GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue (Land Revenue), dated 23rd March 1889, No. 218 :—

W. S. WHITESIDE, Esq.
THE HON. J. GROSE, M.A.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 9th October 1888, No. 3122 :—

Referring to Proceedings of the Board of 23rd April last, No. 373, I have the honor to report as follows regarding the first part of paragraph 3 of the Government Order. As to making Nandyál the head-quarters of the district the subject must be reported on separately as some officers concerned have not replied to the reference.

2. The Collector of Kistna and myself are quite in accord as to the inadvisability of the proposed change.

3. It will be observed that paragraph 3 of the Government Order on the subject contemplates the proposal in connection with that of transferring the head-quarters of this district to Nandyál, and indeed it is not possible to dissever the propositions altogether. It is obvious, I think, that unless Nandyál become the district head-quarters the proposed divisional changes can have nothing to recommend them, but everything to the contrary; and as I shall have to report very strongly against the former project, the latter should not, I respectfully suggest, be dealt with apart from it.

4. The Government Order moves the question in view to "equalizing the work" of the two districts. But whilst the transfer would not very materially lessen that of the Kistna Collector, it would add most disproportionately to that of the Collector of Kurnool.

5. Mr. Arundel shows, as I think beyond dispute, that if Vinukonda taluk goes, that of Palnád must accompany it. He writes that "if Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

6. Accepting therefore this corollary, as I think it must be accepted, how would the respective work of the districts be affected? The present area of Kurnool is 7,027 square miles and of Kistna 8,397— add that of Palnád and Vinukonda (1,721), and Kurnool would become 8,748 square miles and Kistna 6,676, whereas Kurnool's extreme length already reaches to 120 miles!

So much then for the object for which Government suggests the change, scil., "the qualization of work."

7. *As to general accessibility and commercial advantages.*—Kurnool would gain nothing, and Vinukonda would lose greatly. The trade of the Kistna taluks flows naturally eastward by Guntúr and Bezwáda, there are no communications which could induce it to change westward towards Kurnool, for the physical nature of the country on this side debars the opening of the system of roads which would be requisite, a deficit which the railway, though a general connecting link, can no wise supply. The same arguments prove that this district would gain no fresh outlet by the change.

8. *Internal administration* Even with Nandyál as head-quarters, Dachepalli (the chief town of Palnád) and Vinukonda would both be further from there than from Masulipatam, and the routes to the former centre are incomparably more difficult than to the latter. The same argument on police grounds would render it difficult for

either a Superintendent from Kurnool or an Assistant from Nandyál to do the work of the proposed Kistna increment. Mr. Arundel has further pointed out to me that these two taluks are the principal forest ranges of the Kistna district and would have to be conserved in regard to the requirements of that district. This is a very grave consideration. It would besides be practically impossible that the forest staff of this district could do any more than they have already to compete with.

9. In conclusion, there is absolutely nothing to commend the proposition but everything against it in the way of "equalizing work," whilst as to the general advantages to the taluks concerned there are none, but many grave disadvantages.

READ—the following letter from A. T. ARUNDEL, Esq., Collector of Kistna, to the Secretary to the Commissioners of Land Revenue, dated Masulipatam, 18th October 1888, No. 6098 :—

With reference to the Board's Proceedings, No. 373, dated 23rd April 1888, calling for a report on the suggested transfer of Vinukonda taluk to the Kurnool district, I have the honor to forward a copy of my note on the subject, together with the reply of the Collector of Kurnool to whom I forwarded it. A tracing map (enclosed) showing how the two districts lie to each other will be found of great assistance in forming an opinion. I enclose also a copy of a letter from the General Deputy Collector, whom I requested to state all he could in favor of the proposal, as most arguments tend so strongly the other way, and who expresses a qualified approval of it.

2. The Board will observe that the Collector of Kurnool is quite as much opposed to the scheme from his point of view as I am from mine. It may also be noted that Vinukonda is inaccessible from Cumbum without passing through a portion of the Nellore district. It is needless to recapitulate all the reasons given in my note against the transfer as far as Kistna is concerned, but I may add that, after six months' reflection, I am confirmed in the opinion there given.

3. An administrative inconvenience to this district if the change were effected has been omitted in the note. If Vinukonda taluk were taken away the General Deputy Collector would have only the exceedingly light divisional charge of two dry taluks. If Palnád taluk also were taken, as would be necessary, he would have only one taluk left, and his charge could be increased only by taking Sattenapalli taluk from the Sub-Collector, and again an insufficient division of two light taluks would result.

4. The Deputy Collector has said all that is to be said in favor of the change, and the Board will see that it does not meet the objections. He regards the removal of Palnád as well as Vinukonda as a *sine quâ non*. On this supposition the advantages briefly are that Márkápur taluk in Kurnool would benefit by a closer connection with Palnád, and that for forest and police purposes it would be well to have the mountainous jungly tracts under the same district officers. This is all, and it weighs but little against the fact that all the important interests of the taluks tend towards the river valley with the deltas, canals and railway centre, and with more accessible headquarters for commercial, court and other official business.

5. The people of the two taluks are strongly opposed to the change.

ENCLOSURE No. 1.

NOTE on the proposed transfer of Vinukonda taluk to Kurnool—G.O., dated 13th March 1888, No. 213, Revenue.

1. This proposal is *primâ facie* attractive to me as Collector, as the result would be to lessen work.

2. The first corollary to the proposal is that if the Vinukonda taluk goes, the Palnád taluk should go too.

Palnád marches for half its length with the Márkápur taluk of Kurnool and the river Kistna bounds them both on the north.

If Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

3. If both taluks were transferred to Kurnool, the Collector of Kistna would no doubt be relieved of work, but not to the extent that might be supposed as these are two of the lightest taluks in the district. The Revenue appeals for instance were in 1887 as follows compared with Répalle and Gudiváda, two of the heaviest taluks :—

Répalle	30
Gudiváda	67
Vinukonda	2
Palnád	15

4. Apart from the question of equalizing work in the two districts, how does the mattter stand as to the benefits to the taluks themselves?—

(1) If Kurnool remain the head-quarters of the Kurnool district, both taluks will be incomparably worse off as regards mere distance.

(2) If Nandyál became the head-quarters of Kurnool, Dachepalli, the chief town of Palnád, will still be greatly further from Nandyál than from Masulipatam, *i.e.*, 160 miles *viâ* Vinukonda and Márkápur as compared with 105 to Masulipatam and Vinukonda will be 115 miles from Nandyál and 100 from Masulipatam. The routes too are very different. The Kurnool route lies through hilly feverish tracts where tigers are not unknown, while the Kistna route lies through Guntúr and the rich delta.

(3) Geographically the taluks would suffer by the exchange. Both are separated from Kurnool on the south and west by the hills and jungles of Márkápur. Both open out freely on the east to the plains that merge gradually into the delta.

A sharp range of hills pierced by no road is the immediate boundary between Palnád and Márkápur. The Kandleru Gundlakamma river unbridged divides Vinukonda from the Kurnool district.

(4) The railway will of course be the connecting link between the two districts, and, but for it, the suggestion of the transfer of the Vinukonda taluk would probably not have arisen. The railway will be common to both districts. It will render travelling easier to many, but it will not supplant the need of main roads, and the respective accessibility of the two districts will, as far as road traffic is concerned, be unchanged.

5. For all purposes of trade and general development Palnád and Vinukonda would be great losers by the transfer. They would form an outlying island beyond the mountainous region of Márkápur with none but official interests connecting them with Kurnool. In every sense, it may be said, they look east towards Kistna and not west towards Kurnool. Their trade tends to and from Guntúr, Bezváda and the delta. Their Taluk Board (with the adjoining taluk of Narsaraopet) works out with the adjacent Taluk Boards a system of roads common to all. This would be impracticable if the area were divided between different districts. The physical features of the country, too, absolutely bar such an interchange of roads on the Kurnool side.

6. Palnád is rich in one product, namely, marble, which should prove a source of wealth as soon as it is realized that it can be transported by boat all the way to Madras without transhipment. The development of such a special interest as this and of other interests all centering in the Kistna district and not in Kurnool are not likely to receive the same consideration and attention if the taluks form an outlying province beyond the Márkápur hills.

7. The chief forests of the Kistna district are in Vinukonda and Palnád and should be carefully tended with reference to the needs of the district. All this would be changed if the centre of attraction, so to speak, were shifted to Kurnool. On first consideration with the prospect of lessened work I was favorably impressed with the proposal to transfer not only Vinukonda but also Palnád. Further reflection convinces me that however advantageous it might be for the Collector personally, it would be in every way without exception disastrous for the taluks themselves.

(Signed) A. T. ARUNDEL,
Collector.

ENCLOSURE No. 2.

From M.R.Ry. R. SOORIA ROW NAIDU GARU, Deputy Collector, Kistna, to the Collector of Kistna, dated Masulipatam, 29th May 1888.

I beg to submit my views on the transfer of the Vinukonda taluk from Kistna to Kurnool. The transfer seems to have been suggested with the object of removing the head-quarters of the Cumbum Deputy Collector to a healthy place and equalizing the work of the two districts.

2. Vinukonda is, no doubt, a better place than Cumbum during the cold season, as it is free from malaria; but the people, who know both places, say that Cumbum is better than Vinukonda in the hot weather.

3. If Vinukonda is to be transferred at all, Palnád must be transferred too. There cannot be two opinions on the point. Palnád lies north of the Vinukonda and Márkápur taluks, abutting

on Nandikótkur on the south-west and it would be a perfect anomaly to transfer Vinukonda without Palnád.

4. The area of Kurnool is 7,027 square miles and that of Kistna 8,397. The area of Palnád and Vinukonda taken together is 1,721 square miles, which, if added to Kurnool, would make the area of that district 8,748 square miles and that of Kistna 6,676. This would be an advantage to Kistna though not to Kurnool, whose extreme length is already 120 miles.

5. Palnád and Vinukonda yield about Rs. 6,45,00 annually and the revenue work of the taluks though not as heavy as that of Gudiváda and Répalle is pretty considerable. The Magisterial work is equal if not more. The work of the Kistna district would no doubt be lessened by the transfer. The commercial and agricultural interests of Márkápur would also be advanced. The people of Márkápur borrow money from the sowcars of Palnád, and a considerable trade is going on between the two taluks. A good road from Márkápur to Tumrucode would enlarge the trade.

6. The transfer would prove beneficial on police grounds also. The frontier villages and jungles of both districts are infested with Lambadies, Vadders and other criminal tribes. When these people commit any crime in this district they run away to the Kurnool district and *vice versâ*. The police of one district find it difficult to catch the culprits in the other, as they do not have the same influence there as they possess in their own district.

7. On forest grounds, too, the transfer appears desirable. The chief forests of Kistna are in Palnád and Vinukonda. The Palnád jungles adjoin those of Márkápur, and the Vinukonda jungles are not far away from them. It seems to me advisable to place all these jungles under the supervision of one District Forest-officer.

8. The people of Palnád and Vinukonda themselves would not be benefited by the change; but I do not think they would suffer. It is true that the commercial products of the taluks go to Guntúr and thence to the coast; but this would not be affected by the change. The people would continue to take their produce to Guntúr even if the taluks are transferred. They would not, however, like the change. Geographically no advantage would be gained by it. Vinukonda is about the same distance to Nandyál as it is to Masulipatam and Dachepalli; the head-quarters of the Palnád Tahsildar is nearer to Masulipatam than to Nandyál. On the whole I think it advisable to transfer Palnád and Vinukonda to Kurnool.

P.S.—There are no statistics of trade with Kurnool from Vinukonda and from the latter to the Kistna side.

ENCLOSURE No. 3.

From C. KOUGH, Esq., Collector of Kurnool, to the Collector of Kistna, dated Kurnool, 9th October 1888, No. 3121.

I have the honor to reply to your letter No. 3753 of the 18th July and to return the map therewith received with the roads marked as you desired.

2. I am entirely in accord with you as to the inadvisability of the proposed transfer, and you have gone so exhaustively into the details of the matter that I feel I have nothing to add.

3. If your corollary that Palnád must go with Vinukonda taluk is accepted, and I do not see how it can be otherwise, your arguments seem irrefutable.

4. The matter is moreover so very much bound up with the other proposition of changing the head-quarters of this district to Nandyál that it is not possible to consider the questions entirely apart.

5. I shall be unable to offer any recommendations to Government for the change of the district head-quarters, and if these continue to be Kurnool the project of the divisional change of taluks appears preposterous; whilst even with Nandyál as the head station of this district matters would be very little better as regards the welfare of the taluks of Kistna concerned.

6. I am sorry I have been so long in replying to your letter, but there have been a great many changes and interruptions in the administration of my district.

ENCLOSURE No. 4.—Tracing.

Reference on the above, dated 3rd December 1888.

The Board await the report in regard to the suggested move of the district head-quarters from Kurnool to Nandyál promised in paragraph 3 of the letter of the Collector of Kurnool.

(Signed) H. A. SIM,
Acting Secretary.

To the Collector of Kurnool, with letter from
Collector of Kistna and its four enclosures, to be returned.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3739:—

With reference to paragraph 3 of Board's Proceedings, No. 373, dated 23rd April 1888, I have the honor to submit herewith a copy of the report which accompanied letter, No. 780, dated 17th December 1888, from the District Medical and Sanitary officer regarding the selection of a suitable place for the location of Cumbum taluk head-quarters as directed in paragraph 1 of G.O., No. 213, embodied in the above.

2. The District Medical and Sanitary officer has selected on sanitary and other grounds two villages, viz., Mundlapad and Ravipad, as suitable for the purpose, and suggests that preference should be given to the former. He fears that if the latter is selected it will be found impossible to prevent officials from constantly visiting, or even residing in, Cumbum owing to its proximity of little over 4 miles, and this apprehension I share with him.

3. As, however, Government have directed that the selected place should be as near Cumbum as sanitary and other conditions would permit, it must be considered whether the contingency apprehended can be allowed to weigh against the situation of Ravipad as fulfiling Government's requirements.

Personally I think it *should*, because if it eventuates that all the taluk staff become again impregnated with Cumbum malaria the last state will be as bad as the first. There is just a possibility that by altering the whole *personnel* of the office, so as to get rid of natives of Cumbum, and with them of the obstinate mania of courting death in that town, the evil contemplated may be combated.

4. Mundlapad will be within 3 miles of a railway station, and I should feel disposed to make our tentative experiments there. There can be no doubt, however, that were it not for the danger alluded to, Ravipad is the preferable location as regards the area of population and work of the taluk generally.

5. Dr. King has promised me his report as to the proposed change of divisional head-quarters at an early date, and on its receipt my reply on that topic shall be forwarded.

ENCLOSURE No. 1.

REPORT on the sanitary aspects of the choice of Taluk Head-quarters, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Nandyál, 16th December 1888.

CUMBUM, KURNOOL DISTRICT.

I. Requirements held in view.—(1) It is assumed that the search for a suitable position for the head-quarters of a taluk must take cognizance of the following conditions:—

1*stly*—(1) that it be, as far as possible, equidistant from the various villages throughout the area; (2) or failing this, that it commands within a reasonable radius the most populous part of the taluk;
2*ndly*—that it be readily accessible from all points, and have direct communication with the more important parts by road, rail and telegraph;
3*rdly*—that it be sanitarily safe for officials required to dwell upon the spot and for villagers visiting the place on business;
4*thly*—that the site be at or near a village of sufficient size to provide accommodation and the necessaries of life for officials, and villagers when temporarily resident on business.

The most ready way of satisfying the first conditions in a fairly flat country duly provided with means of communication would be to select well populated village towards the centre of the area and ascertain whether a circle of, say, ten miles radius would include the greatest proportion of the population. Tirmulla, which was selected by a special committee some years back, fulfils the condition of a fairly central point. But a circle of this diameter round this village will be found to include on one side a mass of practically uninhabited hills; further, the taluk is not flat, and the procedure suggested will at once demonstrate that, owing to physical peculiarites to render approach possible to any central position either precipitous hills must be surmounted or the special valley in which suitable towns are situated must be entered from their distal ends. Take, for example, the case of a villager proceeding from Mochagundum to Racherla, Somadevipalli, or Tirmalla, all central points, he would either have to cross the hills, which could only be managed

by a hale man on foot, or go *viâ* Giddalore or Cumbum by road to enter one or other end of the valley; this would involve a journey of about 26 miles to go a distance as the crow flies of 2½ miles to 9 miles.

Irrespective, therefore, of the fact that Tirmulla, as I shall show is one of the malarious spots in this malarious taluk, it would seem advisable not to select a position within the narrow and lengthy central valley of the taluk but near either of its outlets; and this method will, as might be expected where such a configuration is met with, bring within the sphere of selection the most populous parts of the taluk, as well as the direction in which roads and, in this case, the railway tends. Giddalore or Cumbum, therefore, or their neighbourhood, would satisfy requirements as to position.

2. With respect to the sanitary aspects of the question beyond the ordinary points of suitability of soil, water-supply and surroundings as affecting health, the special circumstance of prevalence of malaria in this tract has to be taken into consideration. To inquire into these details, I personally inspected all the villages that have from time to time been suggested by various officers. As a test of the type and extent of the prevalence of fever, I examined in each village one hundred individuals as to condition of the spleen. I took care to choose for this purpose persons of various castes and occupations met haphazard on the road and living at various points of the individual villages. The results are shown as briefly as possible in the annexed memorandum.

II. The Selection.—(1) A review of the details given in the table will show that Mundlapad at one end of the central valley of the taluk and Ravipad at the other best fulfil sanitary requirements, and a consideration of the circumstances mentioned in paragraph (1) will prove that they fairly well fulfil the requirements of central and accessible positions.

The remaining indications for making a selection of Ravipad or Mundlapad may be stated thus:—

MUNDLAPAD.

Advantages.—This is a well-known town with a population of 3,079, situated within 3½ miles of Giddalore, where there is a station for the Bellary-Kistna State Railway, which line runs through Cumbum. The town is, to the best of my belief, the healthiest in the taluk, every village of which is more or less subject to malaria.

Disadvantages.—The water-supply although sufficient in quantity cannot be considered good in quality so long as the drainage of the town reaches the river whence the supply is derived; but, if the anicut above the town be repaired by Government, a complete and safe water-supply can be brought into the town at a cost of not more than Rs. 2,500.

A fresh in the river Sagalaru might interrupt communication with the end of the taluk. But the railway bridge at Giddalore, which will be completed in about two months, could be used in an emergency, and indeed it would probably not cost more than Rs. 8,000 to make a special bridge across the river at another site should the want of one be regarded as a serious drawback.

A circle of ten miles radius round this town would only include a population of 38,559, whereas a similar circle drawn around Cumbum would include 66,701 of the population of a total of 109,851 of the taluk.

RAVIPAD.

Advantages.—Notwithstanding its proximity to Cumbum, the town is healthy. It is within 4 miles by road of Cumbum, the old taluk head-quarters, and 1½ miles of the railway station at Malakonda.

The well water of the village is good. The spot on which I would advise the taluk cutcherry to be built, and around which I would wish to see a new Cumbum rise, is a mile-and-a-half from that village, on the left-hand side on the road to Ongole in the 104th mile, close to the new well sunk by the Reddi of Ravipad for travellers. Any position within 400 yards radius would suit. But building should not be allowed nearer the brow of the slope towards Cumbum than a cork tree on which I have cut a broad arrow.

The well water here is of good quality; other wells could be dug in the same area. It may be said if Ravipad is healthy, why not place the cutcherry close to the town; well, my reason is, that if what I have said in the appendix be trustworthy, Ravipad owes its protection to its position on a special ridge, and that at the point selected the special configuration is at its best, the soil is suitable, and the distance from irrigated fields the greatest obtainable. There is a freshness of air on this spot that forces itself upon attention, and testifies to the nose and feelings generally that the "muggy" and depressing air of Cumbum no longer haunts one.

Disadvantages.—To prevent the necessity of villagers or officials passing through the malarious tract in which Cumbum lies, and to place it within 3½ miles of the Malakonda Railway station, a bridge over the Gundlakamma and a road 3½ miles in length leading from the Ongole high road would be required. In an estimate made for Cumbum in connection with the placing of a cutcherry there under former schemes an item for the bridge was furnished by the Public Works Department amounting to Rs. 10,000. Masonry is dear in the locality, possibly now that a railway communication is available, an iron bridge would be erected for a smaller sum.

The possibility of taluk officials choosing to live in Cumbum or to frequently visit that place instead of residing at the locality near the cutcherry at Ravipad must be regarded as a contingency that would almost infallibly be followed by the old condition of disability to work from attacks of malarious fever and constant expenditure upon sick leave, pension, &c.

Indeed, there would be no advantage building on a healthy site near Cumbum if taluk officials be allowed to live in that town. At a public meeting I strove my best to make the people understand by the use of statistics that they lived in Cumbum but to die, and that ruin and desolation awaited their town. I promised to recommend that, instead of spending money to make sanitary improvements in the town, a sum should be devoted towards enabling them to move to a healthier site. But whilst freely admitting my facts they claimed the right and privilege of dying in Cumbum, and indeed the first point discussed by the spokesman of the Muhammadan community was the expense they would be put to in making a new graveyard on the proposed locality. So fully has the fact that "in the midst of life we are in death" become impressed upon a people, whose natural apathy to fate is intensified by the depressing influence of malaria. To meet the objection, however, a deputation of the influential men of Cumbum informed me that their sowcars would erect dwellings on approved plans at a reasonable rental for taluk officials, and the Reddy of Ravipad, who is reputed to be a rich man, makes the same offer on his own behalf.

III. Opinion.—My advice therefore amounts to the following. If it be thought advisable for administrative reasons that the taluk cutcherry *ought* to be built near Cumbum, the site named by me near Ravipad would best suit sanitary requirements, but if the influence of rail and road concentration near Giddalore be regarded as sufficient compensation for distance from Cumbum, I regard Mundlapad as *sanitarily* the better place.

ENCLOSURE No. 2.

MEMORANDUM AS TO CONDITION OF VILLAGES INSPECTED.

Name of village.—Giddalore

Nature of soil.—Red soil varying from a gravel to a clayey earth.

Nature of sub-soil.—Clay slate.

Configuration of the site and its surroundings.—At the head of a valley in which is the high road from Cumbum, and at the *outlet* of a valley leading to Madlapad. The town is situated at the end of a range of steep hills; on one side the site is open; there is a gentle slope from the town to the river Salagaru.

Range of fluctuation of sub-soil water.—From 32 to 15 feet.

Character of water and nature of source.—From wells and from the river Salagaru. Of the wells only one yields water of fairly good quality. In the hot season well supply becomes very scanty. River water cannot be brought to the town by gravitation. A portion of the river near the town is so situated as to be free from contamination by the town drainage.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The well-fed and well-clothed class seem in good health; the poorer suffer from fever. 13 per cent spleen cases were found here; 26·6 of the total cases treated of inhabitants of the town are for malarial fever.

Death-rate per mille.—The death-rate per 1,000 according to the village statistics is but 13·50. It is, however, self-evident that this rate is founded upon carelessly gathered statistics. The average death-rate for 1884 and 1885 is shown as 8·48, whilst for the two succeeding years it was more than double this without any assignable cause. Further, if the people were so phenomenally healthy, the birth-rate would be equal to that found in this district generally 46 per mille; but according to these same statistics it is but 15·04. Under these circumstances, I prefer to trust to the information gathered by the physical examination of the people.

Nature of intercommunications.—On the Bellary-Kistna State Railway line, and on the high road leading from Cumbum to Kurnool. There is communication also with Tirmulla and Racherla by a famine road; also with Mundlapad—4½ miles distant—by a famine road.

