1. Number of pieces 10
2. Date of receipt 30-4-37

M.R.O. 1—39,000—16-10-29.

MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

Com. 24-11-57

G.O. No. 2120 Press Mis.

3-4

Dated 18-11-1957

Not to be folded or roughly handled

No. 3. Read the following Extract from the Proceedings of the Chief Engineer, dated 12th November 1857, No. 5185.

Read the following letters from Lieutenant J. MULLINS, District Engineer Nellore ; to Colonel C. E. FABER, Chief Engineer, Department Public Works, dated 31st October 1857, No. 2178.

SIR;

I have the honor to forward for your information a copy of a letter No. 791, of the 29th Instant, this day received from Captain Ritherdon, reporting breaches in the bunds of 14 Tanks in the Nellore Executive Range.

2. The particulars of damage done have been called for, but I may mention that the injury sustained by the Canoopurtypaud Tank is very trifling, and I believe the same may be said of the Survapully small Tank.

3. I have just returned from a hasty inspection of many of the Tanks in the Survapully Talook, and I am glad to be able to report that very little damage has, up to the present time, occurred to some 20 or 30 tanks, which I was able to see were retaining a full supply. A great many Tanks however are quite full and in many instances the water is within a few inches of the tops of the bunds, so that their state, in case of another heavy fall of rain is very precarious.

Letter from Captain A. RITHERDON, Executive Engineer Northern Division ; to Lieutenant JOHN MULLINS, District Engineer, Nellore, dated 29th October 1857, No. 791.

SIR,

I have the honor to report for your information that the undermentioned Tanks, have been reported to me as breached.

Amaloor Bramin and Ana Tanks.
Naregondah Causerazoo Tank.
Cakatoor Tank.
Chamoodogoontah large, Voora, and gungana Tanks.
Lacontapaud Tank.
Kanoopurtypaud large Tank.
Survapully small Tank.
Edampilly Tank.
Condlapoody Tank.

A breach is reported as having occurred in Laboor small Tank but it has not been seen by any Government Servant. The Cuts in Gungapatam Tank bund made to let out surplus water, are said to have worn away to moderate sized breaches.

II. The repair of all the breaches is being seen to by the Tahsildars and their Subordinates or by members of the Department and as no delay happened in commencing to close the breaches, I do not think the expenditure will prove very great.

III. I am glad to be able to report that the large breach in Gungapatam Tank now being filled, did not give way although the water rose to within one yard of the top of the new work.

From Lieutenant J. MULLINS, District Engineer Nellore; to Colonel C. E. FABER, Chief Engineer, dated 3rd November 1857, No. 2189.

SIR,

I have the honor to report that Nellore was visited yesterday by a hurricane of unusual violence, which has devastated the station, and the surrounding neighbourhood, and done an enormous amount of damage to property of every description, both public and private.

2. The sky on Friday and Saturday, the 30th and 31st, Ultimo, had a leaden appearance, which made the natives think that there would be a high wind. On Saturday night and Sun-

day morning, there were moderate showers with a strong wind from the west, and towards evening the wind had increased to half a gale. The aneroid and mercurial barometers were both falling, and at ½ past 9 P., M., the former shewed a fall of $\frac{2}{10}$ of an inch and the weather was what is generally called by seamen "very dirty". From this time to 0, 4 5 A., M., the wind continued to increase, and was then blowing a heavy gale, with a good deal of rain. The aneroid barometer had fallen very nearly $\frac{2}{10}$ ths since ½ past 9 or $\frac{4}{10}$ths altogether, a little before 4 the gale had increased to a hurricane, trees on all sides were being torn up or broken off, and it was only with great difficulty that doors and windows could be kept shut. The hurricane continued to increase until ¼ to 5, when the gusts were terrific, the aneroid had fallen $\frac{7}{10}$ ths of an inch in 4 hours and was still going down rapidly. Shortly after ½ past 5 I fell asleep, and on awaking at ½ past 6, I found to my surprise that there was a perfect calm, but on examining the aneroid, I found that a further fall of nearly $\frac{2}{10}$ ths had occurred during the preceding hour, and in 10 minutes more a further fall of $\frac{1}{12}$ th took place. I then knew that we were in the centre of a cyclone, and that before long the wind would recommence with, probably, equal fury. All this time the direction of the wind was from west and north west, and ultimately about North north west, as nearly as could be judged by the result of its operations on the houses and trees. The scene out of doors was, at this time, one of the utter desolation; out of many hundreds of trees which the night before had stood covered with the rich foliage of this period of the year, ¾ ths were blown down, and nearly all the rest stripped of branches and leaves. Tiled houses were more or less unroofed, walls had fallen and were crumbling, balustrades of terraced houses were in a ruinous state, and the low country was flooded.

