, and with
a grove close to
the South would
probably meet all
the requirements of
the case.

Personally, I think
the contention used
by Mr. Parker in
para 20 that the
value of the reclaimed
ground to the South
should in some way
be shown as a set off
against the expenditure
due to the erosion on
the north of the
Harbour; there are
various difficulties
in dealing with the
items in the accounts

The question however
may easily be deferred
for future consideration
and in the meanwhile
I shall wish for
the decision of the
Committee as to whether the work
connected with the north is
to be now proceeded
with

26/1/81 *Att*

for future consideration.

21
Att

1/3/81

The Engineer-in-Chief 2 ✓
Mr. H. D. Dicks

" Lieut. Mr. H. D. Dicks 3 ✓

" Marine Department 7 ✓

Desd.
9-3-81

21

No: 5611

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 1st March/81.

Read the following:—

From,

The Engineer in Chief } (H.C. No. — of 20 Jan'y/81)
Major Nathaniel H. H. }
V. H. H.

The Right Honorable
the Engineer in Council
has perused with
interest Mr. Parker's
report on the previous
works of the Harbour
and the best method
of dealing with them.
2. It seems desirable
in view of future
possible encroachment
of the sea in this
direction that the
longitudinal revetment
should be continued

for some further distance;
its effect and the
progress of erosion
being constantly watched,
and the extension of the
road well made contingent
on these observations
and the orders on them.

5. The question raised
by Mr. Parker in para
20 of his report as to
the value of reclaimed
land to the South
being in some way
shown as a set off
against the expenditure
due to the erosion
on the north of the
harbour will be deferred