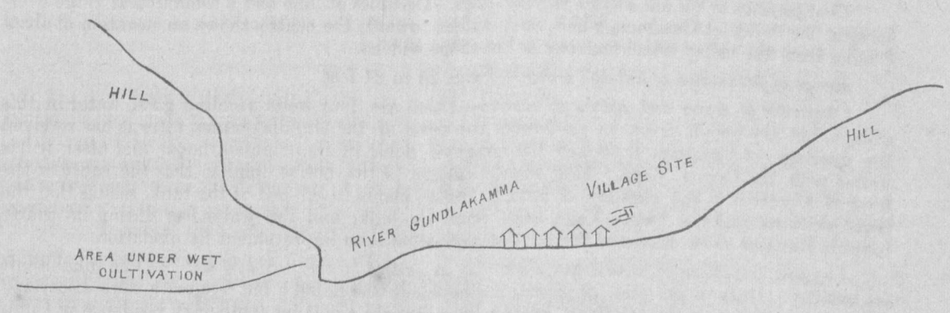
Name of village.—Tirmulla.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Water worn pebbles overlaying clay.

Configuration of the site and its surroundings.—At the drainage outlet end of a valley extending to Cumbum. The hills near Tirmulla converge till they are within one-and-a-half miles and

three quarters of a mile on each side of the town. The river Gundlakamma receives the surface water. The diagram below gives an idea of configuration of the locality in section.



Range of fluctuation of sub-soil water.—From 19 to 14 feet.

Character of water and nature of source.—Well water not "usable" for drinking purposes. River water only is employed; the river receives the drainage of the town throughout its course in its vicinity, and this cannot be economically remedied. Graves line the banks.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Except the well-to-do classes, the people look a miserably sickly lot—26 per cent. of people suffer from "enlargement of spleen."

Death-rate per mille.—27·72 per mille.

Name of village.—Somadevipalli.

Nature of soil.—Reddish black earth.

Nature of sub-soil.—Quartzites.

Configuration of the site and its surroundings.—At the drainage outlet of a narrow valley at right angles to that leading to Tirmulla.

Range of fluctuation of sub-soil water.—From 20 to 10 feet.

Character of water and nature of source.—Well water said to be palatable.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Inhabitants are affected with spleenic enlargement to the extent of 37·5 per cent.

Death-rate per mille.—[Not ascertained.]

Nature of intercommunications.—On the line of rail; bandy track connects it with Tirmulla. A very high and steep range of hills separates it from the high road proceeding from Cumbum to Giddalore and Kurnool.

Name of village.—Mundlapad.

Nature of soil.—Red soil with an intermixture of clay.

Nature of sub-soil.—Clay.

Configuration of the site and its surroundings.—At the head of a valley whose drainage outlet is towards Giddalore. The situation is open five miles on one side, and two-and-a-half on the other. The town is on a knoll, well drained at the base on all sides towards the river. The river consequently close to the town receives the drainage from it.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—There are three wells, but only one contains "usable" water; the water from the river, which is a perennial stream, can be brought to the town by gravitation, at probably an expense of not more than Rs. 2,500, provided Government would consent to the repair of an anicut which is broken. This allowed of garden crop cultivation formerly, which brought in a revenue of Rs. 500; this is now lost to Government. The outside calculation is that the restoration of the anicut would cost Rs. 2,000, so that the investment would be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy and seem contented and prosperous.

Death-rate per mille.—24·38 per mille.

Nature of intercommunications.—In communication with Giddalore by a famine road in fair condition, and thus with the railway; and also with Cumbum by high road, and Tirmulla by famine road.

Name of village.—Ravipad.

Nature of soil.—Red pebbly gravel shading rarely into patches of black cotton.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Occupies at one end a semicircular ridge overlooking the valley of Cumbum, which, as it widens towards the centre, shows an elevation at about 3 miles from the valley which narrows as the ridge widens.

Range of fluctuation of sub-soil water.—From 25 to 24 feet.

Character of water and nature of source.—There are four wells yielding good water in this village, but the people drink by preference the water of the Gundlakamma, after it has received the drainage of Cumbum town and the irrigated fields in its neighbourhood, and after it has united with the Oopoo Vagu. This should dispose of the native opinion that the cause of the fever of Cumbum is the presence of rotting indigo plants in the bed of the tank, seeing that the Gundlakamma and the Oopoo Vagu arise from the tank, and the water has during its course towards Ravipad more chance of further contamination than improvement by oxidation.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Only 2 per cent. of splenic enlargement was found; but five cases were discovered with clear histories of the condition having been brought about by temporary residence in Cumbum. [In all the villages visited several cases of "spleen" were found to have so originated; these, of course, not being of local origin, were not included in the statistics. A visit of a fortnight to Cumbum seems in most of these cases to have been sufficient to induce the intense form of malarial fever productive of splenic enlargement.]

Death-rate per mille.—28·78.

Nature of intercommunications.—The village is separated from Malakonda by a narrow hill, and by the Gundlakamma. The railway station of Malakonda for Cumbum is within 1½ miles if the Gundlakamma be crossed.

Name of village.—Bestwaripet.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Clay in the valley and quartzites on the ridge.

Configuration of the site and its surroundings.—Is in direct communication by a gentle slope and narrow valley with the main valley of Cumbum. There is a sluggish stream running at the base of the slope—the Oopoo Vagu. The valley up to Cumbum is under paddy cultivation.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—From the Oopoo Vagu. Three wells are in the village, but none are "usable." One has just been excavated, of which the water is found drinkable.

Physical conditions of inhabitants especially as judged by the "Spleen test."—People are very unhealthy. 39·2 per cent. of splenic enlargement.

Death-rate per mille.—29·10.

Nature of intercommunications.—Is within 2½ miles from Cumbum and 5 miles of the railway station Malakonda.

Names of villages.—Papayapalli and Chedda Cherla.

Nature of soil.—Red gravel.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Papayapalli occupies an elevated position, and is separated from the Bestwaripet valley by a wall-like ridge of about 80 feet high. Wet cultivation is continued from Cumbum to within 400 yards of the bungalow built for the Assistant Superintendent of Police and right up to the village site. Chedda Cherla occupies the same ridge as Papayapalli.

Range of fluctuation of sub-soil water.—From 20 to 14 feet.

Character of water and nature of source.—From wells giving water of very good quality, and from irrigation channels.

Physical conditions of inhabitants especially as judged by the "Spleen test."—Although about 1,000 yards only separates the village of Bestwaripet from that of Papayapalli, there is a very striking contrast in the healthy condition of the inhabitants of each—see above. Here the people show the effect of malarial fever by a degree of anæmia, and but 4·2 per cent. of splenic enlargement against 39·2 of Bestwaripet.

Death-rate per mille—29·70.

Name of village.—Mochagundum.

Nature of soil.—Red.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—In the narrow valley leading from Giddalore to Cumbum. The site is on a hollow below the level of the tank which is within about 400 yards. The surrounding surface soil is wet.

Range of fluctuation of sub-soil water.—From 15 to 10 feet.

Character of water and nature of source.—Water from wells and tank said to be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The poorer classes are anæmic. The rich look fairly well. 7·6 per cent. of spleen were found. This is a village largely inhabited by Brahmins. I expected therefore to find it cleanly. It is the dirtiest village I have seen for a long time.

Death-rate per mille—29·57.

Nature of intercommunications.—By road to Cumbum about 9½ miles; to Somadevipalli over a roadless mountain 2½ miles where is a station of the Bellary-Kistna State Railway.

ENCLOSURE No. 3.

APPENDIX C, showing how a locality slightly removed from one notoriously malarious may be healthy with special reference to Ravipad.

The inquiry of which the abridged results are given in the annexed table has afforded me the opportunity for observing the special conditions under which malaria is developed. As a result I have nothing new to relate; the conditions found simply exemplify in a marked manner the views that have been accepted by sanitarians in recent years. The poison is undertsood to be a special micro-organism—the bacillus malaria—whose life and increase depend upon various conditions of the soil of heat, moisture, organic matter, presence of oxygen, &c., points which necessarily tend to produce results differing with the conditions of the soil and sub-soil, surface and sub-soil water, climate, &c. *Certain soils evidently do not contain the special poison at all.* I mention these facts because the existence of enormous tracts of irrigation near towns in Southern India that remain healthy has induced some authorities to doubt the connection between paddy cultivation and the propagation of malaria—amply illustrated in this district. I think there is reason to believe that a very large area of the country to the east of the Nallamalais contains this special poison. Local conditions favoring the growth of the micro-organisms will, therefore, account for certain villages being more malarious than others. Thus in the common formation found in the Cumbum taluk of hills so precipitous and uniform in height as to look like huge walls on either side of narrow valleys, it may be expected that, irrespective of obstruction to drainage caused by irrigation, the natural outlet and parts near the foot of hills would be most malarious. This effect is seen slightly at Giddalore and Mochagundum and markedly at Tirmulla and Somadevipalli, whilst the healthy condition of Mundlapad within 3⅛ miles from Giddalore shows the instant amelioration which follows a change of configuration in neighbourhoods within short distances of each other as the crow flies. In such instances the configuration of the country is closely allied to questions of surface drainage and sub-soil water outlet; but where spots such as Cumbum are artificially brought into conditions highly favorable to the production of malaria within a certain area, the run of valleys and shape and height of the hills become factors of importance in estimating the chances of infection of localities slightly removed from the actual centre of poison production. Thus, whilst an elevation of 12 feet might afford a considerable degree of protection in a flat area, 2,000 feet might not do so if a ravine led from the lower site towards the height suggested and possessed a formation that would direct currents of air upwards. This argument would apply to all forms of slopes and a consideration of whether a spot is likely to be safe or not must be made in connection with the knowledge of not only the direction of prevalent winds but of the probable effect of local currents that may be given rise to by the striking of various configuration by wind at certain angles. Now, in a report of this sort, this discussion of details may be regarded as waste of time and paper. But I think it is better that they should be entered into, even at the risk suggested, rather than that a bare "opinion" should be given unsupported by reasons. Granting then the above arguments to be correct, it becomes an easy matter for me to show why, should it be necessary to build near Cumbum, I would select the neighbourhood of Ravipad.

I find that although Cumbum may be regarded as uninhabitable by human beings, its immediate surroundings are healthy, except where the configuration permits of aerial currents transporting malaria to them from this point of production—the Cumbum valley. Thus Malakonda and Bestwaripet at opposite ends of the Cumbum valley, and having probably the same elevation above the town level, are almost as unhealthy as Cumbum for the reason that, in the former case, malaria-laden air is concentrated by the peculiar formation of the valley and wall-like hill direct upon the town, and in the latter that the same effect is produced by the narrowing of hills giving the appearance of a funnel with the broad end directed towards Cumbum. Papayapalli, which is within 1,000 yards of unhealthy Bestwaripet, is protected from the valley described as causing mischief to it by the intervention of the wall-like hill mentioned. The Papayapalli people

suffer from fever and are anæmic—facts showing that they are under the influence of malaria—but not to an extent to cause more than 4 per cent. of "enlargement of the spleen," which is not much above the usual standard of the Cumbum taluk, viz., 2 per cent against 39·2 per cent. of Bestwaripet! A gradually ascending slope leads air from the Cumbum valley upon Chedda Cherla, and a ravine and vagu do the same to Collugotla, producing the same typical effect on the people as found at Papayapalli. To my mind this state of affairs points to the fact that the degree of concentration of poison in which it reaches the system in the case of malaria has a vast deal to do with the type of fever and consequent effect upon the constitution of the recipient, as contrasted with infinitesimal amounts of the respective poisons which seem capable of producing full specific symptoms in such diseases as anthrax, small-pox, &c.

But it may be argued, from the information given in the table, that the true explanation of the state of health of the Bestwaripet villagers, as contrasted with those of Papayapalli. is that whereas the former drink the water of the Oopoo Vagu (an off-set of the Cumbum tank, the water of which is notoriously contaminated by rotting indigo plants, &c) the latter drink well water of a good class. But against this has to be balanced the fact that the people of Ravipad use by preference, although their well water is good, the filthy water of the Gundlakamma derived from the tank *after* it has received the drainage of the town of Cumbum and of its well manured fields and the Oopoo vagu itself, and that the inhabitants of Malakonda at the other end of the valley drink well water exclusively.

That the inhabitants of Ravipad are healthy therefore is readily explained when the protection afforded them by configuration is taken into consideration; and, in view of the remarks already passed on this subject, a reference to the attached diagram will bear out this statement, attention being specially given to the direction of the north-east and south-west monsoons—see the red arrows.

ENCLOSURE No. 4.—Plan.

ENCLOSURE No. 5.—Plan.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3766:—

I have the honor to submit the report called for in paragraph 2 of Resolution of 23rd April last, No. 373.

2. The report of the District Medical and Sanitary officer, and a rough estimate of cost of buildings, &c., furnished by the Executive Engineer, form enclosures.

3. It appears to me that on the main grounds of sanitation and economy the suggestion to change the head-quarters of this district from Kurnool to Nandyál is quite impracticable.

4. A perusal of Dr. King's paper will show that, as a health measure, the move would be "from the frying pan into the fire," whilst a glance at the fiscal liability involved indicates this to be prohibitive. I do not pretend to say that the estimates are accurate, or incapable of modification, but they are sufficiently illustrative of the fact that a degree of expenditure, which I do not suppose under present financial circumstances would be entertained for a moment, would be inevitable.

5. Further in a political point of view I consider the change would be unwise. Owing to its situation as regards the Hyderabad frontier it is most expedient that the chief seat of the administration and the location of the police reserve should be at Kurnool.

6. I presume that the non-central position of Kurnool for district administrative purposes, and the establishment of rail communication with Nandyál, have been the chief considerations that evoked this proposition. Both Kurnool's disadvantage and Nandyál's advantage in this respect, however, are capable of considerable modification if the scheme, which is on foot, of connecting the former with the railway at Dhone, is approved and carried into operation.

ENCLOSURE No. 1.

REPORT on the sanitary aspects of the proposed transfer of the District Head-quarters of Kurnool to Nandyál, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Panem, 18th December 1888.

The town of Nandyál is situated in a hollow, representing the natural drainage outlet of a considerable valley towards the river Konnair. By intercepting the surface drainage, a large tank has been formed, under which an extensive tract is irrigated. The Kurnool-Cuddapah canal runs along a ridge in a north-easterly direction, approaching the town diagonally from 3½ to within 1½ miles at its nearest point.

The soil of the town was originally, judging by its surroundings, red gravel, but having been contaminated for centuries by the accumulation of human and animal excreta—there being no better method of conservancy employed than the use of that organic "refuse destructor" commonly known as the buffalo—its general appearance is that of a rich black mud. The District Board, recognizing the urgent necessity there exists for improvement, have in execution a complete scheme for the drainage and conservancy of the town, to be followed by the introduction of a public water-supply.

The sub-soil stratum of seven feet is of Nandyál shale.

The level of the sub-soil water fluctuates with the condition as to water retention of the fields under irrigation in the neighbourhood, and is at all points within six or seven feet of the surface.

The annexed chart No. 1, compiled from hospital statistics at Nandyál, shows that from 30·24 per cent. to 51·30 per cent. of the total cases treated are for malarial fever. The type of this fever is severe, the remittent form being common.

It is well known that it is most difficult to persuade natives to leave their villages on sanitary grounds, but the Dairds who lived in a part of the town in close proximity to wet cultivation have, of their own accord, left Nandyál, preferring to abandon their buildings and paying an assessment to gradual extension; whilst the Madigas have petitioned, for a like cause, that they may be allowed to leave their irrigated lands for a less profitable but dry site in the neighbourhood.

The village statistics show a birth-rate of but 14·62 per mille, pointing to the fact that, as usual in malarious localities, fecundity is injuriously affected, allowing an average decrease of the population of 107·72 per annum; but as the birth details show an absurd disproportion of sexes, it is probable the data are not correctly gathered. Still there is room for belief in this decrease of the population to a certain extent, because the census period of 1871—1881 shows a decline (a calculation from which, however, the disturbing influence of the famine years cannot be eliminated) and because it is not probable, seeing the average birth-rate of the district is as much as 46 per mille, that a result so seriously at variance with this figure could be recorded without the incidence of some more definite and constant cause than spasmodically conducted and careless registration.

Taking into consideration the above facts, it will be seen that Nandyál town is not a fit place sanitarily for the residence of the head-quarter staff of the district.

Contrast of the sanitary condition of Kurnool with that of Nandyál.—In making a contrast of Kurnool, the present head-quarters, with Nandyál, it must be remembered that the former has for many years been under Municipal rule, and that therefore registration of births and deaths is carried out with far greater care than is likely to be the case in the village of Nandyál, where the duty falls to the Reddi and carnam. Such statistics only being available for Nandyál, they cannot be accepted unreservedly, and the truth must be, as far as possible, approached by the use of collateral evidence. Now, the average death-rate of Kurnool is 30·7 per mille, and the birth-rate 34·6 per mille. Here at once it might be argued that, whilst fecundity is affected by malaria in Nandyál, it is not so to such a marked extent in Kurnool, both being malarious localities.

Again, whilst 897·5 per mille of total deaths in Nandyál is due to fever, the rate is but 547·5 in Kurnool, the remaining deaths being due to "other causes" and "bowel-complaints," &c.

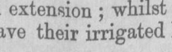
Although this is not borne out by statistics collected by the Municipality (where diagnosis cannot be exact), Kurnool hospital statistics show that the percentage to total admissions for fever has steadily and consistently declined from year to year since 1880, the date of abolition of wet cultivation; whereas, on introduction of the canal and wet cultivation, the rate ran up *at once* double that formerly found, and *remained* without decline and, indeed, with frequent increase, till the year 1880.

In Kurnool deaths from "bowel-complaints" and "other causes" are, to the best of my judgment, due entirely to the evil water-supply of the place, as well as the remaining ratio of malarial fever; indeed, what irrigation did for the surroundings of Kurnool, the leaky water channels still continue to do for the town site. The position therefore is this:—The main cause of the death-rate at Nandyál is malarial fever, due to the condition of the site and surroundings following

wet cultivation, and, at Kurnool, phthisis, scrofula, rheumatism, bronchitis, pneumonia, &c., or, in short, "other causes" generally described as aided in incidence by impure and damp soils. Now the incidence of the latter diseases would, irrespective of the decline of malaria that might be confidently expected, undoubtedly be very greatly reduced by the improvement of the condition of the sub-soil of dwellings that would follow the abolition of the erroneous drainage and water-supply systems of Kurnool, especially, if the latter be so managed that the water be offered to the inhabitants without their being called upon to attempt the assimulation of mud at the rate of at least 1 lb. per adult per annum as at present.

To abolish wet cultivation at Nandyál *in toto* would be to ruin the town financially; and yet, without this effort, notwithstanding the improvement of general health and decrease of death under "other causes" that may be expected from the introduction of drainage and conservancy, the town must remain subject to malaria. In the case, then, of Kurnool malarial fever may be practically abolished at a comparatively small expenditure made once and for all, and the deaths due from "other causes" being reduced, the total mortality will sink to a ratio consistent simply with its evil position; whereas at Nandyál the chief cause of mortality cannot be expected to decline markedly, without the taking of a step that would imply a great and annually recurring loss of revenue, although, as pointed out elsewhere, amelioration would doubtless follow the abolition of that portion of the wet cultivation area included in the fort ditch.

As to a possible site in the neighbourhood of Nandyál.—But, granting the foregoing deductions to be correct, the question would remain (1) as to whether a suitable site could not be obtained near the town and railway that would satisfy sanitary requirements, and (2) whether, if quarters were erected for officials at such a spot, the proximity of wet cultivation need be considered.

In the report submitted a few days back as to the selection of head quarters of the Cumbum taluk, I have dilated at length upon the influence of ground conformation in connection with the selection of sites near areas under wet cultivation in malarious tracts, and, by reference to this, I may spare the reader a similar infliction here. If regard be had to the views expressed in the appendix of that report, the best position for house sites must be at the top of the ridge marked  in the accompanying sketch-map. This theoretical selection is borne out by practical inquiry. The area from A to B is now covered with dwellings of employés of the Bellary-Kistna State Railway proceeding from Noonapully towards the Punjabee village near Moolasagaram, I found that, as I progressed, the number of attacks of fever recorded decreased *pari passu* An analysis of results obtained in this inquiry will be found in the accompanying table. The fact then of persons inhabiting the area near the Noonapully village being more subject to fever than near Moolasagaram is explainable by the configuration at this special point permitting malaria-laden air to reach it, together with the influence of actual proximity of wet cultivation.

Water-supply on the site suggested.—Whilst then the site marked on the sketch-map may prove sufficiently habitable for the purpose required, the question of water-supply presents a difficulty that cannot be overcome, except at heavy expenditure. The water obtainable from wells along the whole tract is "bad." That of special wells sunk by the Bellary-Kistna State Railway has been analysed by the Chemical Examiner, and, as will be seen on the report attached, is described as "bad." Deep wells might offer an alternative, when a supply similar to that obtained at Nandyál might be struck; but, as the sub-soil of Nandyál is probably but the filtrate from paddy fields, an equally *soft* variety might not be procured after the expense of boring through rock. The river is a possible source; but to obtain the water in fair purity a distance of 2½ miles would have to be traversed so as to ensure the supply being taken above the spot where the Nandyál drainage enters. If this source were employed, it would be necessary to use pumping machinery. Another method suggests itself, namely, by pumping from the Nandyál tank 1½ miles distant; or, a supply could be obtained from the canal by gravitation after deposition and filtration. The line of piping in the latter case would be a mile-and-a-half long; and, as the canal contains no water below Kurnool for three months in the year, this source could not be employed without the adjunct of a large storage reservoir. Pumping from the river, or canal, must therefore be resorted to, and either scheme would add considerably to the necessary expense of offices and dwellings.

I may here state that during the first period of the occupation of the site by the Bellary-Kistna State Railway drinking water was carted from the position indicated above in the river Konnair at a cost of about Rs. 300 monthly. Since the laying down of the rails, all water is brought by train from a distance of 10½ miles, and even this water is pronounced by the Chemical Examiner as "suspicious."

Opinion.—I would therefore state it as my opinion that whilst the site shown in the annexed sketch may be regarded as habitable for both Europeans and Natives, its proximity to an unhealthy town is a decided sanitary disadvantage, unless Government were prepared to build houses for *all* subordinates, and that the introduction of a trustworthy public water-supply system, which would be a necessary adjunct, would render its occupation expensive. Kurnool, undoubtedly, occupies a most unfortunate position for administrative purposes, but this condition could be ameliorated by the extension of the railway at probably less expense than by the shifting of

head-quarters; whilst a pure water-supply, introduced on reasonable principles, would secure a healthy condition of both district officials and town population alike.

Yet, if with reference to the proposed re-arrangements of districts it at any time became absolutely necessary to desert Kurnool, I would point out that there is a site near the railway station of Panem, ten miles from Nandyál, which would fulfil admirably all sanitary requirements. Good water could also be introduced in pipes by gravitation from a perennial stream at present emptying itself in the village tank.

ENCLOSURE No. 2.

TABLE showing the incidence of Malarial Fever upon Residents on the tract marked A B on the Sketch-map.

Number of observations.	Duration of residence.	Average number of attacks per head.
10	Three months and under	·6
8	Over three months up to six ...	·5
15	Six months up to one year ...	·6
11	Up to two years	·72
4	„ three „	·75
6	„ four „	·83
5	„ five „	·6

ENCLOSURE No. 3.—Chart.



CHART SHOWING THE PERCENTAGE OF CASES OF FEVER TO TOTAL ADMISSIONS FOR ALL CAUSES IN THE HOSPITALS OF KURNOOL AND NUNDYAL.



Photo-Zincographed in Survey Office, Madras. 1889

Enclosures Nos. 4 and 5.—Memorials.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3768 :—

I have the honor to report as to a proposed site for the location of the Deputy Collector, Cumbum Division.

2. In this connection I would refer to my letter No. 3739 of the 19th current and state that, in my opinion, if a Deputy Collector is to remain in charge of this portion of the district his head-quarters should be coincident with those of the principal taluk (Cumbum), and that he should therefore be located at whichever of the two places recommended in that letter is ultimately decided upon.

3. But it has occurred to me, with reference to the propositions as to this and other changes in this district, that it would probably be well to do away with Cumbum as a Deputy Collector's division.

4. The Board will, I think, agree with me that, in a district like this, it is desirable that the Collector should have the benefit of at least one European Assistant. The opening of the railway through Nandyál, its central position, and the almost absolute necessity there for an officer who can exercise the functions of a Justice of the Peace, indicate that the location of such an Assistant should be at Nandyál.