3. After taking a cup of tea, I started off to look at the Tank, which I was afraid must have sustained serious injury and I hoped to be able to get back before the gale became again serious. On the bund I found Captain Ritherdon and the Tahsildar, together with several peons and some of the Ryots. The Tank was but little injured, but there was a heavy sea running against the revetment, and the waves were breaking high over the Calingulah. I had barely reached the bund when the gale came on again with great violence, and in 2 or 3 minutes a hurricane, which exceeded greatly in its violence what we had felt early in the morning, set in, the wind being from the South East. The massive stone gate way of a small hindoo temple, situated on the bund, afforded us some shelter, and here we were forced to remain as no man or animal could for a moment have withstood the wind, as it was then blowing, and the sheets of water that were blown over the bund were enough of themselves to prevent any hope of forcing our way to the nearest house, which was not more than about 300 yards distant. The Pagodah was built many years ago, when the bund of the Tank was much lower, and, as this latter has been raised, a thin bund strongly revetted on both sides with stone has been built up between the Pagodah compound and the Tank. On this wall the waves, which by this time were something terrible, soon began to tell, and in 20 minutes the wall was breached in several places and the court of the temple was deluged with waves and spray. The spot at which Captain Ritherdon and myself stood was within 4 or 5 yards of the edge of the bund, and the state of the bund, and the effect of the waves upon it were anxiously watched but so thickly was the water blown over the bund, that frequently many minutes elapsed ere the front of the bund could be distinguished, and as it from time to time appeared, it became evident that the revetment was fast falling, and the earth work in rear washed away. This state of affairs continued for about 1 hour, during the whole of which time no object 20 yards distant had been visible, and the trees immediately in front of the temple, which were too deeply embedded in the earth to be uprooted, had been reduced to mere shapeless stumps. About this time (¼ to 9) the wind began to shift a little to the eastward, and we then knew that, if the bund would hold out a little longer, no further serious damage would occur to the part of the bund on which we were standing. The change in the direction of the wind rendered however our position, on the outer pial of the doorway, no longer tenable, and we sought refuge in the middle recess, with the Tahsildar and the other natives. The wind continued to shift still more to the eastward, and the houses above mentioned in a few minutes were again became visible. The moment the spray and wind had sufficiently subsided, we quitted the Pagodah which by this time was by no means a safe place, and which we, of course, thought even less desirable, as a refuge, than it really was, and made the best of our way, against the gale, until the shelter of some walls enabled us to get on a little faster, and thankful were we when we again stood on the main land, after crossing,

with considerable difficulty, the piece of ground and bridge over the Surplus channel, which before had intervened.

4. When I reached home, at ½ past 9 o'Clock, I found the barometer had risen $\frac{42}{10}$ths, and by 10 o'Clock, $\frac{3}{10}$ ths more towards fair weather had been gained. The hurricane rapidly subsided into a strong gale, and from that to a moderate one, and by ½ past 11 or 12 nothing but a fresh breeze remained, blowing from the East by South and South East, and from that point it has continued to blow ever since.