for

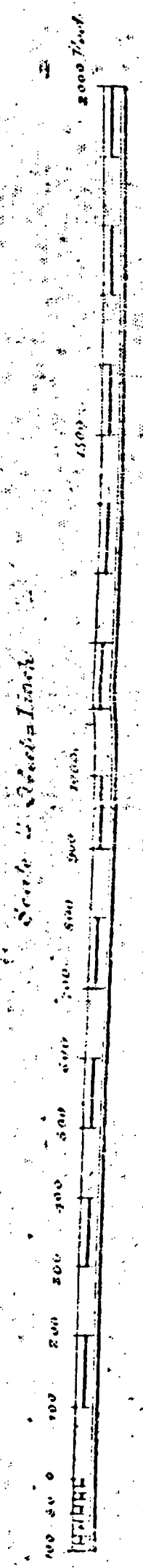
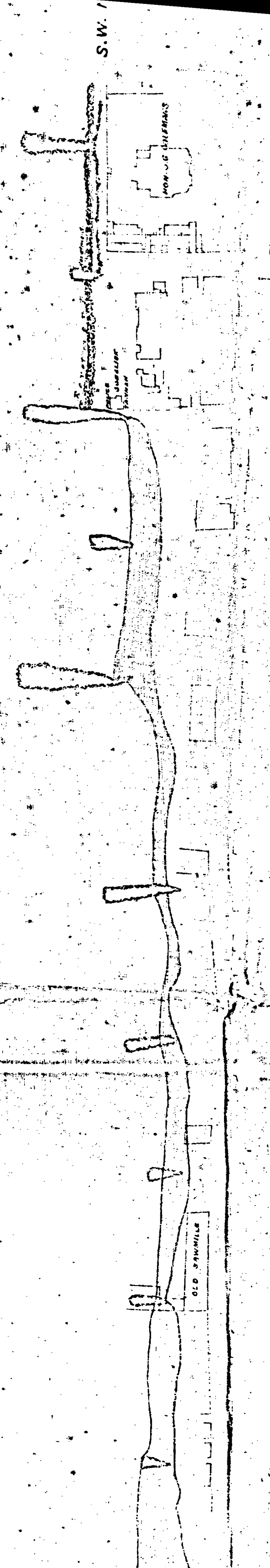
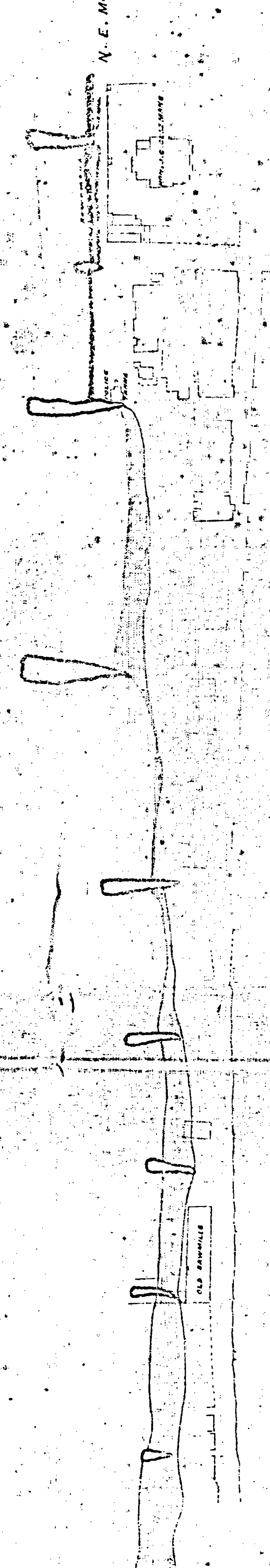
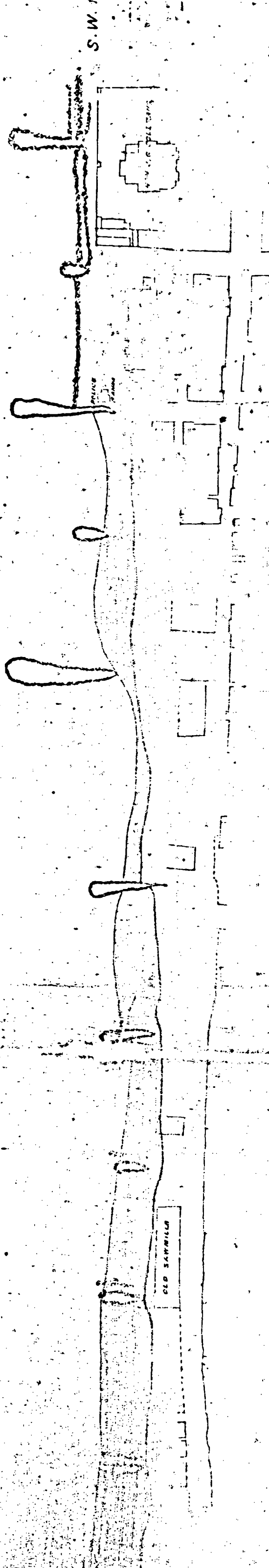
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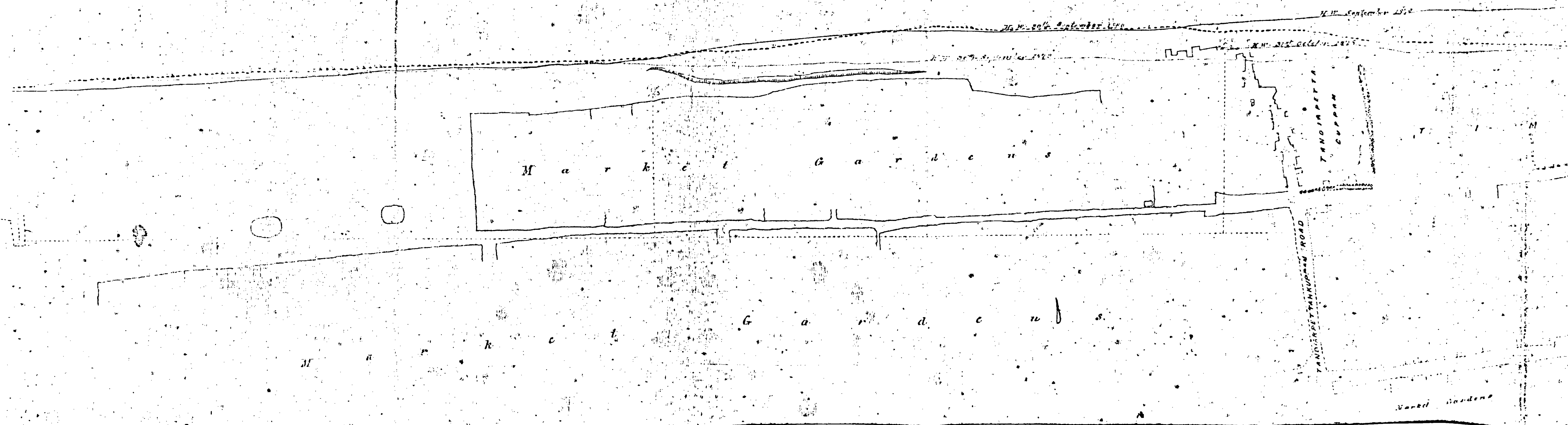
W. Parker
London 1854