5. Would it not be therefore feasible, instead of a Head Assistant as now, to place a Sub-Collector at Nandyál and to make his charge comprise the taluks of the present Deputy of Cumbum (Márkápur and Cumbum) with Nandyál, Sirvél being added to the General Charge Deputy of Pyápali, or if the Board do not think that it would be too much left with the Sub-Collector.

6. If the Board and Government are inclined to think favorably of my suggestion, and I would strongly commend it, it might be considered how this scheme could be carried out with as little as possible, if any, additional cost.

7. There would, to begin with, be a Deputy and Head Assistant less in the district as against a Sub-Collector, and the dwelling-house and office at Nandyál being already sanctioned provision on this head would entail nothing extra, whilst there would be saved the building of a house and office for a Deputy Collector of Cumbum division. I append a comparative statement which shows my proposition would involve under Rs. 100 extra expenditure on the district.

Enclosure No. 1.

Sub-Collector's Establishment.		Head Assistant's Establishment.		Deputy Collector's Establishment with last class pay.		Deputy Collector's Establishment with average pay.	
—	Pay.	—	Pay.	—	Pay.	—	Pay.
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
Sub-Collector.	1,166 10 8	Head Assistant Collector ..	768 5 4	Deputy Collector ..	250 0 0	Average pay of Deputy Collector ..	458 0 0
Head Clerk ..	85 0 0	Head Clerk ..	70 0 0	Head Clerk ..	45 0 0	Head Clerk ..	45 0 0
2nd ,, ..	50 0 0	2nd ,, ..	45 0 0	2nd ,, ..	20 0 0	2nd ,, ..	20 0 0
3rd ,, ..	40 0 0	3rd ,, ..	35 0 0	3rd ,, ..	15 0 0	3rd ,, ..	15 0 0
4th ,, ..	25 0 0	4th ,, ..	20 0 0	4th ,, ..	15 0 0	4th ,, ..	15 0 0
5th ,, ..	20 0 0	5th ,, ..	15 0 0	Attender ..	8 0 0	Attender ..	8 0 0
6th ,, ..	20 0 0	Muchi ..	10 0 0	Three peons ..	21 0 0	Three peons ..	21 0 0
7th ,, ..	15 0 0	Attender ..	8 0 0	Masalchi ..	6 0 0	Masalchi ..	6 0 0
Muchi ..	10 0 0	Head peon ..	8 0 0				
Attender ..	8 0 0	Four peons ..	28 0 0				
Duffadar ..	10 0 0	Masalchi ..	6 0 0				
Six peons ..	42 0 0						
Masalchi ..	6 0 0						
Sweeper ..	6 0 0						
Total ..	1,503 10 8	Total ..	1,013 5 4	Total ..	380 0 0	Total ..	588 0 0

READ—the following letter from Surgeon-Major W. G. KING, M.B., C.M., D.P.H., District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated Chintakunta, 31st December 1888.

With reference to the postscript of my letter No. 780 of the 16th December I have the honor to forward herewith the report alluded to.

Endorsement by C. KOUGH, Esq., Collector of Kurnool, dated Kurnool, 16th January 1889, No. 104.

Copy submitted to the Board of Revenue in continuation of report No. 3768, dated 20th ultimo. The undersigned still sees no necessity for modifying his view that the Divisional officers' and Taluk Tasildars' offices may be in the same locality, *i.e.*, if his other recommendations as to change of administrative charges are not considered favorably.

ENCLOSURE No. 1.

REPORT by Surgeon-Major W. G. KING, M.B., District Medical and Sanitary Officer, dated 14th December 1888.

Divisional Head-quarters.—There can, in view of the existence of a nearly completed railway line through the Cumbum taluk to Márkápur, be no reason why a Divisional officer should be required to make the existence of irrigation under the Cumbum tank a cause for his living in that unhealthy neighbourhood. As far as it is permitted for a medical officer to understand these matters, I believe that complaints as to water-supply are attended to in the first place by a Third-class Magistrate. Further, whilst being within the Márkápur taluk as far as accessible by rail, the Cumbum taluk is commanded from it by this means. In consideration of these facts, it seems to me reasonable to assume that so important a town as Márkápur would prove suitable, if nothing could be said against it sanitarily.

Now Márkápur is the sanitarium of Cumbum. The rich of Ctmbum go to this place for change of air. This at least shows that it is popularly regarded as a healthy locality. A description of the town will be found in the annexed memorandum. The annual death-rate is 17·79 per mille, and the birth-rate is 35·54 per mille. Hospital statistics show that but 5 to 10 per cent. (according to season) of the total admissions from the town are treated for fever.

The presence of paddy irrigation therefore does not seem to exercise any markedly appreciable ill-effect upon the people. The sub-soil of the town is evidently not influenced by this condition, there being a sharply cut and broad nullah between the tank and the town, which is situated on elevated ground. The fields have a fall from the town down a valley that is open, and consequently not subject to air stagnation. The sub-soil is a permeable gravel, and is usually of considerable depth. These conditions present a striking contrast to those found in Cumbum, and it is consequently easily conceivable that the process should in the one case be conducted with safety, and in the other with the utmost danger to health.

Nevertheless, I am not disposed to ignore the effect of an atmosphere constantly laden with moisture, and the air-borne products of a soil well manured and retained in a marshy condition; therefore, in selecting a site for the dwellings of a Divisional officer, these facts should be taken into account.

After careful inspection of the surrounding country, I am of opinion that the ridge at the 169th mile of the Bellary-Kistna State Railway is that which would best fulfil sanitary requirements. Half a mile from this is the site of future railway station of Márkápur, and a further half mile distant are the buildings of the Bellary-Kistna State Railway staff. The village of Koodaravapalle is within 600 yards of the site; it is thoroughly healthy. The water derived from wells at this village I analysed on behalf of the Bellary-Kistna State Railway last year, and found to be the softest between this and Yerrapollium, Nellore district. Similar water would, in all human probability, be obtained at the edge of the dip below the ridge. Good water has also been procured on well digging by the Bellary-Kistna State Railway at the Márkápur Railway station, which, as stated above, is half a mile distant.

The present road to Márkápur is that used by the villagers of Venkatapuram, and is about two-and-half miles long; but if a road were made direct to Márkápur from the site suggested, it would be but one-and-a-half miles long. (Such a road should, in any case, be formed for communication with Márkápur and the rail-road.) The site is 400 yards outside the Kurnool district, and is in the territory of the Rajah of Venkatagiri in the district of Nellore. But as ground, in any case, would have to be purchased for building purposes, I presume the latter point matters little, and the first can be overcome by a *Fort St. George Gazette* notification that the 400 yards is to be regarded as within the Kurnool district. Indeed, it would be advisable, if I may be permitted to depart slightly from the professional aspects of the case, that the railway station and the neighbouring villages of Venkatapurum and Koodaravapalle should be included in the Kurnool district with reference to convenience of magisterial administration. In the event of any disturbance or accident at the railway station, the nearest Magistrate within the Nellore district would have to be sought for at a village twenty-six miles distant.

I would suggest not only that the dwelling and office of the Divisional officer, but that the Munsif's Court and the Cutcherry of the Márkápur Tahsildar be situated here.

I see no reason why the site should be nearer the town and further from the railway; but if such reason exist, an inferior but fairly suitable site might be obtained in field No. 244.—Márkápur village map—about 1,000 yards to the south-west corner of the tank. This position is elevated above the level of the tank, and is at the head of the water shed.

DESCRIPTION OF VILLAGE.

Name of village.—Márkápur.

Nature of soil.—Red gravel of very various depths.

Nature of sub-soil.—Martzites.

Configuration of the site and its surroundings.—At the head of a valley under irrigation to the extent of 500 acres, and within half a mile of a large tank. The town is separated from the tank which is on a higher level by a deep and sharply cut ravine having a rapid fall. This ravine contains flowing water as long as there is a supply in the tank.

Range of fluctuation of sub-soil water.—From 6 to 4 feet in the neighbourhood of the ravine, and from 32 to 25 feet within the town site.

Character of water and natnre of source.—From wells; the character of the water is good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Fever is not unknown, but is of the mild type. 2 per cent. only of splenic enlargement was found. Four cases of enlarged spleen were also shown, of which the history pointed to their being undoubtedly of Cumbum origin. The hospital returns give but 5 to 10 per cent. of attendance of total cases treated of inhabitants as for malarial fevers. The Madigas of this village struck me as physically a fine healthy set of fellows. Death-rate per mille 17·79 per mille and birth-rate 38·54.

Nature of intercommunications.—Within two-and-a-half miles of the railway station for Márkápur, and one-and-a-half miles by a route suggested in the accompanying report.

Resolution—dated 23rd March 1889, No. 218.

The above papers deal with the selection of new head-quarters for the division and taluk of Cumbum and the question of the transfer of the taluk of Vinukonda to Kurnool and the removal of the head-quarters of that district to Nandyál. They are submitted to Government for orders.

2. Dr. King suggests one of three places as suitable for the head-quarters of the taluk and division of Cumbum. The Board do not think it necessary or expedient that a small portion of the Nellore district, which forms part of the Venkatagiri zemindari, should be transferred to Kurnool in order that the Cumbum Divisional officer should live there, and of the other two places mentioned by Dr. King the Board prefer Mundlapad. Ravipad is too close to Cumbum to be safe. The Board do not approve of the suggestion that a Sub-Collector's division should be formed of the taluks of Nandyál, Cumbum and Márkápur. The arrangement would not guarantee that the Collector of Kurnool should always have a European Divisional officer, which appears to be Mr. Kough's desire. It does not seem necessary to make the change.

3. As regards the suggested transfer of Vinukonda to Kurnool, the Board consider that the Collectors of the two districts concerned have given conclusive reasons against the transfer. The transfer would give but little relief to the Collector of Kistna, and would be very inconvenient in many respects. It could not be well carried out as long as the Kurnool district head-quarters remain at Kurnool and the Collector of Kurnool has shown very conclusively that the expense and inconvenience which would result from moving the district head-quarters render that change very undesirable. Nandyál is likely to prove quite as unhealthy as Kurnool, and in some respects the

latter town is very well suited to be head-quarters of the district. Its position on the frontier is an advantage. The Board, after a careful consideration of all the papers, recommend to Government that the head-quarters of the Cumbum taluk and division be moved to Mundlapad, but that no further administrative change be made.

4. The Board are much obliged to Dr. King for the thorough manner in which he has dealt with the sanitary questions involved in the proposals.

(True Copies and Extract.)

(Signed) M. HAMMICK,
Secretary.

To the Secretary to Government, Revenue Department,
with one plan in G.R. No. 4261 of 1888, two in G.R. No. 4295, one statement and two memorials in G.R. No. 4295 of 1888, to be returned.

Copy to the Collector of Kurnool.
" " " of Kistna.
" to Dr. King, District Medical and Sanitary Officer, Kurnool.

ORDER—dated 29th June 1889, No. 542, Revenue.

Miscellaneous.

The recommendation of the Board of Revenue in paragraph 3 is accepted.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioners of Land Revenue, with six enclosures.
" the Judicial Department.
" the Local and Municipal Department.
" the Public Works Department.
Copy to the Public Department.

Exd. A. D. Xavier.

70 Copies.

Govt. of {1889} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 29th June 1889, No. 542.

JUNE.

Head-quarters of Cumbum taluk and division, Kurnool district.

Board's recommendation that the — be located at Mundlapad and that no further administrative change be made, sanctioned.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue (Land Revenue), dated 23rd March 1889, No. 218 :—

W. S. WHITESIDE, ESQ.
THE HON. J. GROSE, M.A.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 9th October 1888, No. 3122 :—

Referring to Proceedings of the Board of 23rd April last, No. 373, I have the honor to report as follows regarding the first part of paragraph 3 of the Government Order. As to making Nandyál the head-quarters of the district the subject must be reported on separately as some officers concerned have not replied to the reference.

2. The Collector of Kistna and myself are quite in accord as to the inadvisability of the proposed change.

3. It will be observed that paragraph 3 of the Government Order on the subject contemplates the proposal in connection with that of transferring the head-quarters of this district to Nandyál, and indeed it is not possible to dissever the propositions altogether. It is obvious, I think, that unless Nandyál become the district head-quarters the proposed divisional changes can have nothing to recommend them, but everything to the contrary; and as I shall have to report very strongly against the former project, the latter should not, I respectfully suggest, be dealt with apart from it.

4. The Government Order moves the question in view to "equalizing the work" of the two districts. But whilst the transfer would not very materially lessen that of the Kistna Collector, it would add most disproportionately to that of the Collector of Kurnool.

5. Mr. Arundel shows, as I think beyond dispute, that if Vinukonda taluk goes, that of Palnád must accompany it. He writes that "if Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

6. Accepting therefore this corollary, as I think it must be accepted, how would the respective work of the districts be affected? The present area of Kurnool is 7,027 square miles and of Kistna 8,397— add that of Palnád and Vinukonda (1,721), and Kurnool would become 8,748 square miles and Kistna 6,676, whereas Kurnool's extreme length already reaches to 120 miles!

So much then for the object for which Government suggests the change, scil., "the qualization of work."

7. *As to general accessibility and commercial advantages.*—Kurnool would gain nothing, and Vinukonda would lose greatly. The trade of the Kistna taluks flows naturally eastward by Guntúr and Bezwáda, there are no communications which could induce it to change westward towards Kurnool, for the physical nature of the country on this side debars the opening of the system of roads which would be requisite, a deficit which the railway, though a general connecting link, can no wise supply. The same arguments prove that this district would gain no fresh outlet by the change.

8. *Internal administration* Even with Nandyál as head-quarters, Dachepalli (the chief town of Palnád) and Vinukonda would both be further from there than from Masulipatam, and the routes to the former centre are incomparably more difficult than to the latter. The same argument on police grounds would render it difficult for

either a Superintendent from Kurnool or an Assistant from Nandyál to do the work of the proposed Kistna increment. Mr. Arundel has further pointed out to me that these two taluks are the principal forest ranges of the Kistna district and would have to be conserved in regard to the requirements of that district. This is a very grave consideration. It would besides be practically impossible that the forest staff of this district could do any more than they have already to compete with.

9. In conclusion, there is absolutely nothing to commend the proposition but everything against it in the way of "equalizing work," whilst as to the general advantages to the taluks concerned there are none, but many grave disadvantages.

READ—the following letter from A. T. ARUNDEL, Esq., Collector of Kistna, to the Secretary to the Commissioners of Land Revenue, dated Masulipatam, 18th October 1888, No. 6098 :—

With reference to the Board's Proceedings, No. 373, dated 23rd April 1888, calling for a report on the suggested transfer of Vinukonda taluk to the Kurnool district, I have the honor to forward a copy of my note on the subject, together with the reply of the Collector of Kurnool to whom I forwarded it. A tracing map (enclosed) showing how the two districts lie to each other will be found of great assistance in forming an opinion. I enclose also a copy of a letter from the General Deputy Collector, whom I requested to state all he could in favor of the proposal, as most arguments tend so strongly the other way, and who expresses a qualified approval of it.

2. The Board will observe that the Collector of Kurnool is quite as much opposed to the scheme from his point of view as I am from mine. It may also be noted that Vinukonda is inaccessible from Cumbum without passing through a portion of the Nellore district. It is needless to recapitulate all the reasons given in my note against the transfer as far as Kistna is concerned, but I may add that, after six months' reflection, I am confirmed in the opinion there given.

3. An administrative inconvenience to this district if the change were effected has been omitted in the note. If Vinukonda taluk were taken away the General Deputy Collector would have only the exceedingly light divisional charge of two dry taluks. If Palnád taluk also were taken, as would be necessary, he would have only one taluk left, and his charge could be increased only by taking Sattenapalli taluk from the Sub-Collector, and again an insufficient division of two light taluks would result.

4. The Deputy Collector has said all that is to be said in favor of the change, and the Board will see that it does not meet the objections. He regards the removal of Palnád as well as Vinukonda as a *sine quâ non*. On this supposition the advantages briefly are that Márkápur taluk in Kurnool would benefit by a closer connection with Palnád, and that for forest and police purposes it would be well to have the mountainous jungly tracts under the same district officers. This is all, and it weighs but little against the fact that all the important interests of the taluks tend towards the river valley with the deltas, canals and railway centre, and with more accessible headquarters for commercial, court and other official business.

5. The people of the two taluks are strongly opposed to the change.

ENCLOSURE No. 1.

NOTE on the proposed transfer of Vinukonda taluk to Kurnool—G.O., dated 13th March 1888, No. 213, Revenue.

1. This proposal is *primâ facie* attractive to me as Collector, as the result would be to lessen work.

2. The first corollary to the proposal is that if the Vinukonda taluk goes, the Palnád taluk should go too.

Palnád marches for half its length with the Márkápur taluk of Kurnool and the river Kistna bounds them both on the north.

If Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

3. If both taluks were transferred to Kurnool, the Collector of Kistna would no doubt be relieved of work, but not to the extent that might be supposed as these are two of the lightest taluks in the district. The Revenue appeals for instance were in 1887 as follows compared with Répalle and Gudiváda, two of the heaviest taluks :—

Répalle	30
Gudiváda	67
Vinukonda	2
Palnád	15

4. Apart from the question of equalizing work in the two districts, how does the mattter stand as to the benefits to the taluks themselves?—

(1) If Kurnool remain the head-quarters of the Kurnool district, both taluks will be incomparably worse off as regards mere distance.

(2) If Nandyál became the head-quarters of Kurnool, Dachepalli, the chief town of Palnád, will still be greatly further from Nandyál than from Masulipatam, *i.e.*, 160 miles *viâ* Vinukonda and Márkápur as compared with 105 to Masulipatam and Vinukonda will be 115 miles from Nandyál and 100 from Masulipatam. The routes too are very different. The Kurnool route lies through hilly feverish tracts where tigers are not unknown, while the Kistna route lies through Guntúr and the rich delta.

(3) Geographically the taluks would suffer by the exchange. Both are separated from Kurnool on the south and west by the hills and jungles of Márkápur. Both open out freely on the east to the plains that merge gradually into the delta.

A sharp range of hills pierced by no road is the immediate boundary between Palnád and Márkápur. The Kandleru Gundlakamma river unbridged divides Vinukonda from the Kurnool district.

(4) The railway will of course be the connecting link between the two districts, and, but for it, the suggestion of the transfer of the Vinukonda taluk would probably not have arisen. The railway will be common to both districts. It will render travelling easier to many, but it will not supplant the need of main roads, and the respective accessibility of the two districts will, as far as road traffic is concerned, be unchanged.

5. For all purposes of trade and general development Palnád and Vinukonda would be great losers by the transfer. They would form an outlying island beyond the mountainous region of Márkápur with none but official interests connecting them with Kurnool. In every sense, it may be said, they look east towards Kistna and not west towards Kurnool. Their trade tends to and from Guntúr, Bezváda and the delta. Their Taluk Board (with the adjoining taluk of Narsaraopet) works out with the adjacent Taluk Boards a system of roads common to all. This would be impracticable if the area were divided between different districts. The physical features of the country, too, absolutely bar such an interchange of roads on the Kurnool side.

6. Palnád is rich in one product, namely, marble, which should prove a source of wealth as soon as it is realized that it can be transported by boat all the way to Madras without transhipment. The development of such a special interest as this and of other interests all centering in the Kistna district and not in Kurnool are not likely to receive the same consideration and attention if the taluks form an outlying province beyond the Márkápur hills.

7. The chief forests of the Kistna district are in Vinukonda and Palnád and should be carefully tended with reference to the needs of the district. All this would be changed if the centre of attraction, so to speak, were shifted to Kurnool. On first consideration with the prospect of lessened work I was favorably impressed with the proposal to transfer not only Vinukonda but also Palnád. Further reflection convinces me that however advantageous it might be for the Collector personally, it would be in every way without exception disastrous for the taluks themselves.

(Signed) A. T. ARUNDEL,
Collector.

ENCLOSURE No. 2.

From M.R.Ry. R. SOORIA ROW NAIDU GARU, Deputy Collector, Kistna, to the Collector of Kistna, dated Masulipatam, 29th May 1888.

I beg to submit my views on the transfer of the Vinukonda taluk from Kistna to Kurnool. The transfer seems to have been suggested with the object of removing the head-quarters of the Cumbum Deputy Collector to a healthy place and equalizing the work of the two districts.

2. Vinukonda is, no doubt, a better place than Cumbum during the cold season, as it is free from malaria; but the people, who know both places, say that Cumbum is better than Vinukonda in the hot weather.

3. If Vinukonda is to be transferred at all, Palnád must be transferred too. There cannot be two opinions on the point. Palnád lies north of the Vinukonda and Márkápur taluks, abutting

on Nandikótkur on the south-west and it would be a perfect anomaly to transfer Vinukonda without Palnád.

4. The area of Kurnool is 7,027 square miles and that of Kistna 8,397. The area of Palnád and Vinukonda taken together is 1,721 square miles, which, if added to Kurnool, would make the area of that district 8,748 square miles and that of Kistna 6,676. This would be an advantage to Kistna though not to Kurnool, whose extreme length is already 120 miles.

5. Palnád and Vinukonda yield about Rs. 6,45,00 annually and the revenue work of the taluks though not as heavy as that of Gudiváda and Répalle is pretty considerable. The Magisterial work is equal if not more. The work of the Kistna district would no doubt be lessened by the transfer. The commercial and agricultural interests of Márkápur would also be advanced. The people of Márkápur borrow money from the sowcars of Palnád, and a considerable trade is going on between the two taluks. A good road from Márkápur to Tumrucode would enlarge the trade.

6. The transfer would prove beneficial on police grounds also. The frontier villages and jungles of both districts are infested with Lambadies, Vadders and other criminal tribes. When these people commit any crime in this district they run away to the Kurnool district and *vice versâ*. The police of one district find it difficult to catch the culprits in the other, as they do not have the same influence there as they possess in their own district.

7. On forest grounds, too, the transfer appears desirable. The chief forests of Kistna are in Palnád and Vinukonda. The Palnád jungles adjoin those of Márkápur, and the Vinukonda jungles are not far away from them. It seems to me advisable to place all these jungles under the supervision of one District Forest-officer.

8. The people of Palnád and Vinukonda themselves would not be benefited by the change; but I do not think they would suffer. It is true that the commercial products of the taluks go to Guntúr and thence to the coast; but this would not be affected by the change. The people would continue to take their produce to Guntúr even if the taluks are transferred. They would not, however, like the change. Geographically no advantage would be gained by it. Vinukonda is about the same distance to Nandyál as it is to Masulipatam and Dachepalli; the head-quarters of the Palnád Tahsildar is nearer to Masulipatam than to Nandyál. On the whole I think it advisable to transfer Palnád and Vinukonda to Kurnool.

P.S.—There are no statistics of trade with Kurnool from Vinukonda and from the latter to the Kistna side.

Enclosure No. 3.

From C. KOUGH, Esq., Collector of Kurnool, to the Collector of Kistna, dated Kurnool, 9th October 1888, No. 3121.

I have the honor to reply to your letter No. 3753 of the 18th July and to return the map therewith received with the roads marked as you desired.

2. I am entirely in accord with you as to the inadvisability of the proposed transfer, and you have gone so exhaustively into the details of the matter that I feel I have nothing to add.

3. If your corollary that Palnád must go with Vinukonda taluk is accepted, and I do not see how it can be otherwise, your arguments seem irrefutable.

4. The matter is moreover so very much bound up with the other proposition of changing the head-quarters of this district to Nandyál that it is not possible to consider the questions entirely apart.

5. I shall be unable to offer any recommendations to Government for the change of the district head-quarters, and if these continue to be Kurnool the project of the divisional change of taluks appears preposterous; whilst even with Nandyál as the head station of this district matters would be very little better as regards the welfare of the taluks of Kistna concerned.

6. I am sorry I have been so long in replying to your letter, but there have been a great many changes and interruptions in the administration of my district.

Enclosure No. 4.—Tracing.

Reference on the above, dated 3rd December 1888.

The Board await the report in regard to the suggested move of the district head-quarters from Kurnool to Nandyál promised in paragraph 3 of the letter of the Collector of Kurnool.

(Signed) H. A. SIM,
Acting Secretary.