5. I cannot say exactly what the barometer stood at for the 48 hours, preceding the setting in of this terrible hurricane, but I subjoin the readings taken by me during the night of the first, and morning of the second November, and they will give a fair idea of the extent and character of the barometric fluctuations, and I subjoin the reading at 12 noon this day, which will show the usual state of this particular barometer in fine weather.

			Aneroid Barometer.	
1st	9-30	P. M.	28-25	
2nd	0-45	A. M.	28- 6	Wind from North West with a good deal of rain.
,,	3- 0	,,	27-80	
,,	3-30	,,	27-74	
,,	3-45	,,	27-70	
,,	4-30	,,	27-62	
,,	4-45	,,	27-55	Hurricane at its height.
,,	5-30	,,	27-37	
,,	6-30	,,	27-16	A lull or indeed perfect calm from about 6 o'Clock to ½ past 7.
,,	6-40	A. M.	27-08	
,,	7-50	,,	27-25	Blowing hard from South and South-east.
,,	9-30	,,	27-70	A terrific hurricane from 8 to 9 A. M.
,,	10- 0	,,	28-00	Strong gale but breaking fast.
,,	10-45	,,	28-10	
3rd	12- 0	noon	28-50	

The above observations shew that between 9-30 P. M. of the 1st and 6-40 A. M. of the second, the barometer fell 1 inch 1 tenth and 1 hundredths, and that the total fall from the fair weather average was 1 inch and $\frac{4}{10}$ ths, a fluctuation which is I believe enormous and far exceeding that of the gale of last year,* which amounted to $\frac{24}{10}$ths of an inch only.

* Reported in my letter No. 1312, dated 24th November. 1856.

6. In the after noon I visited most parts of the residents lines, a portion of the town, and the Tank, and on every side there was nothing but destruction; many of the roads were entirely blocked up with trees; every tiled house was more or less damaged, in some cases hardly a tile being left on the exposed side; sheds built on substantial laterite pillars were levelled with the ground; the interior of the Church presented a sad spectacle, the doors and windows had blown open and the benches had been thrown about by the wind like feathers, the books were lying in the water in pieces, the register which had been in the vestry was lying torn and spoilt under the communion table, the harmonium was blown from near the main entrance to the other end of the Church, where it remained among the ruins of benches and tables, the roof of the Church was laid bare of tiles for about ⅛ of its area and to crown the destruction the N W pinnacle (15 feet high) of the tower fell from a height of 60 feet through the roof of the west aisle, (the church is built North and South) even the boards supporting the pulpit cushions and the brackets of the wall-shades were broken by the benches, which appear from the marks on the walls and pillars to have flown about in all directions. The Court house, place of arms, public Bungalow, Jail, the new Engineer's office, and the work shops, and in fact every tiled building suffered damage, and even the best houses in the place were barely habitable, owing to the wind having, in some cases, blown in the doors and windows, and in others blown out the glass or forced the rain through the venetians. The pillars on the annicut, recently built to carry the Telegraph wire, which were 18 feet high and which were elliptical in plan the diameters at base

being 4½ feet and 2′ and at top 2¼′ and° were blown away; one being broken off at the base, another at 7° and the third at 10 feet from the base, and the lower portions of the latter two were so much injured, that they were carried of by the river, when it had risen to about 5 feet above the crown of the annicut. At Nellore but very little loss of lives appears to have occurred, which is the more wonderful as many houses were blown down, and some were crushed by falling trees. Reports have not yet been received from the neighbouring country, but the dead cattle of all descriptions, both in the tank and in the river, show that the destruction of animals has been very great.