M. A. V.

PLAN SHEWING STATE OF BEACH AT TERMINATION OF SOUTH

Tracing N^o 1 to accompany M^r Parkes Rej

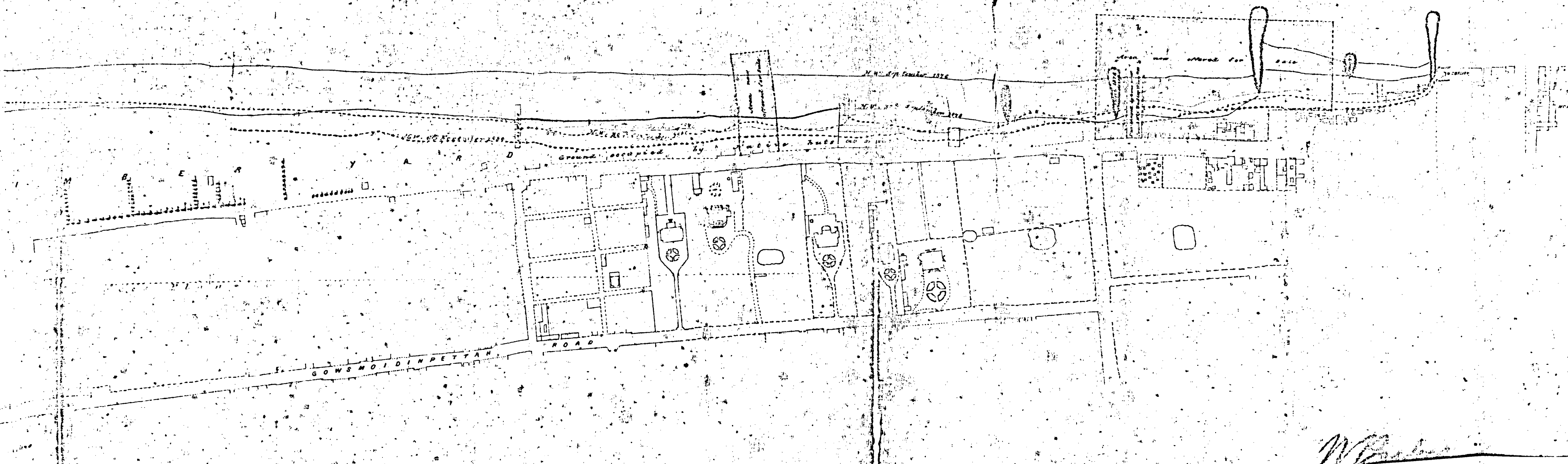


W. H. W.

No 1

ON OF SOUTH WEST MONSOON OF 1876, 1878, 1879 AND 1880

Parke's Report dated 25th January 1881



473.

GOVT. OF 1881

PUBLIC WORKS.

R.

1881

1881

1881

1881

U. S. GOVT. PRINTING OFFICE, 1881.

1881

Provisions and the
harbours and the
best method of
dealing with them.

Passing orders on
Mr. Parker's report
on the

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