To the Collector of Kurnool, with letter from
Collector of Kistna and its four enclosures, to be returned.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3739:—

With reference to paragraph 3 of Board's Proceedings, No. 373, dated 23rd April 1888, I have the honor to submit herewith a copy of the report which accompanied letter, No. 780, dated 17th December 1888, from the District Medical and Sanitary officer regarding the selection of a suitable place for the location of Cumbum taluk head-quarters as directed in paragraph 1 of G.O., No. 213, embodied in the above.

2. The District Medical and Sanitary officer has selected on sanitary and other grounds two villages, viz., Mundlapad and Ravipad, as suitable for the purpose, and suggests that preference should be given to the former. He fears that if the latter is selected it will be found impossible to prevent officials from constantly visiting, or even residing in, Cumbum owing to its proximity of little over 4 miles, and this apprehension I share with him.

3. As, however, Government have directed that the selected place should be as near Cumbum as sanitary and other conditions would permit, it must be considered whether the contingency apprehended can be allowed to weigh against the situation of Ravipad as fulfiling Government's requirements.

Personally I think it *should*, because if it eventuates that all the taluk staff become again impregnated with Cumbum malaria the last state will be as bad as the first. There is just a possibility that by altering the whole *personnel* of the office, so as to get rid of natives of Cumbum, and with them of the obstinate mania of courting death in that town, the evil contemplated may be combated.

4. Mundlapad will be within 3 miles of a railway station, and I should feel disposed to make our tentative experiments there. There can be no doubt, however, that were it not for the danger alluded to, Ravipad is the preferable location as regards the area of population and work of the taluk generally.

5. Dr. King has promised me his report as to the proposed change of divisional head-quarters at an early date, and on its receipt my reply on that topic shall be forwarded.

Enclosure No. 1.

Report on the sanitary aspects of the choice of Taluk Head-quarters, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Nandyál, 16th December 1888.

Cumbum, Kurnool District.

I. Requirements held in view.—(1) It is assumed that the search for a suitable position for the head-quarters of a taluk must take cognizance of the following conditions:—

1*stly*—(1) that it be, as far as possible, equidistant from the various villages throughout the area; (2) or failing this, that it commands within a reasonable radius the most populous part of the taluk;
2*ndly*—that it be readily accessible from all points, and have direct communication with the more important parts by road, rail and telegraph;
3*rdly*—that it be sanitarily safe for officials required to dwell upon the spot and for villagers visiting the place on business;
4*thly*—that the site be at or near a village of sufficient size to provide accommodation and the necessaries of life for officials, and villagers when temporarily resident on business.

The most ready way of satisfying the first conditions in a fairly flat country duly provided with means of communication would be to select well populated village towards the centre of the area and ascertain whether a circle of, say, ten miles radius would include the greatest proportion of the population. Tirmulla, which was selected by a special committee some years back, fulfils the condition of a fairly central point. But a circle of this diameter round this village will be found to include on one side a mass of practically uninhabited hills; further, the taluk is not flat, and the procedure suggested will at once demonstrate that, owing to physical peculiarites to render approach possible to any central position either precipitous hills must be surmounted or the special valley in which suitable towns are situated must be entered from their distal ends. Take, for example, the case of a villager proceeding from Mochagundum to Racherla, Somadevipalli, or Tirmalla, all central points, he would either have to cross the hills, which could only be managed

by a hale man on foot, or go *viâ* Giddalore or Cumbum by road to enter one or other end of the valley; this would involve a journey of about 26 miles to go a distance as the crow flies of 2½ miles to 9 miles.

Irrespective, therefore, of the fact that Tirmulla, as I shall show is one of the malarious spots in this malarious taluk, it would seem advisable not to select a position within the narrow and lengthy central valley of the taluk but near either of its outlets; and this method will, as might be expected where such a configuration is met with, bring within the sphere of selection the most populous parts of the taluk, as well as the direction in which roads and, in this case, the railway tends. Giddalore or Cumbum, therefore, or their neighbourhood, would satisfy requirements as to position.

2. With respect to the sanitary aspects of the question beyond the ordinary points of suitability of soil, water-supply and surroundings as affecting health, the special circumstance of prevalence of malaria in this tract has to be taken into consideration. To inquire into these details, I personally inspected all the villages that have from time to time been suggested by various officers. As a test of the type and extent of the prevalence of fever, I examined in each village one hundred individuals as to condition of the spleen. I took care to choose for this purpose persons of various castes and occupations met haphazard on the road and living at various points of the individual villages. The results are shown as briefly as possible in the annexed memorandum.

II. The Selection.—(1) A review of the details given in the table will show that Mundlapad at one end of the central valley of the taluk and Ravipad at the other best fulfil sanitary requirements, and a consideration of the circumstances mentioned in paragraph (1) will prove that they fairly well fulfil the requirements of central and accessible positions.

The remaining indications for making a selection of Ravipad or Mundlapad may be stated thus:—

MUNDLAPAD.

Advantages.—This is a well-known town with a population of 3,079, situated within 3½ miles of Giddalore, where there is a station for the Bellary-Kistna State Railway, which line runs through Cumbum. The town is, to the best of my belief, the healthiest in the taluk, every village of which is more or less subject to malaria.

Disadvantages.—The water-supply although sufficient in quantity cannot be considered good in quality so long as the drainage of the town reaches the river whence the supply is derived; but, if the anicut above the town be repaired by Government, a complete and safe water-supply can be brought into the town at a cost of not more than Rs. 2,500.

A fresh in the river Sagalaru might interrupt communication with the end of the taluk. But the railway bridge at Giddalore, which will be completed in about two months, could be used in an emergency, and indeed it would probably not cost more than Rs. 8,000 to make a special bridge across the river at another site should the want of one be regarded as a serious drawback.

A circle of ten miles radius round this town would only include a population of 38,559, whereas a similar circle drawn around Cumbum would include 66,701 of the population of a total of 109,851 of the taluk.

RAVIPAD.

Advantages.—Notwithstanding its proximity to Cumbum, the town is healthy. It is within 4 miles by road of Cumbum, the old taluk head-quarters, and 1½ miles of the railway station at Malakonda.

The well water of the village is good. The spot on which I would advise the taluk cutcherry to be built, and around which I would wish to see a new Cumbum rise, is a mile-and-a-half from that village, on the left-hand side on the road to Ongole in the 104th mile, close to the new well sunk by the Reddi of Ravipad for travellers. Any position within 400 yards radius would suit. But building should not be allowed nearer the brow of the slope towards Cumbum than a cork tree on which I have cut a broad arrow.

The well water here is of good quality; other wells could be dug in the same area. It may be said if Ravipad is healthy, why not place the cutcherry close to the town; well, my reason is, that if what I have said in the appendix be trustworthy, Ravipad owes its protection to its position on a special ridge, and that at the point selected the special configuration is at its best, the soil is suitable, and the distance from irrigated fields the greatest obtainable. There is a freshness of air on this spot that forces itself upon attention, and testifies to the nose and feelings generally that the "muggy" and depressing air of Cumbum no longer haunts one.

Disadvantages.—To prevent the necessity of villagers or officials passing through the malarious tract in which Cumbum lies, and to place it within 3½ miles of the Malakonda Railway station, a bridge over the Gundlakamma and a road 3½ miles in length leading from the Ongole

high road would be required. In an estimate made for Cumbum in connection with the placing of a cutcherry there under former schemes an item for the bridge was furnished by the Public Works Department amounting to Rs. 10,000. Masonry is dear in the locality, possibly now that a railway communication is available, an iron bridge would be erected for a smaller sum.

The possibility of taluk officials choosing to live in Cumbum or to frequently visit that place instead of residing at the locality near the cutcherry at Ravipad must be regarded as a contingency that would almost infallibly be followed by the old condition of disability to work from attacks of malarious fever and constant expenditure upon sick leave, pension, &c.

Indeed, there would be no advantage building on a healthy site near Cumbum if taluk officials be allowed to live in that town. At a public meeting I strove my best to make the people understand by the use of statistics that they lived in Cumbum but to die, and that ruin and desolation awaited their town. I promised to recommend that, instead of spending money to make sanitary improvements in the town, a sum should be devoted towards enabling them to move to a healthier site. But whilst freely admitting my facts they claimed the right and privilege of dying in Cumbum, and indeed the first point discussed by the spokesman of the Muhammadan community was the expense they would be put to in making a new graveyard on the proposed locality. So fully has the fact that "in the midst of life we are in death" become impressed upon a people, whose natural apathy to fate is intensified by the depressing influence of malaria. To meet the objection, however, a deputation of the influential men of Cumbum informed me that their sowcars would erect dwellings on approved plans at a reasonable rental for taluk officials, and the Reddy of Ravipad, who is reputed to be a rich man, makes the same offer on his own behalf.

III. Opinion.—My advice therefore amounts to the following. If it be thought advisable for administrative reasons that the taluk cutcherry *ought* to be built near Cumbum, the site named by me near Ravipad would best suit sanitary requirements, but if the influence of rail and road concentration near Giddalore be regarded as sufficient compensation for distance from Cumbum, I regard Mundlapad as *sanitarily* the better place.

ENCLOSURE No. 2.

MEMORANDUM AS TO CONDITION OF VILLAGES INSPECTED.

Name of village.—Giddalore

Nature of soil.—Red soil varying from a gravel to a clayey earth.

Nature of sub-soil.—Clay slate.

Configuration of the site and its surroundings.—At the head of a valley in which is the high road from Cumbum, and at the *outlet* of a valley leading to Madlapad. The town is situated at the end of a range of steep hills; on one side the site is open; there is a gentle slope from the town to the river Salagaru.

Range of fluctuation of sub-soil water.—From 32 to 15 feet.

Character of water and nature of source.—From wells and from the river Salagaru. Of the wells only one yields water of fairly good quality. In the hot season well supply becomes very scanty. River water cannot be brought to the town by gravitation. A portion of the river near the town is so situated as to be free from contamination by the town drainage.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The well-fed and well-clothed class seem in good health; the poorer suffer from fever. 13 per cent. spleen cases were found here; 26·6 of the total cases treated of inhabitants of the town are for malarial fever.

Death-rate per mille.—The death-rate per 1,000 according to the village statistics is but 13·50. It is, however, self-evident that this rate is founded upon carelessly gathered statistics. The average death-rate for 1884 and 1885 is shown as 8·48, whilst for the two succeeding years it was more than double this without any assignable cause. Further, if the people were so phenomenally healthy, the birth-rate would be equal to that found in this district generally 46 per mille; but according to these same statistics it is but 15·04. Under these circumstances, I prefer to trust to the information gathered by the physical examination of the people.

Nature of intercommunications.—On the Bellary-Kistna State Railway line, and on the high road leading from Cumbum to Kurnool. There is communication also with Tirmulla and Racherla by a famine road; also with Mundlapad—4½ miles distant—by a famine road.

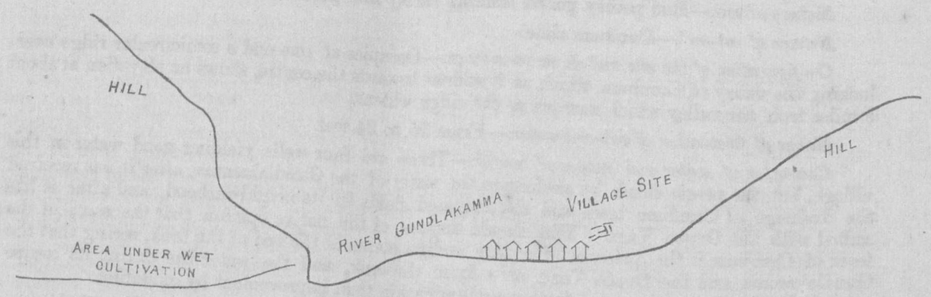
Name of village.—Tirmulla.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Water worn pebbles overlaying clay.

Configuration of the site and its surroundings.—At the drainage outlet end of a valley extending to Cumbum. The hills near Tirmulla converge till they are within one-and-a-half miles and

three quarters of a mile on each side of the town. The river Gundlakamma receives the surface water. The diagram below gives an idea of configuration of the locality in section.



Range of fluctuation of sub-soil water.—From 19 to 14 feet.

Character or water and nature of source.—Well water not "usable" for drinking purposes. River water only is employed; the river receives the drainage of the town throughout its course in its vicinity, and this cannot be economically remedied. Graves line the banks.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Except the well-to-do classes, the people look a miserably sickly lot—26 per cent. of people suffer from "enlargement of spleen."

Death-rate per mille.—27·72 per mille.

Name of village.—Somadevipalli.

Nature of soil.—Reddish black earth.

Nature of sub-soil.—Quartzites.

Configuration of the site and its surroundings.—At the drainage outlet of a narrow valley at right angles to that leading to Tirmulla.

Range of fluctuation of sub-soil water.—From 20 to 10 feet.

Character of water and nature of source.—Well water said to be palatable.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Inhabitants are affected with spleenic enlargement to the extent of 37·5 per cent.

Death-rate per mille.—[Not ascertained.]

Nature of intercommunications.—On the line of rail; bandy track connects it with Tirmulla. A very high and steep range of hills separates it from the high road proceeding from Cumbum to Giddalore and Kurnool.

Name of village.—Mundlapad.

Nature of soil.—Red soil with an intermixture of clay.

Nature of sub-soil.—Clay.

Configuration of the site and its surroundings.—At the head of a valley whose drainage outlet is towards Giddalore. The situation is open five miles on one side, and two-and-a-half on the other. The town is on a knoll, well drained at the base on all sides towards the river. The river consequently close to the town receives the drainage from it.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—There are three wells, but only one contains "usable" water; the water from the river, which is a perennial stream, can be brought to the town by gravitation, at probably an expense of not more than Rs. 2,500, provided Government would consent to the repair of an anicut which is broken. This allowed of garden crop cultivation formerly, which brought in a revenue of Rs. 500; this is now lost to Government. The outside calculation is that the restoration of the anicut would cost Rs. 2,000, so that the investment would be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy and seem contented and prosperous.

Death-rate per mille.—24·38 per mille.

Nature of intercommunications.—In communication with Giddalore by a famine road in fair condition, and thus with the railway; and also with Cumbum by high road, and Tirmulla by famine road.

Name of village.—Ravipad.

Nature of soil.—Red pebbly gravel shading rarely into patches of black cotton.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Occupies at one end a semicircular ridge overlooking the valley of Cumbum, which, as it widens towards the centre, shows an elevation at about 3 miles from the valley which narrows as the ridge widens.

Range of fluctuation of sub-soil water.—From 25 to 24 feet.

Character of water and nature of source.—There are four wells yielding good water in this village, but the people drink by preference the water of the Gundlakamma, after it has received the drainage of Cumbum town and the irrigated fields in its neighbourhood, and after it has united with the Oopoo Vagu. This should dispose of the native opinion that the cause of the fever of Cumbum is the presence of rotting indigo plants in the bed of the tank, seeing that the Gundlakamma and the Oopoo Vagu arise from the tank, and the water has during its course towards Ravipad more chance of further contamination than improvement by oxidation.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Only 2 per cent. of splenic enlargement was found; but five cases were discovered with clear histories of the condition having been brought about by temporary residence in Cumbum. [In all the villages visited several cases of "spleen" were found to have so originated; these, of course, not being of local origin, were not included in the statistics. A visit of a fortnight to Cumbum seems in most of these cases to have been sufficient to induce the intense form of malarial fever productive of splenic enlargement.]

Death-rate per mille.—28·78.

Nature of intercommunications.—The village is separated from Malakonda by a narrow hill, and by the Gundlakamma. The railway station of Malakonda for Cumbum is within 1½ miles if the Gundlakamma be crossed.

Name of village.—Bestwaripet.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Clay in the valley and quartzites on the ridge.

Configuration of the site and its surroundings.—Is in direct communication by a gentle slope and narrow valley with the main valley of Cumbum. There is a sluggish stream running at the base of the slope—the Oopoo Vagu. The valley up to Cumbum is under paddy cultivation.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—From the Oopoo Vagu. Three wells are in the village, but none are "usable." One has just been excavated, of which the water is found drinkable.

Physical conditions of inhabitants especially as judged by the "Spleen test."—People are very unhealthy. 39·2 per cent. of splenic enlargement.

Death-rate per mille.—29·10.

Nature of intercommunications.—Is within 2½ miles from Cumbum and 5 miles of the railway station Malakonda.

Names of villages.—Papayapalli and Chedda Cherla.

Nature of soil.—Red gravel.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Papayapalli occupies an elevated position, and is separated from the Bestwaripet valley by a wall-like ridge of about 80 feet high. Wet cultivation is continued from Cumbum to within 400 yards of the bungalow built for the Assistant Superintendent of Police and right up to the village site. Chedda Cherla occupies the same ridge as Papayapalli.

Range of fluctuation of sub-soil water.—From 20 to 14 feet.

Character of water and nature of source.—From wells giving water of very good quality, and from irrigation channels.

Physical conditions of inhabitants especially as judged by the "Spleen test."—Although about 1,000 yards only separates the village of Bestwaripet from that of Papayapalli, there is a very striking contrast in the healthy condition of the inhabitants of each—see above. Here the people show the effect of malarial fever by a degree of anæmia, and but 4·2 per cent. of splenic enlargement against 39·2 of Bestwaripet.

Death-rate per mille—29·70.

Name of village.—Mochagundum.

Nature of soil.—Red.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—In the narrow valley leading from Giddalore to Cumbum. The site is on a hollow below the level of the tank which is within about 400 yards. The surrounding surface soil is wet.

Range of fluctuation of sub-soil water.—From 15 to 10 feet.

Character of water and nature of source.—Water from wells and tank said to be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The poorer classes are anæmic. The rich look fairly well. 7·6 per cent. of spleen were found. This is a village largely inhabited by Brahmins. I expected therefore to find it cleanly. It is the dirtiest village I have seen for a long time.

Death-rate per mille—29·57.

Nature of intercommunications.—By road to Cumbum about 9½ miles; to Somadevipalli over a roadless mountain 2½ miles where is a station of the Bellary-Kistna State Railway.

ENCLOSURE No. 3.

APPENDIX C, showing how a locality slightly removed from one notoriously malarious may be healthy with special reference to Ravipad.

The inquiry of which the abridged results are given in the annexed table has afforded me the opportunity for observing the special conditions under which malaria is developed. As a result I have nothing new to relate; the conditions found simply exemplify in a marked manner the views that have been accepted by sanitarians in recent years. The poison is undertsood to be a special micro-organism—the bacillus malaria—whose life and increase depend upon various conditions of the soil of heat, moisture, organic matter, presence of oxygen, &c., points which necessarily tend to produce results differing with the conditions of the soil and sub-soil, surface and sub-soil water, climate, &c. *Certain soils evidently do not contain the special poison at all.* I mention these facts because the existence of enormous tracts of irrigation near towns in Southern India that remain healthy has induced some authorities to doubt the connection between paddy cultivation and the propagation of malaria—amply illustrated in this district. I think there is reason to believe that a very large area of the country to the east of the Nallamalais contains this special poison. Local conditions favoring the growth of the micro-organisms will, therefore, account for certain villages being more malarious than others. Thus in the common formation found in the Cumbum taluk of hills so precipitous and uniform in height as to look like huge walls on either side of narrow valleys, it may be expected that, irrespective of obstruction to drainage caused by irrigation, the natural outlet and parts near the foot of hills would be most malarious. This effect is seen slightly at Giddalore and Mochagundum and markedly at Tirmulla and Somadevipalli, whilst the healthy condition of Mundlapad within 3½ miles from Giddalore shows the instant amelioration which follows a change of configuration in neighbourhoods within short distances of each other as the crow flies. In such instances the configuration of the country is closely allied to questions of surface drainage and sub-soil water outlet; but where spots such as Cumbum are artificially brought into conditions highly favorable to the production of malaria within a certain area, the run of valleys and shape and height of the hills become factors of importance in estimating the chances of infection of localities slightly removed from the actual centre of poison production. Thus, whilst an elevation of 12 feet might afford a considerable degree of protection in a flat area, 2,000 feet might not do so if a ravine led from the lower site towards the height suggested and possessed a formation that would direct currents of air upwards. This argument would apply to all forms of slopes and a consideration of whether a spot is likely to be safe or not must be made in connection with the knowledge of not only the direction of prevalent winds but of the probable effect of local currents that may be given rise to by the striking of various configuration by wind at certain angles. Now, in a report of this sort, this discussion of details may be regarded as waste of time and paper. But I think it is better that they should be entered into, even at the risk suggested, rather than that a bare "opinion" should be given unsupported by reasons. Granting then the above arguments to be correct, it becomes an easy matter for me to show why, should it be necessary to build near Cumbum, I would select the neighbourhood of Ravipad.

I find that although Cumbum may be regarded as uninhabitable by human beings, its immediate surroundings are healthy, except where the configuration permits of aerial currents transporting malaria to them from this point of production—the Cumbum valley. Thus Malakonda and Bestwaripet at opposite ends of the Cumbum valley, and having probably the same elevation above the town level, are almost as unhealthy as Cumbum for the reason that, in the former case, malaria-laden air is concentrated by the peculiar formation of the valley and wall-like hill direct upon the town, and in the latter that the same effect is produced by the narrowing of hills giving the appearance of a funnel with the broad end directed towards Cumbum. Papayapalli, which is within 1,000 yards of unhealthy Bestwaripet, is protected from the valley described as causing mischief to it by the intervention of the wall-like hill mentioned. The Papayapalli people

suffer from fever and are anæmic—facts showing that they are under the influence of malaria—but not to an extent to cause more than 4 per cent. of "enlargement of the spleen," which is not much above the usual standard of the Cumbum taluk, viz., 2 per cent. against 39·2 per cent. of Bestwaripet! A gradually ascending slope leads air from the Cumbum valley upon Chedda Cherla, and a ravine and vagu do the same to Collugotla, producing the same typical effect on the people as found at Papayapalli. To my mind this state of affairs points to the fact that the degree of concentration of poison in which it reaches the system in the case of malaria has a vast deal to do with the type of fever and consequent effect upon the constitution of the recipient, as contrasted with infinitesimal amounts of the respective poisons which seem capable of producing full specific symptoms in such diseases as anthrax, small-pox, &c.

But it may be argued, from the information given in the table, that the true explanation of the state of health of the Bestwaripet villagers, as contrasted with those of Papayapalli, is that whereas the former drink the water of the Oopoo Vagu (an off-set of the Cumbum tank, the water of which is notoriously contaminated by rotting indigo plants, &c) the latter drink well water of a good class. But against this has to be balanced the fact that the people of Ravipad use by preference, although their well water is good, the filthy water of the Gundlakamma derived from the tank *after* it has received the drainage of the town of Cumbum and of its well manured fields and the Oopoo vagu itself, and that the inhabitants of Malakonda at the other end of the valley drink well water exclusively.

That the inhabitants of Ravipad are healthy therefore is readily explained when the protection afforded them by configuration is taken into consideration; and, in view of the remarks already passed on this subject, a reference to the attached diagram will bear out this statement, attention being specially given to the direction of the north-east and south-west monsoons—see the red arrows.

ENCLOSURE No. 4.—Plan.

ENCLOSURE No. 5.—Plan.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3766:—

I have the honor to submit the report called for in paragraph 2 of Resolution of 23rd April last, No. 373.

2. The report of the District Medical and Sanitary officer, and a rough estimate of cost of buildings, &c., furnished by the Executive Engineer, form enclosures.

3. It appears to me that on the main grounds of sanitation and economy the suggestion to change the head-quarters of this district from Kurnool to Nandyál is quite impracticable.

4. A perusal of Dr. King's paper will show that, as a health measure, the move would be "from the frying pan into the fire," whilst a glance at the fiscal liability involved indicates this to be prohibitive. I do not pretend to say that the estimates are accurate, or incapable of modification, but they are sufficiently illustrative of the fact that a degree of expenditure, which I do not suppose under present financial circumstances would be entertained for a moment, would be inevitable.

5. Further in a political point of view I consider the change would be unwise. Owing to its situation as regards the Hyderabad frontier it is most expedient that the chief seat of the administration and the location of the police reserve should be at Kurnool.