7. When I visited the annicut this morning I found 10¼ feet of water going over its crown, and the marks on the guage showed that more than 11 feet had been reached. The Superintendent informed me that, up to ½ past 11 A. M. yesterday, the water was below the crown, but that it then commenced rising and in a couple of hours had risen to 7 feet above the crown, and about 12 midnight it reached its highest level. The head sluice recently erected has enabled us to control the water in the Jaffersaib channel, but the Head of the Survapully channel being open, owing to the non sanction of the estimate submitted last year for bringing it under the annicut main channel, and closing the old head, the flood has found its way in at this point, and inundated the country to the east and south-east of Nellore, thereby doing much injury to the tanks as also to the fields and young crops. This fresh or rather flood is almost entirely due to the bursting of tanks to the westward of Nellore.

8. The Nellore tank is breached in two places, but only at the shallower portion of the tank and therefore there will be no difficulty in retaining a full supply. The revetment is very much injured however, and in many places for 4 or 500 yards, at a length, will have to be entirely rebuilt. Breaches were in many places imminent, but altogether the bund has withstood the severe trial very well, as, in addition to the force of the wind, it received during yesterday the drainage of a large tract of country and the whole of the water of Mooloomoody, Condlapoody and Ambapoor tanks, which breached duing the storm.

9. Our efforts must now be turned towards putting the various public buildings into a serviceable state, and towards endeavouring, as far as possible, to place the breached tanks in a condition to hold water by the time the next and probably concluding fall of rain, during the present monsoon, may be expected. The proper repair of irrigation works of the Nellore District, which were before this storm were in a lamentable state, will be a work of time and much labor, and as the recent withdrawal of nearly all the qualified Assistant Overseers from the Department has placed the establishment of this District in a position, which makes it utterly unfit to carry on the necessary works with energy and efficiency, and as Government object, and I think myself very properly, to the employment of the Talook authorities as executives under the Officers of this Department, I shall immediately lay before yon the measures which I consider must be adopted if the Revenue next year is to be collected, and the interests of the Ryots consulted as they ought to be, and I trust that, notwithstanding the recent restrictive and reductive orders, and the demand for European Soldiers which exists, the services of the ex-Assistant Overseers will be made available, as it is evidently more than ever necessary, now that the expenses of the Army are so great, that the land Revenue should be maintained and conserved, and it is evidently better to give up the Military services of a few men of a Regiment, than to have no money to pay the Regiment itself, a result which, as far as the very considerable Nunjah Revenue of this District is concerned, is highly probable, if the most energetic steps be not taken to restore to a really efficient state works which, for many years past, have been getting into a worse and worse state and which at the present time are, for the most part, nearly ruined.

From Lieutenant JOHN MULLINS, District Engineer Nellore; to Colonel C. E. FABER, Chief Engineer, dated 6th November 1857, No. 2242.

SIR,

In continuation of my previous report,* I have the honor to inform you that I have inspected the Nellore Tank, and the Pennair embankments, and that I find that the damage done to the former work is very extensive, the revetment for a length of nearly 3 miles having been either entirely thrown down,

* Letter No. 2189, dated 3rd November 1857.

or so much shaken, that it will have to be re built. There are two breaches in the bund, one of which is unfortunately within the river embankments, and the latter work has been extensively breached in 3 places by the water which escaped from the Tank.

2. The breaches in the Tank bund though rather large will be, from their being at the shallow end of the Tank, closed without difficulty, and a full supply of water will be retained. Nothing but the substantial stone revetment prevented this Tank being almost swept away, as the violence of the waves would have swept away an unprotected earthen bund in ¼ of the time the hurricane lasted. Hundreds of other Tanks in the District will and do show how great is the value of a substantial Stone revetment, and how little able they are, without it, to retain a supply of water under adverse circumstances.

3. I regret to have to report that the bund is strewed with the remains of Buffaloes, Cows, and Bullocks, which must have been washed into the Tank by the bursting of the Tanks above, and then dashed to pieces against the revetment of the Nellore Tank. Heads, horns, legs and carcases were strewed about all over, not only the inside slope, but the top, and exterior slopes of the bund, and I think that I must have seen at least 50 or 60 animals so destroyed, as I walked along.

4. I estimate the damage done to the Tank at

	Rs.
Rupees...	4,000
Viz. Probable expense of re-building stone revetment 5000 × 3 × ¾ = 11250 Cubic yards at 4 annas say	2,800
Earthwork...	1000
Breaches...	200
	4000

5. The damage to the embankments is inconsiderable, except at one point near Pottapoliem, where 200 yards of the bank have been carried away, the other two breaches do not exceed 20 × 30 yards respectively. The cost of the repairs will probably be as follows.

	Rs.
Closing large breach 200 yards × 12 square yards section = 2400 cubic yards of earth work at 1⅛ anna including turfing and metalling top Rupees ...	225
Closing small breaches 50 yards × 32 square yards section=1600 cubic yards at 1½ annas	150
	375

6. The self acting sluices have stood very well, though in two instances they were entirely uncovered by the embankments being swept away. The embankment at the largest sluice has stood and then there was a head of nearly 8 feet of water on the inside, which the sluice was discharging in a most satisfactory manner, though of course never intended to carry off any thing more than a little ordinary drainage.

From Lieutenant E. HEMERY, District Engineer of Cuddapah; to Colonel C. E. FABER, Chief Engineer, dated 3rd November 1857, No. 885.

SIR,

The following account of a storm which visited the town and neighbourhood of Cuddapah on the 2nd Instant may not be uninteresting.

2. Sunday the 1st was calm with light clouds from the North East; at sunset, the sky became completely overcast and towards morning of the 2nd the wind shifted to the North-west from which quarter it was blowing furiously at 6 A. M. accompanied by very heavy rain.

3. The storm increased in violence up to noon, and from that time until 4 P. M. it blew a perfect gale, the rain continuing to fall without the slightest intermission.

4. Towards evening the wind went round to the South-west and South, it then gradually fell, the rain ceased and by midnight it was quite calm.

5. I am happy to be able to report that the Tanks, bridges and other Pubic Works in the immediate vicinity of Cuddapah have sustained little or no injury, the native houses in the town however, have been greatly damaged and many of the roads were impassable this morning owing to the number of uprooted trees lying across them.

6. The following observations of the aneroid Barometer were made during the day.

November 2nd	6 A. M.	29	425
	9 A. M.	29	35
	Noon	29	27
	1 P. M.	29	2
	4 P. M.	29	18
	8 P. M.	29	185
November 3rd	8 A. M.	29	45

7. 4-85 inches of rain were registered during the day at the Civil Hospital.

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1 Letter from the District Engineer Nellore, No. 2189, dated 3rd November 1857.
1 do. do. No. 2178, dated 31st October 1857. With 1 enclosure.
1 do. do. No. 2242, dated 6th November 1857.
1 Letter from the District Engineer Cuddapah, No. 885, dated 3rd November 1857.

In laying before Government the reports of the District Engineers of Nellore and Cuddapah, of the violent hurricane which burst over those Districts on the 2nd Instant, the Chief Engineer resolves to solicit particular attention to the concluding remarks of Lieutenant Mullins's interesting letter No. 2189.

2. The Chief Engineer will however await the further report of Lieutenant Mullins, before proposing any augmentation of the Subordinate branch; but of the absolute necessity of that step he has no sort of doubt, and the visitation having been one beyond all ordinary occurences, of a character indeed scarcely less destructive than a famine, he trusts that corresponding measure of extraordinary relief may be granted, and that such skilled Assistant Overseers recently removed as may be obtainable, may now be re-appointed to remedy the frightful injuries inflicted by the Cyclone on the agricultural interests of Nellore.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

Report has been received from the District Engineer Nellore, No. 2242, dated 6th November, reporting on the damages done to the Pennair embankments, and to the Nellore Tank, by the recent Hurricane, which is also submitted for the information of Government.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

No. 4. ORDER THEREON, No. 2120; dated 18th November 1857.