6. I presume that the non-central position of Kurnool for district administrative purposes, and the establishment of rail communication with Nandyál, have been the chief considerations that evoked this proposition. Both Kurnool's disadvantage and Nandyál's advantage in this respect, however, are capable of considerable modification if the scheme, which is on foot, of connecting the former with the railway at Dhone, is approved and carried into operation.

ENCLOSURE No. 1.

REPORT on the sanitary aspects of the proposed transfer of the District Head-quarters of Kurnool to Nandyál, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Panem, 18th December 1888.

The town of Nandyál is situated in a hollow, representing the natural drainage outlet of a considerable valley towards the river Konnair. By intercepting the surface drainage, a large tank has been formed, under which an extensive tract is irrigated. The Kurnool-Cuddapah canal runs along a ridge in a north-easterly direction, approaching the town diagonally from 3½ to within 1½ miles at its nearest point.

The soil of the town was originally, judging by its surroundings, red gravel, but having been contaminated for centuries by the accumulation of human and animal excreta—there being no better method of conservancy employed than the use of that organic "refuse destructor" commonly known as the buffalo—its general appearance is that of a rich black mud. The District Board, recognizing the urgent necessity there exists for improvement, have in execution a complete scheme for the drainage and conservancy of the town, to be followed by the introduction of a public water-supply.

The sub-soil stratum of seven feet is of Nandyál shale.

The level of the sub-soil water fluctuates with the condition as to water retention of the fields under irrigation in the neighbourhood, and is at all points within six or seven feet of the surface.

The annexed chart No. 1, compiled from hospital statistics at Nandyál, shows that from ·30·24 per cent. to 51·30 per cent. of the total cases treated are for malarial fever. The type of this fever is severe, the remittent form being common.

It is well known that it is most difficult to persuade natives to leave their villages on sanitary grounds, but the Dairds who lived in a part of the town in close proximity to wet cultivation have, of their own accord, left Nandyál, preferring to abandon their buildings and paying an assessment to gradual extension; whilst the Madigas have petitioned, for a like cause, that they may be allowed to leave their irrigated lands for a less profitable but dry site in the neighbourhood.

The village statistics show a birth-rate of but 14·62 per mille, pointing to the fact that, as usual in malarious localities, fecundity is injuriously affected, allowing an average decrease of the population of 107·72 per annum; but as the birth details show an absurd disproportion of sexes, it is probable the data are not correctly gathered. Still there is room for belief in this decrease of the population to a certain extent, because the census period of 1871—1881 shows a decline (a calculation from which, however, the disturbing influence of the famine years cannot be eliminated) and because it is not probable, seeing the average birth-rate of the district is as much as 46 per mille, that a result so seriously at variance with this figure could be recorded without the incidence of some more definite and constant cause than spasmodically conducted and careless registration.

Taking into consideration the above facts, it will be seen that Nandyál town is not a fit place sanitarily for the residence of the head-quarter staff of the district.

Contrast of the sanitary condition of Kurnool with that of Nandyál.—In making a contrast of Kurnool, the present head-quarters, with Nandyál, it must be remembered that the former has for many years been under Municipal rule, and that therefore registration of births and deaths is carried out with far greater care than is likely to be the case in the village of Nandyál, where the duty falls to the Reddi and carnam. Such statistics only being available for Nandyál, they cannot be accepted unreservedly, and the truth must be, as far as possible, approached by the use of collateral evidence. Now, the average death-rate of Kurnool is 30·7 per mille, and the birth-rate 34·6 per mille. Here at once it might be argued that, whilst fecundity is affected by malaria in Nandyál, it is not so to such a marked extent in Kurnool, both being malarious localities.

Again, whilst 897·5 per mille of total deaths in Nandyál is due to fever, the rate is but 547·5 in Kurnool, the remaining deaths being due to "other causes" and "bowel-complaints," &c.

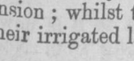
Although this is not borne out by statistics collected by the Municipality (where diagnosis cannot be exact), Kurnool hospital statistics show that the percentage to total admissions for fever has steadily and consistently declined from year to year since 1880, the date of abolition of wet cultivation; whereas, on introduction of the canal and wet cultivation, the rate ran up *at once* double that formerly found, and *remained* without decline and, indeed, with frequent increase, till the year 1880.

In Kurnool deaths from "bowel-complaints" and "other causes" are, to the best of my judgment, due entirely to the evil water-supply of the place, as well as the remaining ratio of malarial fever; indeed, what irrigation did for the surroundings of Kurnool, the leaky water channels still continue to do for the town site. The position therefore is this:—The main cause of the death-rate at Nandyál is malarial fever, due to the condition of the site and surroundings following

wet cultivation, and, at Kurnool, phthisis, scrofula, rheumatism, bronchitis, pneumonia, &c., or, in short, "other causes" generally described as aided in incidence by impure and damp soils. Now the incidence of the latter diseases would, irrespective of the decline of malaria that might be confidently expected, undoubtedly be very greatly reduced by the improvement of the condition of the sub-soil of dwellings that would follow the abolition of the erroneous drainage and water-supply systems of Kurnool, especially, if the latter be so managed that the water be offered to the inhabitants without their being called upon to attempt the assimulation of mud at the rate of at least 1 lb. per adult per annum as at present.

To abolish wet cultivation at Nandyál *in toto* would be to ruin the town financially; and yet, without this effort, notwithstanding the improvement of general health and decrease of death under "other causes" that may be expected from the introduction of drainage and conservancy, the town must remain subject to malaria. In the case, then, of Kurnool malarial fever may be practically abolished at a comparatively small expenditure made once and for all, and the deaths due from "other causes" being reduced, the total mortality will sink to a ratio consistent simply with its evil position; whereas at Nandyál the chief cause of mortality cannot be expected to decline markedly, without the taking of a step that would imply a great and annually recurring loss of revenue, although, as pointed out elsewhere, amelioration would doubtless follow the abolition of that portion of the wet cultivation area included in the fort ditch.

As to a possible site in the neighbourhood of Nandyál.—But, granting the foregoing deductions to be correct, the question would remain (1) as to whether a suitable site could not be obtained near the town and railway that would satisfy sanitary requirements, and (2) whether, if quarters were erected for officials at such a spot, the proximity of wet cultivation need be considered.

In the report submitted a few days back as to the selection of head quarters of the Cumbum taluk, I have dilated at length upon the influence of ground conformation in connection with the selection of sites near areas under wet cultivation in malarious tracts, and, by reference to this, I may spare the reader a similar infliction here. If regard be had to the views expressed in the appendix of that report, the best position for house sites must be at the top of the ridge marked  in the accompanying sketch-map. This theoretical selection is borne out by practical inquiry. The area from A to B is now covered with dwellings of employés of the Bellary-Kistna State Railway proceeding from Noonapully towards the Punjabee village near Moolasagaram, I found that, as I progressed, the number of attacks of fever recorded decreased *pari passu* An analysis of results obtained in this inquiry will be found in the accompanying table. The fact then of persons inhabiting the area near the Noonapully village being more subject to fever than near Moolasagaram is explainable by the configuration at this special point permitting malaria-laden air to reach it, together with the influence of actual proximity of wet cultivation.

Water-supply on the site suggested.—Whilst then the site marked on the sketch-map may prove sufficiently habitable for the purpose required, the question of water-supply presents a difficulty that cannot be overcome, except at heavy expenditure. The water obtainable from wells along the whole tract is "bad." That of special wells sunk by the Bellary-Kistna State Railway has been analysed by the Chemical Examiner, and, as will be seen on the report attached, is described as "bad." Deep wells might offer an alternative, when a supply similar to that obtained at Nandyál might be struck; but, as the sub-soil of Nandyál is probably but the filtrate from paddy fields, an equally *soft* variety might not be procured after the expense of boring through rock. The river is a possible source; but to obtain the water in fair purity a distance of 2½ miles would have to be traversed so as to ensure the supply being taken above the spot where the Nandyál drainage enters. If this source were employed, it would be necessary to use pumping machinery. Another method suggests itself, namely, by pumping from the Nandyál tank 1½ miles distant; or, a supply could be obtained from the canal by gravitation after deposition and filtration. The line of piping in the latter case would be a mile-and-a-half long; and, as the canal contains no water below Kurnool for three months in the year, this source could not be employed without the adjunct of a large storage reservoir. Pumping from the river, or canal, must therefore be resorted to, and either scheme would add considerably to the necessary expense of offices and dwellings.

I may here state that during the first period of the occupation of the site by the Bellary-Kistna State Railway drinking water was carted from the position indicated above in the river Konnair at a cost of about Rs. 300 monthly. Since the laying down of the rails, all water is brought by train from a distance of 10½ miles, and even this water is pronounced by the Chemical Examiner as "suspicious."

Opinion.—I would therefore state it as my opinion that whilst the site shown in the annexed sketch may be regarded as habitable for both Europeans and Natives, its proximity to an unhealthy town is a decided sanitary disadvantage, unless Government were prepared to build houses for *all* subordinates, and that the introduction of a trustworthy public water-supply system, which would be a necessary adjunct, would render its occupation expensive. Kurnool, undoubtedly, occupies a most unfortunate position for administrative purposes, but this condition could be ameliorated by the extension of the railway at probably less expense than by the shifting of

head-quarters; whilst a pure water-supply, introduced on reasonable principles, would secure a healthy condition of both district officials and town population alike.

Yet, if with reference to the proposed re-arrangements of districts it at any time became absolutely necessary to desert Kurnool, I would point out that there is a site near the railway station of Panem, ten miles from Nandyál, which would fulfil admirably all sanitary requirements. Good water could also be introduced in pipes by gravitation from a perennial stream at present emptying itself in the village tank.

ENCLOSURE No. 2.

TABLE showing the incidence of Malarial Fever upon Residents on the tract marked A B on the Sketch-map.

Number of observations.	Duration of residence.	Average number of attacks per head.
10	Three months and under	·6
8	Over three months up to six ...	·5
15	Six months up to one year ...	·6
11	Up to two years	·72
4	„ three „	·75
6	„ four „	·83
5	„ five „	·6

ENCLOSURE No. 3.—Chart.



Chart showing the percentage of cases of Fever to total admissions for all causes in the hospitals of Kurnool and Nundyal.

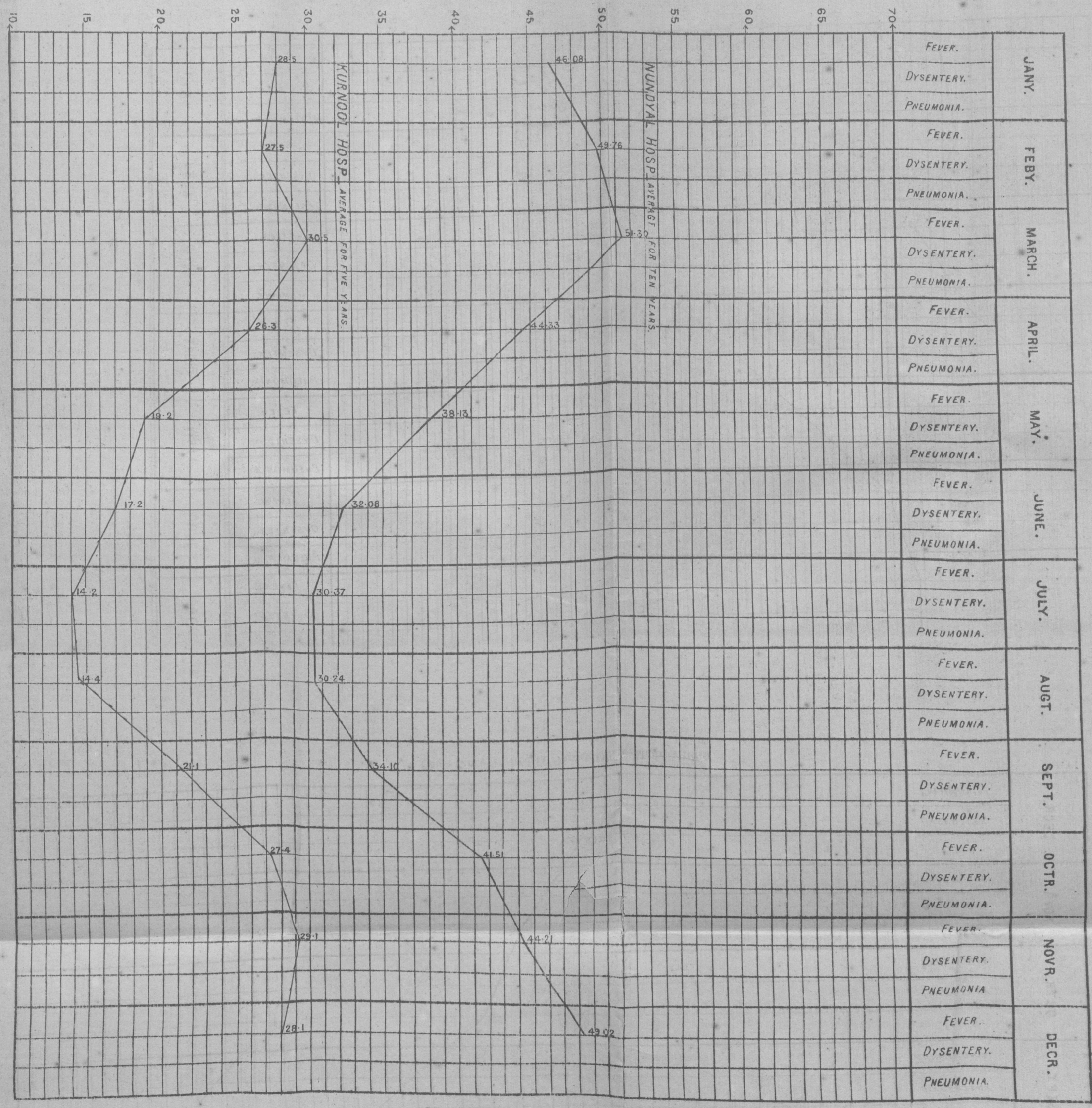


Photo Zincographed in Survey Office, Madras. 1889

Enclosures Nos. 4 and 5.—Memorials.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3768 :—

I have the honor to report as to a proposed site for the location of the Deputy Collector, Cumbum Division.

2. In this connection I would refer to my letter No. 3739 of the 19th current and state that, in my opinion, if a Deputy Collector is to remain in charge of this portion of the district his head-quarters should be coincident with those of the principal taluk (Cumbum), and that he should therefore be located at whichever of the two places recommended in that letter is ultimately decided upon.

3. But it has occurred to me, with reference to the propositions as to this and other changes in this district, that it would probably be well to do away with Cumbum as a Deputy Collector's division.

4. The Board will, I think, agree with me that, in a district like this, it is desirable that the Collector should have the benefit of at least one European Assistant. The opening of the railway through Nandyál, its central position, and the almost absolute necessity there for an officer who can exercise the functions of a Justice of the Peace, indicate that the location of such an Assistant should be at Nandyál.

5. Would it not be therefore feasible, instead of a Head Assistant as now, to place a Sub-Collector at Nandyál and to make his charge comprise the taluks of the present Deputy of Cumbum (Márkápur and Cumbum) with Nandyál, Sirvél being added to the General Charge Deputy of Pyápali, or if the Board do not think that it would be too much left with the Sub-Collector.

6. If the Board and Government are inclined to think favorably of my suggestion, and I would strongly commend it, it might be considered how this scheme could be carried out with as little as possible, if any, additional cost.

7. There would, to begin with, be a Deputy and Head Assistant less in the district as against a Sub-Collector, and the dwelling-house and office at Nandyál being already sanctioned provision on this head would entail nothing extra, whilst there would be saved the building of a house and office for a Deputy Collector of Cumbum division. I append a comparative statement which shows my proposition would involve under Rs. 100 extra expenditure on the district.

Enclosure No. 1.

Sub-Collector's Establishment.		Head Assistant's Establishment.		Deputy Collector's Establishment with last class pay.		Deputy Collector's Establishment with average pay.	
—	Pay.	—	Pay.	—	Pay.	—	Pay.
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
Sub-Collector.	1,166 10 8	Head Assistant Collector ..	768 5 4	Deputy Collector ..	250 0 0	Average pay of Deputy Collector ..	458 0 0
Head Clerk ..	85 0 0	Head Clerk ..	70 0 0	Head Clerk ..	45 0 0	Head Clerk ..	45 0 0
2nd ,, ..	50 0 0	2nd ,, ..	45 0 0	2nd ,, ..	20 0 0	2nd ,, ..	20 0 0
3rd ,, ..	40 0 0	3rd ,, ..	35 0 0	3rd ,, ..	15 0 0	3rd ,, ..	15 0 0
4th ,, ..	25 0 0	4th ,, ..	20 0 0	4th ,, ..	15 0 0	4th ,, ..	15 0 0
5th ,, ..	20 0 0	5th ,, ..	15 0 0	Attender ..	8 0 0	Attender ..	8 0 0
6th ,, ..	20 0 0	Muchi ..	10 0 0	Three peons ..	21 0 0	Three peons ..	21 0 0
7th ,, ..	15 0 0	Attender ..	8 0 0	Masalchi ..	6 0 0	Masalchi ..	6 0 0
Muchi ..	10 0 0	Head peon ..	8 0 0				
Attender ..	8 0 0	Four peons ..	28 0 0				
Duffadar ..	10 0 0	Masalchi ..	6 0 0				
Six peons ..	42 0 0						
Masalchi ..	6 0 0						
Sweeper ..	6 0 0						
Total ..	1,503 10 8	Total ..	1,013 5 4	Total ..	380 0 0	Total ..	588 0 0

READ—the following letter from Surgeon-Major W. G. KING, M.B., C.M., D.P.H., District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated Chintakunta, 31st December 1888.

With reference to the postscript of my letter No. 780 of the 16th December I have the honor to forward herewith the report alluded to.

Endorsement by C. KOUGH, Esq., Collector of Kurnool, dated Kurnool, 16th January 1889, No. 104.

Copy submitted to the Board of Revenue in continuation of report No. 3768, dated 20th ultimo. The undersigned still sees no necessity for modifying his view that the Divisional officers' and Taluk Tasildars' offices may be in the same locality, *i.e.*, if his other recommendations as to change of administrative charges are not considered favorably.

ENCLOSURE No. 1.

REPORT by Surgeon-Major W. G. KING, M.B., District Medical and Sanitary Officer, dated 14th December 1888.

Divisional Head-quarters.—There can, in view of the existence of a nearly completed railway line through the Cumbum taluk to Márkápur, be no reason why a Divisional officer should be required to make the existence of irrigation under the Cumbum tank a cause for his living in that unhealthy neighbourhood. As far as it is permitted for a medical officer to understand these matters, I believe that complaints as to water-supply are attended to in the first place by a Third-class Magistrate. Further, whilst being within the Márkápur taluk as far as accessible by rail, the Cumbum taluk is commanded from it by this means. In consideration of these facts, it seems to me reasonable to assume that so important a town as Márkápur would prove suitable, if nothing could be said against it sanitarily.

Now Márkápur is the sanitarium of Cumbum. The rich of Ctmbum go to this place for change of air. This at least shows that it is popularly regarded as a healthy locality. A description of the town will be found in the annexed memorandum. The annual death-rate is 17·79 per mille, and the birth-rate is 35·54 per mille. Hospital statistics show that but 5 to 10 per cent. (according to season) of the total admissions from the town are treated for fever.

The presence of paddy irrigation therefore does not seem to exercise any markedly appreciable ill-effect upon the people. The sub-soil of the town is evidently not influenced by this condition, there being a sharply cut and broad nullah between the tank and the town, which is situated on elevated ground. The fields have a fall from the town down a valley that is open, and consequently not subject to air stagnation. The sub-soil is a permeable gravel, and is usually of considerable depth. These conditions present a striking contrast to those found in Cumbum, and it is consequently easily conceivable that the process should in the one case be conducted with safety, and in the other with the utmost danger to health.

Nevertheless, I am not disposed to ignore the effect of an atmosphere constantly laden with moisture, and the air-borne products of a soil well manured and retained in a marshy condition; therefore, in selecting a site for the dwellings of a Divisional officer, these facts should be taken into account.

After careful inspection of the surrounding country, I am of opinion that the ridge at the 169th mile of the Bellary-Kistna State Railway is that which would best fulfil sanitary requirements. Half a mile from this is the site of future railway station of Márkápur, and a further half mile distant are the buildings of the Bellary-Kistna State Railway staff. The village of Koodaravapalle is within 600 yards of the site; it is thoroughly healthy. The water derived from wells at this village I analysed on behalf of the Bellary-Kistna State Railway last year, and found to be the softest between this and Yerrapollium, Nellore district. Similar water would, in all human probability, be obtained at the edge of the dip below the ridge. Good water has also been procured on well digging by the Bellary-Kistna State Railway at the Márkápur Railway station, which, as stated above, is half a mile distant.

The present road to Márkápur is that used by the villagers of Venkatapuram, and is about two-and-half miles long; but if a road were made direct to Márkápur from the site suggested, it would be but one-aud-a-half miles long. (Such a road should, in any case, be formed for communication with Márkápur and the rail-road.) The site is 400 yards outside the Kurnool district, and is in the territory of the Rajah of Venkatagiri in the district of Nellore. But as ground, in any case, would have to be purchased for building purposes, I presume the latter point matters little, and the first can be overcome by a *Fort St. George Gazette* notification that the 400 yards is to be regarded as within the Kurnool district. Indeed, it would be

advisable, if I may be permitted to depart slightly from the professional aspects of the case, that the railway station and the neighbouring villages of Venkatapurum and Koodaravapalle should be included in the Kurnool district with reference to convenience of magisterial administration. In the event of any disturbance or accident at the railway station, the nearest Magistrate within the Nellore district would have to be sought for at a village twenty-six miles distant.

I would suggest not only that the dwelling and office of the Divisional officer, but that the Munsif's Court and the Cutcherry of the Márkápur Tahsildar be situated here.

I see no reason why the site should be nearer the town and further from the railway; but if such reason exist, an inferior but fairly suitable site might be obtained in field No. 244.—Márkápur village map—about 1,000 yards to the south-west corner of the tank. This position is elevated above the level of the tank, and is at the head of the water shed.

DESCRIPTION OF VILLAGE.

Name of village.—Márkápur.

Nature of soil.—Red gravel of very various depths.

Nature of sub-soil.—Martzites.

Configuration of the sit and its surroundings.—At the head of a valley under irrigation to the extent of 500 acres, and within half a mile of a large tank. The town is separated from the tank which is on a higher level by a deep and sharply cut ravine having a rapid fall. This ravine contains flowing water as long as there is a supply in the tank.

Range of fluctuation of sub-soil water.—From 6 to 4 feet in the neighbourhood of the ravine, and from 32 to 25 feet within the town site.

Character of water and natnre of source.—From wells; the character of the water is good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Fever is not unknown, but is of the mild type. 2 per cent. only of splenic enlargement was found. Four cases of enlarged spleen were also shown, of which the history pointed to their being undoubtedly of Cumbum origin. The hospital returns give but 5 to 10 per cent. of attendance of total cases treated of inhabitants as for malarial fevers. The Madigas of this village struck me as physically a fine healthy set of fellows. Death-rate per mille 17·79 per mille and birth-rate 38·54.

Nature of intercommunications.—Within two-and-a-half miles of the railway station for Márkápur, and one-and-a-half miles by a route suggested in the accompanying report.

Resolution—dated 23rd March 1889, No. 218.

The above papers deal with the selection of new head-quarters for the division and taluk of Cumbum and the question of the transfer of the taluk of Vinukonda to Kurnool and the removal of the head-quarters of that district to Nandyál. They are submitted to Government for orders.

2. Dr. King suggests one of three places as suitable for the head-quarters of the taluk and division of Cumbum. The Board do not think it necessary or expedient that a small portion of the Nellore district, which forms part of the Venkatagiri zemindari, should be transferred to Kurnool in order that the Cumbum Divisional officer should live there, and of the other two places mentioned by Dr. King the Board prefer Mundlapad. Ravipad is too close to Cumbum to be safe. The Board do not approve of the suggestion that a Sub-Collector's division should be formed of the taluks of Nandyál, Cumbum and Márkápur. The arrangement would not guarantee that the Collector of Kurnool should always have a European Divisional officer, which appears to be Mr. Kough's desire. It does not seem necessary to make the change.

3. As regards the suggested transfer of Vinukonda to Kurnool, the Board consider that the Collectors of the two districts concerned have given conclusive reasons against the transfer. The transfer would give but little relief to the Collector of Kistna, and would be very inconvenient in many respects. It could not be well carried out as long as the Kurnool district head-quarters remain at Kurnool and the Collector of Kurnool has shown very conclusively that the expense and inconvenience which would result from moving the district head-quarters render that change very undesirable. Nandyál is likely to prove quite as unhealthy as Kurnool, and in some respects the

latter town is very well suited to be head-quarters of the district. Its position on the frontier is an advantage. The Board, after a careful consideration of all the papers, recommend to Government that the head-quarters of the Cumbum taluk and division be moved to Mundlapad, but that no further administrative change be made.

4. The Board are much obliged to Dr. King for the thorough manner in which he has dealt with the sanitary questions involved in the proposals.

(True Copies and Extract.)

(Signed) M. HAMMICK,
Secretary.

To the Secretary to Government, Revenue Department,
with one plan in G.R. No. 4261 of 1888, two in
G.R. No. 4295, one statement and two memorials
in G.R. No. 4295 of 1888, to be returned.

Copy to the Collector of Kurnool.
" " " of Kistna.
" to Dr. King, District Medical and Sanitary Officer, Kurnool.

Order—dated 29th June 1889, No. 542, Revenue.

Miscellaneous.

The recommendation of the Board of Revenue in paragraph 3 is accepted.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioners of Land Revenue, with six enclosures.
" the Judicial Department.
" the Local and Municipal Department.
" the Public Works Department.
Copy to the Public Department.

Exd. A. D. Xavier.

70 Copies.

Govt. of {1889} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 29th June 1889, No. 542.

JUNE.

Head-quarters of Cumbum taluk and division, Kurnool district.

Board's recommendation that the — be located at Mundlapad and that no further administrative change be made, sanctioned.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue (Land Revenue), dated 23rd March 1889, No. 218 :—

W. S. WHITESIDE, ESQ.
THE HON. J. GROSE, M.A.

Read—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 9th October 1888, No. 3122 :—

Referring to Proceedings of the Board of 23rd April last, No. 373, I have the honor to report as follows regarding the first part of paragraph 3 of the Government Order. As to making Nandyál the head-quarters of the district the subject must be reported on separately as some officers concerned have not replied to the reference.

2. The Collector of Kistna and myself are quite in accord as to the inadvisability of the proposed change.

3. It will be observed that paragraph 3 of the Government Order on the subject contemplates the proposal in connection with that of transferring the head-quarters of this district to Nandyál, and indeed it is not possible to dissever the propositions altogether. It is obvious, I think, that unless Nandyál become the district head-quarters the proposed divisional changes can have nothing to recommend them, but everything to the contrary; and as I shall have to report very strongly against the former project, the latter should not, I respectfully suggest, be dealt with apart from it.

4. The Government Order moves the question in view to "equalizing the work" of the two districts. But whilst the transfer would not very materially lessen that of the Kistna Collector, it would add most disproportionately to that of the Collector of Kurnool.

5. Mr. Arundel shows, as I think beyond dispute, that if Vinukonda taluk goes, that of Palnád must accompany it. He writes that "if Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

6. Accepting therefore this corollary, as I think it must be accepted, how would the respective work of the districts be affected? The present area of Kurnool is 7,027 square miles and of Kistna 8,397— add that of Palnád and Vinukonda (1,721), and Kurnool would become 8,748 square miles and Kistna 6,676, whereas Kurnool's extreme length already reaches to 120 miles!

So much then for the object for which Government suggests the change, scil., "the qualization of work."

7. *As to general accessibility and commercial advantages.*—Kurnool would gain nothing, and Vinukonda would lose greatly. The trade of the Kistna taluks flows naturally eastward by Guntúr and Bezwáda, there are no communications which could induce it to change westward towards Kurnool, for the physical nature of the country on this side debars the opening of the system of roads which would be requisite, a deficit which the railway, though a general connecting link, can no wise supply. The same arguments prove that this district would gain no fresh outlet by the change.

8. *Internal administration* Even with Nandyál as head-quarters, Dachepalli (the chief town of Palnád) and Vinukonda would both be further from there than from Masulipatam, and the routes to the former centre are incomparably more difficult than to the latter. The same argument on police grounds would render it difficult for

either a Superintendent from Kurnool or an Assistant from Nandyál to do the work of the proposed Kistna increment. Mr. Arundel has further pointed out to me that these two taluks are the principal forest ranges of the Kistna district and would have to be conserved in regard to the requirements of that district. This is a very grave consideration. It would besides be practically impossible that the forest staff of this district could do any more than they have already to compete with.

9. In conclusion, there is absolutely nothing to commend the proposition but everything against it in the way of "equalizing work," whilst as to the general advantages to the taluks concerned there are none, but many grave disadvantages.

Read—the following letter from A. T. ARUNDEL, Esq., Collector of Kistna, to the Secretary to the Commissioners of Land Revenue, dated Masulipatam, 18th October 1888, No. 6098 :—

With reference to the Board's Proceedings, No. 373, dated 23rd April 1888, calling for a report on the suggested transfer of Vinukonda taluk to the Kurnool district, I have the honor to forward a copy of my note on the subject, together with the reply of the Collector of Kurnool to whom I forwarded it. A tracing map (enclosed) showing how the two districts lie to each other will be found of great assistance in forming an opinion. I enclose also a copy of a letter from the General Deputy Collector, whom I requested to state all he could in favor of the proposal, as most arguments tend so strongly the other way, and who expresses a qualified approval of it.

2. The Board will observe that the Collector of Kurnool is quite as much opposed to the scheme from his point of view as I am from mine. It may also be noted that Vinukonda is inaccessible from Cumbum without passing through a portion of the Nellore district. It is needless to recapitulate all the reasons given in my note against the transfer as far as Kistna is concerned, but I may add that, after six months' reflection, I am confirmed in the opinion there given.

3. An administrative inconvenience to this district if the change were effected has been omitted in the note. If Vinukonda taluk were taken away the General Deputy Collector would have only the exceedingly light divisional charge of two dry taluks. If Palnád taluk also were taken, as would be necessary, he would have only one taluk left, and his charge could be increased only by taking Sattenapalli taluk from the Sub-Collector, and again an insufficient division of two light taluks would result.

4. The Deputy Collector has said all that is to be said in favor of the change, and the Board will see that it does not meet the objections. He regards the removal of Palnád as well as Vinukonda as a *sine quâ non*. On this supposition the advantages briefly are that Márkápur taluk in Kurnool would benefit by a closer connection with Palnád, and that for forest and police purposes it would be well to have the mountainous jungly tracts under the same district officers. This is all, and it weighs but little against the fact that all the important interests of the taluks tend towards the river valley with the deltas, canals and railway centre, and with more accessible headquarters for commercial, court and other official business.

5. The people of the two taluks are strongly opposed to the change.

Enclosure No. 1.

Note on the proposed transfer of Vinukonda taluk to Kurnool—G.O., dated 13th March 1888, No. 213, Revenue.

1. This proposal is *primâ facie* attractive to me as Collector, as the result would be to lessen work.

2. The first corollary to the proposal is that if the Vinukonda taluk goes, the Palnád taluk should go too.

Palnád marches for half its length with the Márkápur taluk of Kurnool and the river Kistna bounds them both on the north.

If Vinukonda were taken without Palnád, the latter would be an anomalous promontory jutting out westward with Kurnool, marching along the full extent of its southern side, and connected only by its base with the Kistna district.

3. If both taluks were transferred to Kurnool, the Collector of Kistna would no doubt be relieved of work, but not to the extent that might be supposed as these are two of the lightest taluks in the district. The Revenue appeals for instance were in 1887 as follows compared with Répalle and Gudiváda, two of the heaviest taluks :—

Répalle	30
Gudiváda	67
Vinukonda	2
Palnád	15

4. Apart from the question of equalizing work in the two districts, how does the mattter stand as to the benefits to the taluks themselves?—

(1) If Kurnool remain the head-quarters of the Kurnool district, both taluks will be incomparably worse off as regards mere distance.

(2) If Nandyál became the head-quarters of Kurnool, Dachepalli, the chief town of Palnád, will still be greatly further from Nandyál than from Masulipatam, *i.e.*, 160 miles *viâ* Vinukonda and Márkápur as compared with 105 to Masulipatam and Vinukonda will be 115 miles from Nandyál and 100 from Masulipatam. The routes too are very different. The Kurnool route lies through hilly feverish tracts where tigers are not unknown, while the Kistna route lies through Guntúr and the rich delta.

(3) Geographically the taluks would suffer by the exchange. Both are separated from Kurnool on the south and west by the hills and jungles of Márkápur. Both open out freely on the east to the plains that merge gradually into the delta.

A sharp range of hills pierced by no road is the immediate boundary between Palnád and Márkápur. The Kandleru Gundlakamma river unbridged divides Vinukonda from the Kurnool district.

(4) The railway will of course be the connecting link between the two districts, and, but for it, the suggestion of the transfer of the Vinukonda taluk would probably not have arisen. The railway will be common to both districts. It will render travelling easier to many, but it will not supplant the need of main roads, and the respective accessibility of the two districts will, as far as road traffic is concerned, be unchanged.

5. For all purposes of trade and general development Palnád and Vinukonda would be great losers by the transfer. They would form an outlying island beyond the mountainous region of Márkápur with none but official interests connecting them with Kurnool. In every sense, it may be said, they look east towards Kistna and not west towards Kurnool. Their trade tends to and from Guntúr, Bezváda and the delta. Their Taluk Board (with the adjoining taluk of Narsaraopet) works out with the adjacent Taluk Boards a system of roads common to all. This would be impracticable if the area were divided between different districts. The physical features of the country, too, absolutely bar such an interchange of roads on the Kurnool side.

6. Palnád is rich in one product, namely, marble, which should prove a source of wealth as soon as it is realized that it can be transported by boat all the way to Madras without transhipment. The development of such a special interest as this and of other interests all centering in the Kistna district and not in Kurnool are not likely to receive the same consideration and attention if the taluks form an outlying province beyond the Márkápur hills.

7. The chief forests of the Kistna district are in Vinukonda and Palnád and should be carefully tended with reference to the needs of the district. All this would be changed if the centre of attraction, so to speak, were shifted to Kurnool. On first consideration with the prospect of lessened work I was favorably impressed with the proposal to transfer not only Vinukonda but also Palnád. Further reflection convinces me that however advantageous it might be for the Collector personally, it would be in every way without exception disastrous for the taluks themselves.

(Signed) A. T. ARUNDEL,
Collector.

Enclosure No. 2.

From M.R.Ry. R. SOORIA ROW NAIDU GARU, Deputy Collector, Kistna, to the Collector of Kistna, dated Masulipatam, 29th May 1888.

I beg to submit my views on the transfer of the Vinukonda taluk from Kistna to Kurnool. The transfer seems to have been suggested with the object of removing the head-quarters of the Cumbum Deputy Collector to a healthy place and equalizing the work of the two districts.

2. Vinukonda is, no doubt, a better place than Cumbum during the cold season, as it is free from malaria; but the people, who know both places, say that Cumbum is better than Vinukonda in the hot weather.

3. If Vinukonda is to be transferred at all, Palnád must be transferred too. There cannot be two opinions on the point. Palnád lies north of the Vinukonda and Márkápur taluks, abutting

on Nandikótkur on the south-west and it would be a perfect anomaly to transfer Vinukonda without Palnád.

4. The area of Kurnool is 7,027 square miles and that of Kistna 8,397. The area of Palnád and Vinukonda taken together is 1,721 square miles, which, if added to Kurnool, would make the area of that district 8,748 square miles and that of Kistna 6,676. This would be an advantage to Kistna though not to Kurnool, whose extreme length is already 120 miles.

5. Palnád and Vinukonda yield about Rs. 6,45,00 annually and the revenue work of the taluks though not as heavy as that of Gudiváda and Répalle is pretty considerable. The Magisterial work is equal if not more. The work of the Kistna district would no doubt be lessened by the transfer. The commercial and agricultural interests of Márkápur would also be advanced. The people of Márkápur borrow money from the sowcars of Palnád, and a considerable trade is going on between the two taluks. A good road from Márkápur to Tumrucode would enlarge the trade.

6. The transfer would prove beneficial on police grounds also. The frontier villages and jungles of both districts are infested with Lambadies, Vadders and other criminal tribes. When these people commit any crime in this district they run away to the Kurnool district and *vice versâ*. The police of one district find it difficult to catch the culprits in the other, as they do not have the same influence there as they possess in their own district.

7. On forest grounds, too, the transfer appears desirable. The chief forests of Kistna are in Palnád and Vinukonda. The Palnád jungles adjoin those of Márkápur, and the Vinukonda jungles are not far away from them. It seems to me advisable to place all these jungles under the supervision of one District Forest-officer.

8. The people of Palnád and Vinukonda themselves would not be benefited by the change; but I do not think they would suffer. It is true that the commercial products of the taluks go to Guntúr and thence to the coast; but this would not be affected by the change. The people would continue to take their produce to Guntúr even if the taluks are transferred. They would not, however, like the change. Geographically no advantage would be gained by it. Vinukonda is about the same distance to Nandyál as it is to Masulipatam and Dachepalli; the head-quarters of the Palnád Tahsildar is nearer to Masulipatam than to Nandyál. On the whole I think it advisable to transfer Palnád and Vinukonda to Kurnool.

P.S.—There are no statistics of trade with Kurnool from Vinukonda and from the latter to the Kistna side.

ENCLOSURE No. 3.

From C. KOUGH, Esq., Collector of Kurnool, to the Collector of Kistna, dated Kurnool, 9th October 1888, No. 3121.

I have the honor to reply to your letter No. 3753 of the 18th July and to return the map therewith received with the roads marked as you desired.

2. I am entirely in accord with you as to the inadvisability of the proposed transfer, and you have gone so exhaustively into the details of the matter that I feel I have nothing to add.

3. If your corollary that Palnád must go with Vinukonda taluk is accepted, and I do not see how it can be otherwise, your arguments seem irrefutable.

4. The matter is moreover so very much bound up with the other proposition of changing the head-quarters of this district to Nandyál that it is not possible to consider the questions entirely apart.

5. I shall be unable to offer any recommendations to Government for the change of the district head-quarters, and if these continue to be Kurnool the project of the divisional change of taluks appears preposterous; whilst even with Nandyál as the head station of this district matters would be very little better as regards the welfare of the taluks of Kistna concerned.

6. I am sorry I have been so long in replying to your letter, but there have been a great many changes and interruptions in the administration of my district.

ENCLOSURE No. 4.—Tracing.

Reference on the above, dated 3rd December 1888.

The Board await the report in regard to the suggested move of the district head-quarters from Kurnool to Nandyál promised in paragraph 3 of the letter of the Collector of Kurnool.

(Signed) H. A. SIM,
Acting Secretary.

To the Collector of Kurnool, with letter from
Collector of Kistna and its four enclosures, to be returned.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3739:—

With reference to paragraph 3 of Board's Proceedings, No. 373, dated 23rd April 1888, I have the honor to submit herewith a copy of the report which accompanied letter, No. 780, dated 17th December 1888, from the District Medical and Sanitary officer regarding the selection of a suitable place for the location of Cumbum taluk head-quarters as directed in paragraph 1 of G.O., No. 213, embodied in the above.

2. The District Medical and Sanitary officer has selected on sanitary and other grounds two villages, viz., Mundlapad and Ravipad, as suitable for the purpose, and suggests that preference should be given to the former. He fears that if the latter is selected it will be found impossible to prevent officials from constantly visiting, or even residing in, Cumbum owing to its proximity of little over 4 miles, and this apprehension I share with him.

3. As, however, Government have directed that the selected place should be as near Cumbum as sanitary and other conditions would permit, it must be considered whether the contingency apprehended can be allowed to weigh against the situation of Ravipad as fulfiling Government's requirements.

Personally I think it *should*, because if it eventuates that all the taluk staff become again impregnated with Cumbum malaria the last state will be as bad as the first. There is just a possibility that by altering the whole *personnel* of the office, so as to get rid of natives of Cumbum, and with them of the obstinate mania of courting death in that town, the evil contemplated may be combated.

4. Mundlapad will be within 3 miles of a railway station, and I should feel disposed to make our tentative experiments there. There can be no doubt, however, that were it not for the danger alluded to, Ravipad is the preferable location as regards the area of population and work of the taluk generally.

5. Dr. King has promised me his report as to the proposed change of divisional head-quarters at an early date, and on its receipt my reply on that topic shall be forwarded.

ENCLOSURE No. 1.

REPORT on the sanitary aspects of the choice of Taluk Head-quarters, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Nandyál, 16th December 1888.

CUMBUM, KURNOOL DISTRICT.

I. Requirements held in view.—(1) It is assumed that the search for a suitable position for the head-quarters of a taluk must take cognizance of the following conditions:—

1*stly*—(1) that it be, as far as possible, equidistant from the various villages throughout the area; (2) or failing this, that it commands within a reasonable radius the most populous part of the taluk;
2*ndly*—that it be readily accessible from all points, and have direct communication with the more important parts by road, rail and telegraph;
3*rdly*—that it be sanitarily safe for officials required to dwell upon the spot and for villagers visiting the place on business;
4*thly*—that the site be at or near a village of sufficient size to provide accommodation and the necessaries of life for officials, and villagers when temporarily resident on business.

The most ready way of satisfying the first conditions in a fairly flat country duly provided with means of communication would be to select well populated village towards the centre of the area and ascertain whether a circle of, say, ten miles radius would include the greatest proportion of the population. Tirmulla, which was selected by a special committee some years back, fulfils the condition of a fairly central point. But a circle of this diameter round this village will be found to include on one side a mass of practically uninhabited hills; further, the taluk is not flat, and the procedure suggested will at once demonstrate that, owing to physical peculiarites to render approach possible to any central position either precipitous hills must be surmounted or the special valley in which suitable towns are situated must be entered from their distal ends. Take, for example, the case of a villager proceeding from Mochagundum to Racherla, Somadevipalli, or Tirmalla, all central points, he would either have to cross the hills, which could only be managed

by a hale man on foot, or go *viâ* Giddalore or Cumbum by road to enter one or other end of the valley; this would involve a journey of about 26 miles to go a distance as the crow flies of 2½ miles to 9 miles.

Irrespective, therefore, of the fact that Tirmulla, as I shall show is one of the malarious spots in this malarious taluk, it would seem advisable not to select a position within the narrow and lengthy central valley of the taluk but near either of its outlets; and this method will, as might be expected where such a configuration is met with, bring within the sphere of selection the most populous parts of the taluk, as well as the direction in which roads and, in this case, the railway tends. Giddalore or Cumbum, therefore, or their neighbourhood, would satisfy requirements as to position.

2. With respect to the sanitary aspects of the question beyond the ordinary points of suitability of soil, water-supply and surroundings as affecting health, the special circumstance of prevalence of malaria in this tract has to be taken into consideration. To inquire into these details, I personally inspected all the villages that have from time to time been suggested by various officers. As a test of the type and extent of the prevalence of fever, I examined in each village one hundred individuals as to condition of the spleen. I took care to choose for this purpose persons of various castes and occupations met haphazard on the road and living at various points of the individual villages. The results are shown as briefly as possible in the annexed memorandum.

II. The Selection.—(1) A review of the details given in the table will show that Mundlapad at one end of the central valley of the taluk and Ravipad at the other best fulfil sanitary requirements, and a consideration of the circumstances mentioned in paragraph (1) will prove that they fairly well fulfil the requirements of central and accessible positions.

The remaining indications for making a selection of Ravipad or Mundlapad may be stated thus:—

MUNDLAPAD.

Advantages.—This is a well-known town with a population of 3,079, situated within 3½ miles of Giddalore, where there is a station for the Bellary-Kistna State Railway, which line runs through Cumbum. The town is, to the best of my belief, the healthiest in the taluk, every village of which is more or less subject to malaria.

Disadvantages.—The water-supply although sufficient in quantity cannot be considered good in quality so long as the drainage of the town reaches the river whence the supply is derived; but, if the anicut above the town be repaired by Government, a complete and safe water-supply can be brought into the town at a cost of not more than Rs. 2,500.

A fresh in the river Sagalaru might interrupt communication with the end of the taluk. But the railway bridge at Giddalore, which will be completed in about two months, could be used in an emergency, and indeed it would probably not cost more than Rs. 8,000 to make a special bridge across the river at another site should the want of one be regarded as a serious drawback.

A circle of ten miles radius round this town would only include a population of 38,559, whereas a similar circle drawn around Cumbum would include 66,701 of the population of a total of 109,851 of the taluk.

RAVIPAD.

Advantages.—Notwithstanding its proximity to Cumbum, the town is healthy. It is within 4 miles by road of Cumbum, the old taluk head-quarters, and 1½ miles of the railway station at Malakonda.

The well water of the village is good. The spot on which I would advise the taluk cutcherry to be built, and around which I would wish to see a new Cumbum rise, is a mile-and-a-half from that village, on the left-hand side on the road to Ongole in the 104th mile, close to the new well sunk by the Reddi of Ravipad for travellers. Any position within 400 yards radius would suit. But building should not be allowed nearer the brow of the slope towards Cumbum than a cork tree on which I have cut a broad arrow.

The well water here is of good quality; other wells could be dug in the same area. It may be said if Ravipad is healthy, why not place the cutcherry close to the town; well, my reason is, that if what I have said in the appendix be trustworthy, Ravipad owes its protection to its position on a special ridge, and that at the point selected the special configuration is at its best, the soil is suitable, and the distance from irrigated fields the greatest obtainable. There is a freshness of air on this spot that forces itself upon attention, and testifies to the nose and feelings generally that the "muggy" and depressing air of Cumbum no longer haunts one.

Disadvantages.—To prevent the necessity of villagers or officials passing through the malarious tract in which Cumbum lies, and to place it within 3½ miles of the Malakonda Railway station, a bridge over the Gundlakamma and a road 3½ miles in length leading from the Ongole high road would be required. In an estimate made for Cumbum in connection with the placing of a cutcherry there under former schemes an item for the bridge was furnished by the Public Works Department amounting to Rs. 10,000. Masonry is dear in the locality, possibly now that a railway communication is available, an iron bridge would be erected for a smaller sum.

The possibility of taluk officials choosing to live in Cumbum or to frequently visit that place instead of residing at the locality near the cutcherry at Ravipad must be regarded as a contingency that would almost infallibly be followed by the old condition of disability to work from attacks of malarious fever and constant expenditure upon sick leave, pension, &c.

Indeed, there would be no advantage building on a healthy site near Cumbum if taluk officials be allowed to live in that town. At a public meeting I strove my best to make the people understand by the use of statistics that they lived in Cumbum but to die, and that ruin and desolation awaited their town. I promised to recommend that, instead of spending money to make sanitary improvements in the town, a sum should be devoted towards enabling them to move to a healthier site. But whilst freely admitting my facts they claimed the right and privilege of dying in Cumbum, and indeed the first point discussed by the spokesman of the Muhammadan community was the expense they would be put to in making a new graveyard on the proposed locality. So fully has the fact that "in the midst of life we are in death" become impressed upon a people, whose natural apathy to fate is intensified by the depressing influence of malaria. To meet the objection, however, a deputation of the influential men of Cumbum informed me that their sowcars would erect dwellings on approved plans at a reasonable rental for taluk officials, and the Reddy of Ravipad, who is reputed to be a rich man, makes the same offer on his own behalf.

III. Opinion.—My advice therefore amounts to the following. If it be thought advisable for administrative reasons that the taluk cutcherry *ought* to be built near Cumbum, the site named by me near Ravipad would best suit sanitary requirements, but if the influence of rail and road concentration near Giddalore be regarded as sufficient compensation for distance from Cumbum, I regard Mundlapad as *sanitarily* the better place.

ENCLOSURE No. 2.

MEMORANDUM AS TO CONDITION OF VILLAGES INSPECTED.