The Chief Engineer will observe from Extract Minutes of Consultation of the 13th Instant No. 2098, that the Collector's Department has been directed to render every assistance to the District Engineer in repairing the damage caused by the late Hurricane in Nellore. Colonel Faber should now instruct the District Engineer accordingly, to avail himself of that assistance, and he will remember that it is out of the power of this Government to re-appoint any portion of the Subordinate establishment in Nellore which has been lately reduced under orders from the Government of India.

(Signed) H. FORBES,
Acting Secretary to Government.

No. 3783

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Extract from the Proceedings of the Chief Engineer in the Department of Public Works Fort Saint George, Under date the 12th November 1857.

Read the following letters

From the District Engineer Nellore.

Dispatch reaches in the hands of the Tender in the Nellore Collectorate Charge. Covering Letter No. 2178, dated 31st October 1857.

Tilam Do Do Do

Reporting on the damages which occurred on the Pennair Tank &c. &c. in the District. Covering Letter No. 2189, dated 3rd November 1857.

Referring to foregoing letter

From the District Engineer Cuddapah

Furnishing an account of the Storm at Cuddapah on the 2nd November 1857. Received 3rd November 1857.

Original
Enclosures 5

1 Letter from the District Engineer Nellore No. 2189 dated 3rd November 1857.
1 Do No. 2178 dated 31st October 1857 with 1 enclosure.
1 Do No. 2242 dated 6th November 1857.
1 Letter from the District Engineer Cuddapah No. 885 dated 3rd November 1857.

In laying before government the reports of the District Engineers of Nellore and Cuddapah of the violent hurricane which burst over those Districts on the 2nd Instant, the Chief Engineer resolves to solicit particular

particular attention to the concluding remarks of Lieutenant Fruilline's interesting letter № 2189.

2 The Chief Engineer will however await the further Report of Lieutenant Fruilline, before proposing any augmentation of the Subordinate Executive, but of the absolute necessity of that Step he has no sort of doubt, and the visitation having been one beyond all ordinary occurrence, of a character indeed far more destructive than can be easily conceived by those who have not witnessed its effects, may now be peculiarly appointed to remedy the glaring defects exhibited by the Cyclone on the agricultural interests of Pellore.

I have &c.

(Sd) A. F. Price Lieutenant Colonel
Chief Engineer.

To,
The Secretary to Government P. W. D.

P. S. Since the above was written another Report

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Report has been received from the 2nd District Engineer Nellore № 2242, dated 6th November reporting on the damages done to the Tennair embankments, and to the Sluices by the recent Hurricane, which is also submitted for the information of Government.

(Sd) A. F. Price Colonel
Chief Engineer

Extt. from the Chief Engr's 3917 Dated 1837 Cl. No 2475 in Cons 8th June 1/58

Nom. Dr. 30th Nov. 1838 No. 244 in one

No 3144.

1/58

Cn 14th Nov.

Nº 7120

Dated 12th November 1838
Rd to Cons: 24th ditto
No 7785

Extract from the Proceedings of the Chief Engineer

To The Secretary to Government

G. W. P.

Dated 12th November 1838
Received 15th ditto
No 7785

Enclosure No. 5 Returned
No 7120 - 18th Nov.

Forwarding letters from the Divisional Engineers of Nellore and Cuddapah relative to the violent Floods and more than usual heavy Rains over those Districts on the 9th inst. and requesting that some of the Chief Assistant Overseers lately employed may be employed to superintend the repairs thus caused.

Noted an Order.

No 7120

The Chief Engineer will observe from Extract Minutes of Consultation of the 12th Instant, that the Collector's Establishment has been directed to render every assistance in the District in charge of the Drainage Canal in the Late Circars in effecting the Repairs rendered necessary by the late Floods, and he will therefore observe that it is not in the power of this Department to grant any portion of the Establishment employed under orders from the Government of India.

Short Letter to the Chief Engr. Guntur 3 Copies 2-3-38
15th Nov. 1838