Name of village.—Giddalore

Nature of soil.—Red soil varying from a gravel to a clayey earth.

Nature of sub-soil.—Clay slate.

Configuration of the site and its surroundings.—At the head of a valley in which is the high road from Cumbum, and at the *outlet* of a valley leading to Madlapad. The town is situated at the end of a range of steep hills; on one side the site is open; there is a gentle slope from the town to the river Salagaru.

Range of fluctuation of sub-soil water.—From 32 to 15 feet.

Character of water and nature of source.—From wells and from the river Salagaru. Of the wells only one yields water of fairly good quality. In the hot season well supply becomes very scanty. River water cannot be brought to the town by gravitation. A portion of the river near the town is so situated as to be free from contamination by the town drainage.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The well-fed and well-clothed class seem in good health; the poorer suffer from fever. 13 per cent spleen cases were found here; 26·6 of the total cases treated of inhabitants of the town are for malarial fever.

Death-rate per mille.—The death-rate per 1,000 according to the village statistics is but 13·50. It is, however, self-evident that this rate is founded upon carelessly gathered statistics. The average death-rate for 1884 and 1885 is shown as 8·48, whilst for the two succeeding years it was more than double this without any assignable cause. Further, if the people were so phenomenally healthy, the birth-rate would be equal to that found in this district generally 46 per mille; but according to these same statistics it is but 15·04. Under these circumstances, I prefer to trust to the information gathered by the physical examination of the people.

Nature of intercommunications.—On the Bellary-Kistna State Railway line, and on the high road leading from Cumbum to Kurnool. There is communication also with Tirmulla and Racherla by a famine road; also with Mundlapad—4½ miles distant—by a famine road.

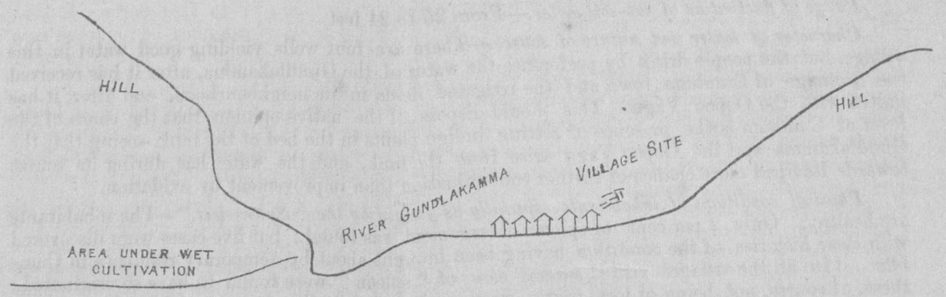
Name of village.—Tirmulla.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Water worn pebbles overlaying clay.

Configuration of the site and its surroundings.—At the drainage outlet end of a valley extending to Cumbum. The hills near Tirmulla converge till they are within one-and-a-half miles and

three quarters of a mile on each side of the town. The river Gundlakamma receives the surface water. The diagram below gives an idea of configuration of the locality in section.



Range of fluctuation of sub-soil water.—From 19 to 14 feet.

Character of water and nature of source.—Well water not "usable" for drinking purposes. River water only is employed; the river receives the drainage of the town throughout its course in its vicinity, and this cannot be economically remedied. Graves line the banks.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Except the well-to-do classes, the people look a miserably sickly lot—26 per cent. of people suffer from "enlargement of spleen."

Death-rate per mille.—27·72 per mille.

Name of village.—Somadevipalli.

Nature of soil.—Reddish black earth.

Nature of sub-soil.—Quartzites.

Configuration of the site and its surroundings.—At the drainage outlet of a narrow valley at right angles to that leading to Tirmulla.

Range of fluctuation of sub-soil water.—From 20 to 10 feet.

Character of water and nature of source.—Well water said to be palatable.

Physical conditions of the inhabitants especially as judged by the "Spleen test."—Inhabitants are affected with spleenic enlargement to the extent of 37·5 per cent.

Death-rate per mille.—[Not ascertained.]

Nature of intercommunications.—On the line of rail; bandy track connects it with Tirmulla. A very high and steep range of hills separates it from the high road proceeding from Cumbum to Giddalore and Kurnool.

Name of village.—Mundlapad.

Nature of soil.—Red soil with an intermixture of clay.

Nature of sub-soil.—Clay.

Configuration of the site and its surroundings.—At the head of a valley whose drainage outlet is towards Giddalore. The situation is open five miles on one side, and two-and-a-half on the other. The town is on a knoll, well drained at the base on all sides towards the river. The river consequently close to the town receives the drainage from it.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—There are three wells, but only one contains "usable" water; the water from the river, which is a perennial stream, can be brought to the town by gravitation, at probably an expense of not more than Rs. 2,500, provided Government would consent to the repair of an anicut which is broken. This allowed of garden crop cultivation formerly, which brought in a revenue of Rs. 500; this is now lost to Government. The outside calculation is that the restoration of the anicut would cost Rs. 2,000, so that the investment would be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy and seem contented and prosperous.

Death-rate per mille.—24·38 per mille.

Nature of intercommunications.—In communication with Giddalore by a famine road in fair condition, and thus with the railway; and also with Cumbum by high road, and Tirmulla by famine road.

Name of village.—Ravipad.

Nature of soil.—Red pebbly gravel shading rarely into patches of black cotton.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Occupies at one end a semicircular ridge overlooking the valley of Cumbum, which, as it widens towards the centre, shows an elevation at about 3 miles from the valley which narrows as the ridge widens.

Range of fluctuation of sub-soil water.—From 25 to 24 feet.

Character of water and nature of source.—There are four wells yielding good water in this village, but the people drink by preference the water of the Gundlakamma, after it has received the drainage of Cumbum town and the irrigated fields in its neighbourhood, and after it has united with the Oopoo Vagu. This should dispose of the native opinion that the cause of the fever of Cumbum is the presence of rotting indigo plants in the bed of the tank, seeing that the Gundlakamma and the Oopoo Vagu arise from the tank, and the water has during its course towards Ravipad more chance of further contamination than improvement by oxidation.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Only 2 per cent. of splenic enlargement was found; but five cases were discovered with clear histories of the condition having been brought about by temporary residence in Cumbum. [In all the villages visited several cases of "spleen" were found to have so originated; these, of course, not being of local origin, were not included in the statistics. A visit of a fortnight to Cumbum seems in most of these cases to have been sufficient to induce the intense form of malarial fever productive of splenic enlargement.]

Death-rate per mille.—28·78.

Nature of intercommunications.—The village is separated from Malakonda by a narrow hill, and by the Gundlakamma. The railway station of Malakonda for Cumbum is within 1½ miles if the Gundlakamma be crossed.

Name of village.—Bestwaripet.

Nature of soil.—Deep alluvial.

Nature of sub-soil.—Clay in the valley and quartzites on the ridge.

Configuration of the site and its surroundings.—Is in direct communication by a gentle slope and narrow valley with the main valley of Cumbum. There is a sluggish stream running at the base of the slope—the Oopoo Vagu. The valley up to Cumbum is under paddy cultivation.

Range of fluctuation of sub-soil water.—From 25 to 20 feet.

Character of water and nature of source.—From the Oopoo Vagu. Three wells are in the village, but none are "usable." One has just been excavated, of which the water is found drinkable.

Physical conditions of inhabitants especially as judged by the "Spleen test."—People are very unhealthy. 39·2 per cent. of splenic enlargement.

Death-rate per mille.—29·10.

Nature of intercommunications.—Is within 2½ miles from Cumbum and 5 miles of the railway station Malakonda.

Names of villages.—Papayapalli and Chedda Cherla.

Nature of soil.—Red gravel.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—Papayapalli occupies an elevated position, and is separated from the Bestwaripet valley by a wall-like ridge of about 80 feet high. Wet cultivation is continued from Cumbum to within 400 yards of the bungalow built for the Assistant Superintendent of Police and right up to the village site. Chedda Cherla occupies the same ridge as Papayapalli.

Range of fluctuation of sub-soil water.—From 20 to 14 feet.

Character of water and nature of source.—From wells giving water of very good quality, and from irrigation channels.

Physical conditions of inhabitants especially as judged by the "Spleen test."—Although about 1,000 yards only separates the village of Bestwaripet from that of Papayapalli, there is a very striking contrast in the healthy condition of the inhabitants of each—see above. Here the people show the effect of malarial fever by a degree of anæmia, and but 4·2 per cent. of splenic enlargement against 39·2 of Bestwaripet.

Death-rate per mille—29·70.

Name of village.—Mochagundum.

Nature of soil.—Red.

Nature of sub-soil.—Cumbum slate.

Configuration of the site and its surroundings.—In the narrow valley leading from Giddalore to Cumbum. The site is on a hollow below the level of the tank which is within about 400 yards. The surrounding surface soil is wet.

Range of fluctuation of sub-soil water.—From 15 to 10 feet.

Character of water and nature of source.—Water from wells and tank said to be good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The poorer classes are anæmic. The rich look fairly well. 7·6 per cent. of spleen were found. This is a village largely inhabited by Brahmins. I expected therefore to find it cleanly. It is the dirtiest village I have seen for a long time.

Death-rate per mille—29·57.

Nature of intercommunications.—By road to Cumbum about 9½ miles; to Somadevipalli over a roadless mountain 2½ miles where is a station of the Bellary-Kistna State Railway.

ENCLOSURE No. 3.

APPENDIX C, showing how a locality slightly removed from one notoriously malarious may be healthy with special reference to Ravipad.

The inquiry of which the abridged results are given in the annexed table has afforded me the opportunity for observing the special conditions under which malaria is developed. As a result I have nothing new to relate; the conditions found simply exemplify in a marked manner the views that have been accepted by sanitarians in recent years. The poison is undertsood to be a special micro-organism—the bacillus malaria—whose life and increase depend upon various conditions of the soil of heat, moisture, organic matter, presence of oxygen, &c., points which necessarily tend to produce results differing with the conditions of the soil and sub-soil, surface and sub-soil water, climate, &c. *Certain soils evidently do not contain the special poison at all.* I mention these facts because the existence of enormous tracts of irrigation near towns in Southern India that remain healthy has induced some authorities to doubt the connection between paddy cultivation and the propagation of malaria—amply illustrated in this district. I think there is reason to believe that a very large area of the country to the east of the Nallamalais contains this special poison. Local conditions favoring the growth of the micro-organisms will, therefore, account for certain villages being more malarious than others. Thus in the common formation found in the Cumbum taluk of hills so precipitous and uniform in height as to look like huge walls on either side of narrow valleys, it may be expected that, irrespective of obstruction to drainage caused by irrigation, the natural outlet and parts near the foot of hills would be most malarious. This effect is seen slightly at Giddalore and Mochagundum and markedly at Tirmulla and Somadevipalli, whilst the healthy condition of Mundlapad within 3½ miles from Giddalore shows the instant amelioration which follows a change of configuration in neighbourhoods within short distances of each other as the crow flies. In such instances the configuration of the country is closely allied to questions of surface drainage and sub-soil water outlet; but where spots such as Cumbum are artificially brought into conditions highly favorable to the production of malaria within a certain area, the run of valleys and shape and height of the hills become factors of importance in estimating the chances of infection of localities slightly removed from the actual centre of poison production. Thus, whilst an elevation of 12 feet might afford a considerable degree of protection in a flat area, 2,000 feet might not do so if a ravine led from the lower site towards the height suggested and possessed a formation that would direct currents of air upwards. This argument would apply to all forms of slopes and a consideration of whether a spot is likely to be safe or not must be made in connection with the knowledge of not only the direction of prevalent winds but of the probable effect of local currents that may be given rise to by the striking of various configuration by wind at certain angles. Now, in a report of this sort, this discussion of details may be regarded as waste of time and paper. But I think it is better that they should be entered into, even at the risk suggested, rather than that a bare "opinion" should be given unsupported by reasons. Granting then the above arguments to be correct, it becomes an easy matter for me to show why, should it be necessary to build near Cumbum, I would select the neighbourhood of Ravipad.

I find that although Cumbum may be regarded as uninhabitable by human beings, its immediate surroundings are healthy, except where the configuration permits of aerial currents transporting malaria to them from this point of production—the Cumbum valley. Thus Malakonda and Bestwaripet at opposite ends of the Cumbum valley, and having probably the same elevation above the town level, are almost as unhealthy as Cumbum for the reason that, in the former case, malaria-laden air is concentrated by the peculiar formation of the valley and wall-like hill direct upon the town, and in the latter that the same effect is produced by the narrowing of hills giving the appearance of a funnel with the broad end directed towards Cumbum. Papayapalli, which is within 1,000 yards of unhealthy Bestwaripet, is protected from the valley described as causing mischief to it by the intervention of the wall-like hill mentioned. The Papayapalli people

suffer from fever and are anæmic—facts showing that they are under the influence of malaria—but not to an extent to cause more than 4 per cent. of "enlargement of the spleen," which is not much above the usual standard of the Cumbum taluk, viz., 2 per cent against 39·2 per cent. of Bestwaripet! A gradually ascending slope leads air from the Cumbum valley upon Chedda Cherla, and a ravine and vagu do the same to Collugotla, producing the same typical effect on the people as found at Papayapalli. To my mind this state of affairs points to the fact that the degree of concentration of poison in which it reaches the system in the case of malaria has a vast deal to do with the type of fever and consequent effect upon the constitution of the recipient, as contrasted with infinitesimal amounts of the respective poisons which seem capable of producing full specific symptoms in such diseases as anthrax, small-pox, &c.

But it may be argued, from the information given in the table, that the true explanation of the state of health of the Bestwaripet villagers, as contrasted with those of Papayapalli. is that whereas the former drink the water of the Oopoo Vagu (an off-set of the Cumbum tank, the water of which is notoriously contaminated by rotting indigo plants, &c) the latter drink well water of a good class. But against this has to be balanced the fact that the people of Ravipad use by preference, although their well water is good, the filthy water of the Gundlakamma derived from the tank *after* it has received the drainage of the town of Cumbum and of its well manured fields and the Oopoo vagu itself, and that the inhabitants of Malakonda at the other end of the valley drink well water exclusively.

That the inhabitants of Ravipad are healthy therefore is readily explained when the protection afforded them by configuration is taken into consideration; and, in view of the remarks already passed on this subject, a reference to the attached diagram will bear out this statement, attention being specially given to the direction of the north-east and south-west monsoons—see the red arrows.

ENCLOSURE No. 4.—Plan.

ENCLOSURE No. 5.—Plan.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3766:—

I have the honor to submit the report called for in paragraph 2 of Resolution of 23rd April last, No. 373.

2. The report of the District Medical and Sanitary officer, and a rough estimate of cost of buildings, &c., furnished by the Executive Engineer, form enclosures.

3. It appears to me that on the main grounds of sanitation and economy the suggestion to change the head-quarters of this district from Kurnool to Nandyál is quite impracticable.

4. A perusal of Dr. King's paper will show that, as a health measure, the move would be "from the frying pan into the fire," whilst a glance at the fiscal liability involved indicates this to be prohibitive. I do not pretend to say that the estimates are accurate, or incapable of modification, but they are sufficiently illustrative of the fact that a degree of expenditure, which I do not suppose under present financial circumstances would be entertained for a moment, would be inevitable.

5. Further in a political point of view I consider the change would be unwise. Owing to its situation as regards the Hyderabad frontier it is most expedient that the chief seat of the administration and the location of the police reserve should be at Kurnool.

6. I presume that the non-central position of Kurnool for district administrative purposes, and the establishment of rail communication with Nandyál, have been the chief considerations that evoked this proposition. Both Kurnool's disadvantage and Nandyál's advantage in this respect, however, are capable of considerable modification if the scheme, which is on foot, of connecting the former with the railway at Dhone, is approved and carried into operation.

ENCLOSURE No. 1.

REPORT on the sanitary aspects of the proposed transfer of the District Head-quarters of Kurnool to Nandyál, by Surgeon-Major W. G. KING, M.B., D.P.H., District Medical and Sanitary Officer, dated Panem, 18th December 1888.

The town of Nandyál is situated in a hollow, representing the natural drainage outlet of a considerable valley towards the river Konnair. By intercepting the surface drainage, a large tank has been formed, under which an extensive tract is irrigated. The Kurnool-Cuddapah canal runs along a ridge in a north-easterly direction, approaching the town diagonally from 3½ to within 1½ miles at its nearest point.

The soil of the town was originally, judging by its surroundings, red gravel, but having been contaminated for centuries by the accumulation of human and animal excreta—there being no better method of conservancy employed than the use of that organic "refuse destructor" commonly known as the buffalo—its general appearance is that of a rich black mud. The District Board, recognizing the urgent necessity there exists for improvement, have in execution a complete scheme for the drainage and conservancy of the town, to be followed by the introduction of a public water-supply.

The sub-soil stratum of seven feet is of Nandyál shale.

The level of the sub-soil water fluctuates with the condition as to water retention of the fields under irrigation in the neighbourhood, and is at all points within six or seven feet of the surface.

The annexed chart No. 1, compiled from hospital statistics at Nandyál, shows that from 30·24 per cent. to 51·30 per cent. of the total cases treated are for malarial fever. The type of this fever is severe, the remittent form being common.

It is well known that it is most difficult to persuade natives to leave their villages on sanitary grounds, but the Dairds who lived in a part of the town in close proximity to wet cultivation have, of their own accord, left Nandyál, preferring to abandon their buildings and paying an assessment to gradual extension; whilst the Madigas have petitioned, for a like cause, that they may be allowed to leave their irrigated lands for a less profitable but dry site in the neighbourhood.

The village statistics show a birth-rate of but 14·62 per mille, pointing to the fact that, as usual in malarious localities, fecundity is injuriously affected, allowing an average decrease of the population of 107·72 per annum; but as the birth details show an absurd disproportion of sexes it is probable the data are not correctly gathered. Still there is room for belief in this decrease of the population to a certain extent, because the census period of 1871—1881 shows a decline (a calculation from which, however, the disturbing influence of the famine years cannot be eliminated) and because it is not probable, seeing the average birth-rate of the district is as much as 46 per mille, that a result so seriously at variance with this figure could be recorded without the incidence of some more definite and constant cause than spasmodically conducted and careless registration.

Taking into consideration the above facts, it will be seen that Nandyál town is not a fit place sanitarily for the residence of the head-quarter staff of the district.

Contrast of the sanitary condition of Kurnool with that of Nandyál.—In making a contrast of Kurnool, the present head-quarters, with Nandyál, it must be remembered that the former has for many years been under Municipal rule, and that therefore registration of births and deaths is carried out with far greater care than is likely to be the case in the village of Nandyál, where the duty falls to the Reddi and carnam. Such statistics only being available for Nandyál, they cannot be accepted unreservedly, and the truth must be, as far as possible, approached by the use of collateral evidence. Now, the average death-rate of Kurnool is 30·7 per mille, and the birth-rate 34·6 per mille. Here at once it might be argued that, whilst fecundity is affected by malaria in Nandyál, it is not so to such a marked extent in Kurnool, both being malarious localities.

Again, whilst 897·5 per mille of total deaths in Nandyál is due to fever, the rate is but 547·5 in Kurnool, the remaining deaths being due to "other causes" and "bowel-complaints," &c.

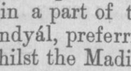
Although this is not borne out by statistics collected by the Municipality (where diagnosis cannot be exact), Kurnool hospital statistics show that the percentage to total admissions for fever has steadily and consistently declined from year to year since 1880, the date of abolition of wet cultivation; whereas, on introduction of the canal and wet cultivation, the rate ran up *at once* double that formerly found, and *remained* without decline and, indeed, with frequent increase, till the year 1880.

In Kurnool deaths from "bowel-complaints" and "other causes" are, to the best of my judgment, due entirely to the evil water-supply of the place, as well as the remaining ratio of malarial fever; indeed, what irrigation did for the surroundings of Kurnool, the leaky water channels still continue to do for the town site. The position therefore is this:—The main cause of the death-rate at Nandyál is malarial fever, due to the condition of the site and surroundings following

wet cultivation, and, at Kurnool, phthisis, scrofula, rheumatism, bronchitis, pneumonia, &c., or, in short, "other causes" generally described as aided in incidence by impure and damp soils. Now the incidence of the latter diseases would, irrespective of the decline of malaria that might be confidently expected, undoubtedly be very greatly reduced by the improvement of the condition of the sub-soil of dwellings that would follow the abolition of the erroneous drainage and water-supply systems of Kurnool, especially, if the latter be so managed that the water be offered to the inhabitants without their being called upon to attempt the assimulation of mud at the rate of at least 1 lb. per adult per annum as at present.

To abolish wet cultivation at Nandyál *in toto* would be to ruin the town financially; and yet, without this effort, notwithstanding the improvement of general health and decrease of death under "other causes" that may be expected from the introduction of drainage and conservancy, the town must remain subject to malaria. In the case, then, of Kurnool malarial fever may be practically abolished at a comparatively small expenditure made once and for all, and the deaths due from "other causes" being reduced, the total mortality will sink to a ratio consistent simply with its evil position; whereas at Nandyál the chief cause of mortality cannot be expected to decline markedly, without the taking of a step that would imply a great and annually recurring loss of revenue, although, as pointed out elsewhere, amelioration would doubtless follow the abolition of that portion of the wet cultivation area included in the fort ditch.

As to a possible site in the neighbourhood of Nandyál.—But, granting the foregoing deductions to be correct, the question would remain (1) as to whether a suitable site could not be obtained near the town and railway that would satisfy sanitary requirements, and (2) whether, if quarters were erected for officials at such a spot, the proximity of wet cultivation need be considered.

In the report submitted a few days back as to the selection of head quarters of the Cumbum taluk, I have dilated at length upon the influence of ground conformation in connection with the selection of sites near areas under wet cultivation in malarious tracts, and, by reference to this, I may spare the reader a similar infliction here. If regard be had to the views expressed in the appendix of that report, the best position for house sites must be at the top of the ridge marked  in the accompanying sketch-map. This theoretical selection is borne out by practical inquiry. The area from A to B is now covered with dwellings of employés of the Bellary-Kistna State Railway proceeding from Noonapully towards the Punjabee village near Moolasagaram, I found that, as I progressed, the number of attacks of fever recorded decreased *pari passu* An analysis of results obtained in this inquiry will be found in the accompanying table. The fact then of persons inhabiting the area near the Noonapully village being more subject to fever than near Moolasagaram is explainable by the configuration at this special point permitting malaria-laden air to reach it, together with the influence of actual proximity of wet cultivation.

Water-supply on the site suggested.—Whilst then the site marked on the sketch-map may prove sufficiently habitable for the purpose required, the question of water-supply presents a difficulty that cannot be overcome, except at heavy expenditure. The water obtainable from wells along the whole tract is "bad." That of special wells sunk by the Bellary-Kistna State Railway has been analysed by the Chemical Examiner, and, as will be seen on the report attached, is described as "bad." Deep wells might offer an alternative, when a supply similar to that obtained at Nandyál might be struck; but, as the sub-soil of Nandyál is probably but the filtrate from paddy fields, an equally *soft* variety might not be procured after the expense of boring through rock. The river is a possible source; but to obtain the water in fair purity a distance of 2½ miles would have to be traversed so as to ensure the supply being taken above the spot where the Nandyál drainage enters. If this source were employed, it would be necessary to use pumping machinery. Another method suggests itself, namely, by pumping from the Nandyál tank 1½ miles distant; or, a supply could be obtained from the canal by gravitation after deposition and filtration. The line of piping in the latter case would be a mile-and-a-half long; and, as the canal contains no water below Kurnool for three months in the year, this source could not be employed without the adjunct of a large storage reservoir. Pumping from the river, or canal, must therefore be resorted to, and either scheme would add considerably to the necessary expense of offices and dwellings.

I may here state that during the first period of the occupation of the site by the Bellary-Kistna State Railway drinking water was carted from the position indicated above in the river Konnair at a cost of about Rs. 300 monthly. Since the laying down of the rails, all water is brought by train from a distance of 10½ miles, and even this water is pronounced by the Chemical Examiner as "suspicious."

Opinion.—I would therefore state it as my opinion that whilst the site shown in the annexed sketch may be regarded as habitable for both Europeans and Natives, its proximity to an unhealthy town is a decided sanitary disadvantage, unless Government were prepared to build houses for *all* subordinates, and that the introduction of a trustworthy public water-supply system, which would be a necessary adjunct, would render its occupation expensive. Kurnool, undoubtedly, occupies a most unfortunate position for administrative purposes, but this condition could be ameliorated by the extension of the railway at probably less expense than by the shifting of

head-quarters; whilst a pure water-supply, introduced on reasonable principles, would secure a healthy condition of both district officials and town population alike.

Yet, if with reference to the proposed re-arrangements of districts it at any time became absolutely necessary to desert Kurnool, I would point out that there is a site near the railway station of Panem, ten miles from Nandyál, which would fulfil admirably all sanitary requirements. Good water could also be introduced in pipes by gravitation from a perennial stream at present emptying itself in the village tank.

ENCLOSURE No. 2.

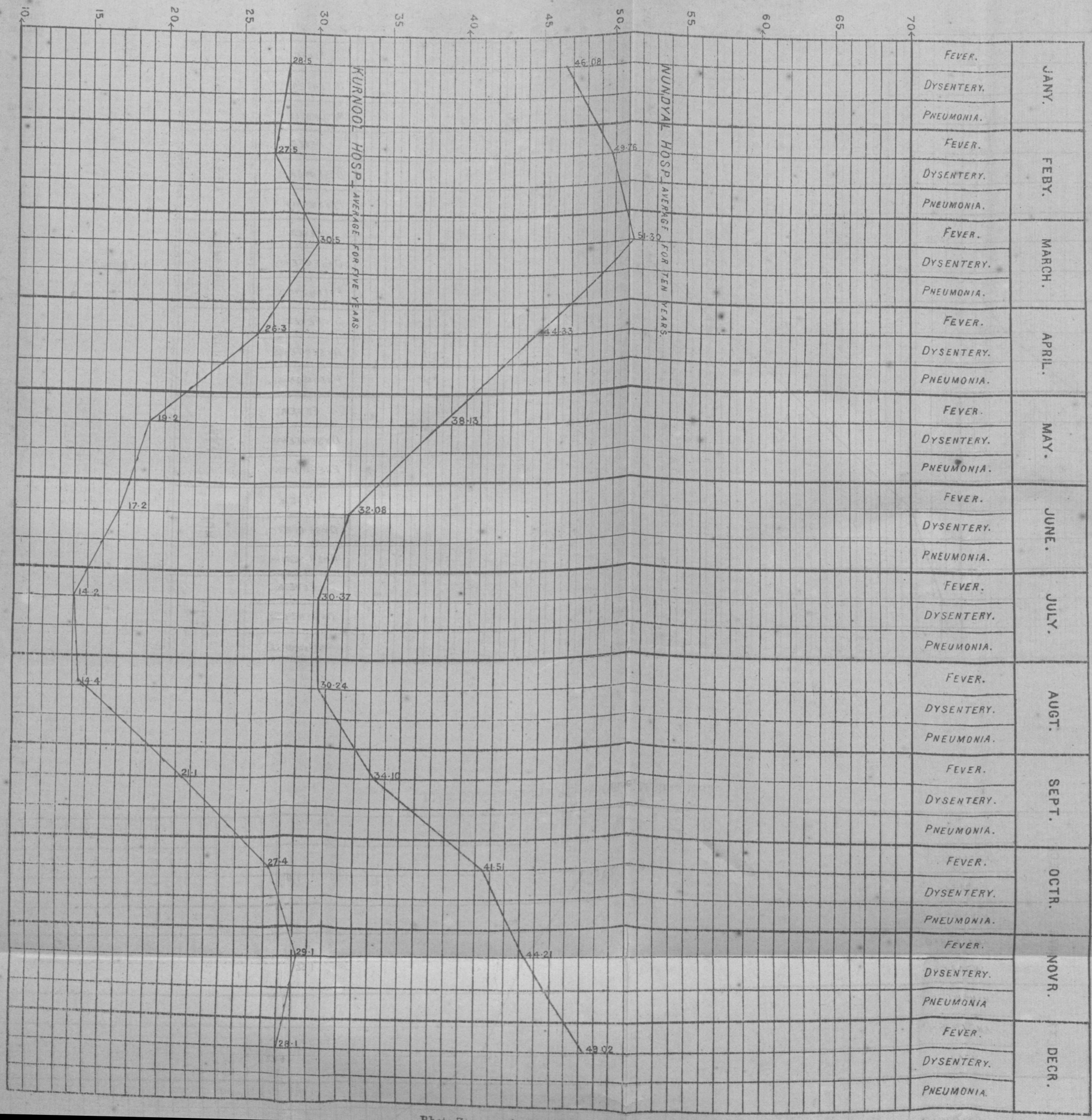
TABLE showing the incidence of Malarial Fever upon Residents on the tract marked A B on the Sketch-map.

Number of observations.	Duration of residence.	Average number of attacks per head.
10	Three months and under	·6
8	Over three months up to six ...	·5
15	Six months up to one year ...	·6
11	Up to two years	·72
4	„ three „	·75
6	„ four „	·83
5	„ five „	·6

ENCLOSURE No. 3.—Chart.



Chart showing the percentage of cases of Fever to total admissions for all causes in the hospitals of Kurnool and Nundyal.



ENCLOSURES NOS. 4 AND 5.—Memorials.

READ—the following letter from C. KOUGH, Esq., Collector of Kurnool, to the Secretary to the Commissioners of Land Revenue, dated Kurnool, 20th December 1888, No. 3768 :—

I have the honor to report as to a proposed site for the location of the Deputy Collector, Cumbum Division.

2. In this connection I would refer to my letter No. 3739 of the 19th current and state that, in my opinion, if a Deputy Collector is to remain in charge of this portion of the district his head-quarters should be coincident with those of the principal taluk (Cumbum), and that he should therefore be located at whichever of the two places recommended in that letter is ultimately decided upon.

3. But it has occurred to me, with reference to the propositions as to this and other changes in this district, that it would probably be well to do away with Cumbum as a Deputy Collector's division.

4. The Board will, I think, agree with me that, in a district like this, it is desirable that the Collector should have the benefit of at least one European Assistant. The opening of the railway through Nandyál, its central position, and the almost absolute necessity there for an officer who can exercise the functions of a Justice of the Peace, indicate that the location of such an Assistant should be at Nandyál.

5. Would it not be therefore feasible, instead of a Head Assistant as now, to place a Sub-Collector at Nandyál and to make his charge comprise the taluks of the present Deputy of Cumbum (Márkápur and Cumbum) with Nandyál, Sirvél being added to the General Charge Deputy of Pyápali, or if the Board do not think that it would be too much left with the Sub-Collector.

6. If the Board and Government are inclined to think favorably of my suggestion, and I would strongly commend it, it might be considered how this scheme could be carried out with as little as possible, if any, additional cost.

7. There would, to begin with, be a Deputy and Head Assistant less in the district as against a Sub-Collector, and the dwelling-house and office at Nandyál being already sanctioned provision on this head would entail nothing extra, whilst there would be saved the building of a house and office for a Deputy Collector of Cumbum division. I append a comparative statement which shows my proposition would involve under Rs. 100 extra expenditure on the district.

ENCLOSURE No. 1.

SUB-COLLECTOR'S ESTABLISHMENT.		HEAD ASSISTANT'S ESTABLISHMENT.		DEPUTY COLLECTOR'S ESTABLISHMENT WITH LAST CLASS PAY.		DEPUTY COLLECTOR'S ESTABLISHMENT WITH AVERAGE PAY.	
—	Pay.	—	Pay.	—	Pay.	—	Pay.
	RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
Sub-Collector.	1,166 10 8	Head Assistant Collector ..	768 5 4	Deputy Collector ..	250 0 0	Average pay of Deputy Collector ..	458 0 0
Head Clerk ..	85 0 0	Head Clerk ..	70 0 0	Head Clerk ..	45 0 0	Head Clerk ..	45 0 0
2nd ,, ..	50 0 0	2nd ,, ..	45 0 0	2nd ,, ..	20 0 0	2nd ,, ..	20 0 0
3rd ,, ..	40 0 0	3rd ,, ..	35 0 0	3rd ,, ..	15 0 0	3rd ,, ..	15 0 0
4th ,, ..	25 0 0	4th ,, ..	20 0 0	4th ,, ..	15 0 0	4th ,, ..	15 0 0
5th ,, ..	20 0 0	5th ,, ..	15 0 0	Attender ..	8 0 0	Attender ..	8 0 0
6th ,, ..	20 0 0	Muchi ..	10 0 0	Three peons ..	21 0 0	Three peons ..	21 0 0
7th ,, ..	15 0 0	Attender ..	8 0 0	Masalchi ..	6 0 0	Masalchi ..	6 0 0
Muchi ..	10 0 0	Head peon ..	8 0 0				
Attender ..	8 0 0	Four peons ..	28 0 0				
Duffadar ..	10 0 0	Masalchi ..	6 0 0				
Six peons ..	42 0 0						
Masalchi ..	6 0 0						
Sweeper ..	6 0 0						
Total ..	1,503 10 8	Total ..	1,013 5 4	Total ..	380 0 0	Total ..	588 0 0

READ—the following letter from Surgeon-Major W. G. KING, M.B., C.M., D.P.H., District Medical and Sanitary Officer, Kurnool, to the Collector of Kurnool, dated Chintakunta, 31st December 1888.

With reference to the postscript of my letter No. 780 of the 16th December I have the honor to forward herewith the report alluded to.

Endorsement by C. KOUGH, Esq., Collector of Kurnool, dated Kurnool, 16th January 1889, No. 104.

Copy submitted to the Board of Revenue in continuation of report No. 3768, dated 20th ultimo. The undersigned still sees no necessity for modifying his view that the Divisional officers' and Taluk Tasildars' offices may be in the same locality, *i.e.*, if his other recommendations as to change of administrative charges are not considered favorably.

ENCLOSURE No. 1.

REPORT by Surgeon-Major W. G. KING, M.B., District Medical and Sanitary Officer, dated 14th December 1888.

Divisional Head-quarters.—There can, in view of the existence of a nearly completed railway line through the Cumbum taluk to Márkápur, be no reason why a Divisional officer should be required to make the existence of irrigation under the Cumbum tank a cause for his living in that unhealthy neighbourhood. As far as it is permitted for a medical officer to understand these matters, I believe that complaints as to water-supply are attended to in the first place by a Third-class Magistrate. Further, whilst being within the Márkápur taluk as far as accessible by rail, the Cumbum taluk is commanded from it by this means. In consideration of these facts, it seems to me reasonable to assume that so important a town as Márkápur would prove suitable, if nothing could be said against it sanitarily.

Now Márkápur is the sanitarium of Cumbum. The rich of Ctmbum go to this place for change of air. This at least shows that it is popularly regarded as a healthy locality. A description of the town will be found in the annexed memorandum. The annual death-rate is 17·79 per mille, and the birth-rate is 35·54 per mille. Hospital statistics show that but 5 to 10 per cent. (according to season) of the total admissions from the town are treated for fever.

The presence of paddy irrigation therefore does not seem to exercise any markedly appreciable ill-effect upon the people. The sub-soil of the town is evidently not influenced by this condition, there being a sharply cut and broad nullah between the tank and the town, which is situated on elevated ground. The fields have a fall from the town down a valley that is open, and consequently not subject to air stagnation. The sub-soil is a permeable gravel, and is usually of considerable depth. These conditions present a striking contrast to those found in Cumbum, and it is consequently easily conceivable that the process should in the one case be conducted with safety, and in the other with the utmost danger to health.

Nevertheless, I am not disposed to ignore the effect of an atmosphere constantly laden with moisture, and the air-borne products of a soil well manured and retained in a marshy condition; therefore, in selecting a site for the dwellings of a Divisional officer, these facts should be taken into account.

After careful inspection of the surrounding country, I am of opinion that the ridge at the 169th mile of the Bellary-Kistna State Railway is that which would best fulfil sanitary requirements. Half a mile from this is the site of future railway station of Márkápur, and a further half mile distant are the buildings of the Bellary-Kistna State Railway staff. The village of Koodaravapalle is within 600 yards of the site; it is thoroughly healthy. The water derived from wells at this village I analysed on behalf of the Bellary-Kistna State Railway last year, and found to be the softest between this and Yerrapollium, Nellore district. Similar water would, in all human probability, be obtained at the edge of the dip below the ridge. Good water has also been procured on well digging by the Bellary-Kistna State Railway at the Márkápur Railway station, which, as stated above, is half a mile distant.

The present road to Márkápur is that used by the villagers of Venkatapuram, and is about two-and-half miles long; but if a road were made direct to Márkápur from the site suggested, it would be but one-and-a-half miles long. (Such a road should, in any case, be formed for communication with Márkápur and the rail-road.) The site is 400 yards outside the Kurnool district, and is in the territory of the Rajah of Venkatagiri in the district of Nellore. But as ground, in any case, would have to be purchased for building purposes, I presume the latter point matters little, and the first can be overcome by a *Fort St. George Gazette* notification that the 400 yards is to be regarded as within the Kurnool district. Indeed, it would be

advisable, if I may be permitted to depart slightly from the professional aspects of the case, that the railway station and the neighbouring villages of Venkatapurum and Koodaravapalle should be included in the Kurnool district with reference to convenience of magisterial administration. In the event of any disturbance or accident at the railway station, the nearest Magistrate within the Nellore district would have to be sought for at a village twenty-six miles distant.

I would suggest not only that the dwelling and office of the Divisional officer, but that the Munsif's Court and the Cutcherry of the Márkápur Tahsildar be situated here.

I see no reason why the site should be nearer the town and further from the railway; but if such reason exist, an inferior but fairly suitable site might be obtained in field No. 244.—Márkápur village map—about 1,000 yards to the south-west corner of the tank. This position is elevated above the level of the tank, and is at the head of the water shed.

DESCRIPTION OF VILLAGE.

Name of village.—Márkápur.

Nature of soil.—Red gravel of very various depths.

Nature of sub-soil.—Martzites.

Configuration of the sit and its surroundings.—At the head of a valley under irrigation to the extent of 500 acres, and within half a mile of a large tank. The town is separated from the tank which is on a higher level by a deep and sharply cut ravine having a rapid fall. This ravine contains flowing water as long as there is a supply in the tank.

Range of fluctuation of sub-soil water.—From 6 to 4 feet in the neighbourhood of the ravine, and from 32 to 25 feet within the town site.

Character of water and natnre of source.—From wells; the character of the water is good.

Physical conditions of inhabitants especially as judged by the "Spleen test."—The inhabitants are healthy. Fever is not unknown, but is of the mild type. 2 per cent. only of splenic enlargement was found. Four cases of enlarged spleen were also shown, of which the history pointed to their being undoubtedly of Cumbum origin. The hospital returns give but 5 to 10 per cent. of attendance of total cases treated of inhabitants as for malarial fevers. The Madigas of this village struck me as physically a fine healthy set of fellows. Death-rate per mille 17·79 per mille and birth-rate 38·54.

Nature of intercommunications.—Within two-and-a-half miles of the railway station for Márkápur, and one-and-a-half miles by a route suggested in the accompanying report.

Resolution—dated 23rd March 1889, No. 218.

The above papers deal with the selection of new head-quarters for the division and taluk of Cumbum and the question of the transfer of the taluk of Vinukonda to Kurnool and the removal of the head-quarters of that district to Nandyál. They are submitted to Government for orders.

2. Dr. King suggests one of three places as suitable for the head-quarters of the taluk and division of Cumbum. The Board do not think it necessary or expedient that a small portion of the Nellore district, which forms part of the Venkatagiri zemindari, should be transferred to Kurnool in order that the Cumbum Divisional officer should live there, and of the other two places mentioned by Dr. King the Board prefer Mundlapad. Ravipad is too close to Cumbum to be safe. The Board do not approve of the suggestion that a Sub-Collector's division should be formed of the taluks of Nandyál, Cumbum and Márkápur. The arrangement would not guarantee that the Collector of Kurnool should always have a European Divisional officer, which appears to be Mr. Kough's desire. It does not seem necessary to make the change.

3. As regards the suggested transfer of Vinukonda to Kurnool, the Board consider that the Collectors of the two districts concerned have given conclusive reasons against the transfer. The transfer would give but little relief to the Collector of Kistna, and would be very inconvenient in many respects. It could not be well carried out as long as the Kurnool district head-quarters remain at Kurnool and the Collector of Kurnool has shown very conclusively that the expense and inconvenience which would result from moving the district head-quarters render that change very undesirable. Nandyál is likely to prove quite as unhealthy as Kurnool, and in some respects the

latter town is very well suited to be head-quarters of the district. Its position on the frontier is an advantage. The Board, after a careful consideration of all the papers, recommend to Government that the head-quarters of the Cumbum taluk and division be moved to Mundlapad, but that no further administrative change be made.

4. The Board are much obliged to Dr. King for the thorough manner in which he has dealt with the sanitary questions involved in the proposals.

(True Copies and Extract.)

(Signed) M. HAMMICK,
Secretary.

To the Secretary to Government, Revenue Department,
with one plan in G.R. No. 4261 of 1888, two in
G.R. No. 4295, one statement and two memorials
in G.R. No. 4295 of 1888, to be returned.

Copy to the Collector of Kurnool.
" " " of Kistna.
" to Dr. King, District Medical and Sanitary Officer, Kurnool.

ORDER—dated 29th June 1889, No. 542, Revenue.

Miscellaneous.

The recommendation of the Board of Revenue in paragraph 3 is accepted.

(True Extract.)

Secretary to Government.

To the Commissioners of Land Revenue, with six enclosures.
" the Judicial Department.
" the Local and Municipal Department.
" the Public Works Department.
Copy to the Public Department.

Exd. A. D. Xavier.

70 Copies.

P.W. Con. 7384

Govt. of {1889} Madras.

REVENUE.

O.S.C

No 2200 W dft. 14th August 1889

B

Issued

Recd. 5-8-89. Encl.

12-8-89

G.O., 29th June 1889, No. 542.

SECRETARY TO GOVERNMENT
-5 AUG. 89
P.W. DEPARTMENT, MADRAS.

JUNE.

Communicated to the Suptg: Engr III Circle

Recd 5-8-89

S. Engr III Circle

S.E. III Circle Recd 14/8

2 Abstracts to rdy

Dy Engr

Head-quarters of Cumbum taluk and division, Kurnool district.

Board's recommendation that the — be located at Mundlapad and that no further administrative change be made, sanctioned.

Ag. S. 670

F 17/8- 17/8

MILITARY DEPARTMENT, 18TH JULY 1889, No. 4747.

GOVERNMENT OF MADRAS.

MILITARY DEPARTMENT.

Ordnance Department—Establishments.

Read the following :—

No. 230. *Extract of a Military Letter from the Right Honorable the Secretary of State for India; dated 28th March 1889, No. 64.*

Para. 2. With reference to para. 1 of Lord Kimberley's Despatch No. 168, dated 23rd June 1885, forwarding a memorandum by the Director-General of Stores regarding the employment in his department of pensioned warrant officers, I desire to point out that difficulty and inconvenience have resulted from the too sanguine expectations raised by the promulgation in India of the memorandum in question in the Military Department Resolution No. 4599, dated 26th August 1885.

On two occasions since that date there has been a vacancy at the Store Depôt for a Supervisor, 2nd Grade, which it was thought might be filled with advantage by the appointment of a Conductor, but in both cases it was deemed better to refer direct to your Government in view to obtaining a suitable man with certain prescribed qualifications from a wider field of choice than could be afforded by the retired list of warrant officers.

In these circumstances and to avoid further disappointment to possible applicants, it may be thought desirable by your Government that the Resolution above referred to should be withdrawn.

No. 2609-D.

Ordnance Department—Establishments.

Copy forwarded to the Secretary to the Government of Madras, Military Department, for the information of the Governor in Council. Military Department No. 1091-A, dated the 13th August 1885, is cancelled.

* * * * *

(By Order.)

(Signed) T. DEANE,
Dy. Secy. to the Govt. of India.

SIMLA,
25*th June* 1889.

No. 231. ORDER THEREON, 18th July 1889, No. 4747.

Communicated to His Excellency the Commander-in-Chief and departments concerned with reference to Proceedings of Government, No. 4779, dated 31st August 1885, which is hereby cancelled.

(True Extract.)

(Signed) A. KENNEY-HERBERT, Brigdr.-Genl.,
Secretary to Government.

To the Quarter Master General.
" Public Works Department.
" Commissary-General.

Exd. E. C. Shunker.

Govt. of {1889} Madras.

MILITARY.

To THE QUARTER MASTER GENERAL,
&c., &c., &c.

Dated July, 18*th*.

Issued

Recd. *Encl.*

G.O., 18th July 1889, No. 4747.

JULY.
Nos. 230-231.

Ordnance Department—Establishments.

Pensioned Warrant Officers of the Indian Service.—Resolution of the Government of India (Military Department) No. 4599, dated 26th August 1885, regarding the employment of — in the department of the Director of Stores at the India Office, directed to be cancelled.

MILY DEPT
RECD

To be returned to Military dept Bof

GOVERNMENT OF MADRAS.

MILITARY DEPARTMENT.

August 1885, No. .

Warrant Officers.

Read the following:—

No. 1091.

No. . *OFFICE MEMORANDUM.*

Warrant Officers.

The undersigned is directed to forward the accompanying extract from a despatch * from the Right Honorable the Secretary of State for India on the subject of the employment of Pensioned Warrant Officers of the Indian service in the Department of the Director of Stores at the India Office.

* No. 168, dated 23rd June 1885, para. 1, and enclosure.

2. The proposal made by the Director of Stores may be made known to the Warrant Officers of the $\frac{\text{Public Works}}{\text{Ordnance}}{\text{Commissariat}}{\text{Military Works}}$ Department; and hereafter should a Warrant Officer, on transfer to the Pension Establishment, be desirous of obtaining employment of the kind offered, he should be furnished by the Head of his Department with the statement specified in the memorandum from the Director of Stores.

SIMLA, (Signed) G. CHESNEY,
13*th August* 1885. *Secy. to the Govt. of India.*

Extract of a Military letter from the Secretary of State for India, to the Government of India; dated India Office, London, 23rd June 1885, No. 168.

Para. 1. I forward herewith, for such action as your Government may approve, a copy of a memorandum by the Director-General of Stores on the subject of employment in his Department for Pensioned Warrant Officers of the Indian service. The memorandum was written on the occasion of an application received from Conductor D. Clements, recently retired from the Bombay Establishment.

Minute by the Director-General of Stores, India Office; dated London, 6th May 1885.

There is no probability at present of any employment being available in the Stores Department for men of this class.

But if, when such men are sent home from India on retirement, an authoritative statement of their special qualifications, character, &c., could be obtained from India, I should be very glad to note their names and to bear them in mind in case of future vacancies in such appointments as they might be fitted for.

No. 1091-A.

Copy forwarded to the Secretary to the Government of Madras, Military Department.

* * * * *

(By Order.)

SIMLA,
13*th August* 1885.

(Signed) A. CROOKSHANK, Colonel,
Dy. Secy. to the Govt. of India.

No. . ORDER THEREON, August 1885, No. .

Communicated for the information of the Provincial Commander-in-Chief, the Public Works Department and the Commissary-General.

(True Extract.)

(Signed) A. KENNEY-HERBERT, Lt.-Col.,
Offg. Secretary to Government.

To the Quarter Master General.
" Public Works Department.
" Commissary-General.

Exd. E. C. Shunker.

P. W. D.

Govt. of {1885} Madras.

MILITARY.

To

THE QUARTER MASTER GENERAL,
&c., &c., &c.

No. 2076-way. 5 Septr/85

Communicated to Public Engrs for the information & Warrant Officers of the P. W. Dept.

S of J. S. S.

Dated August,

Issued

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Warrant Officers.

Correspondence regarding the employment of Pensioned Warrant Officers of the Indian service in the Department of the Director of Stores at the India Office, communicated to Departments concerned.

Sept Engrs
S. E. D. M. Scheme
A. Govt.

Withdrawn

Only -