

THE DELUSION ABOUT THE BEST MEANS OF TRANSIT
IN INDIA.

But this loss is nothing to the terrible mischief of the delusion which they have caused about transit, the authorities and the public both dreaming that they provided the country with effective transit, when Lord Mayo, the Lieutenant-Governor of Bengal, and Mr. Leslie, all declare that they have so failed that it is now necessary to cut canals by their side, and the latter showing by plain figures that the loss is of millions, even within one hundred and thirty miles of Calcutta. Further, we have continually such statements as the following in corroboration of these statements, viz. :—from a late Calcutta paper, "In the Resolution on the Burdwan report, there is the statement that the Midnapur canals carried no less than eighty thousand tons of rice during 1876-77. Side by side with this is the statement that the railway failed entirely to take off the supplies brought to its stations, great quantities having to be carted down to Calcutta by road. Here are two of the navigable canals carrying even under unfavourable circumstances all the vast supplies brought to them for transport to the famine-stricken districts. Here is the chief railway of India, close under the eye of the highest authorities, collapsing under the strain put upon its carrying power." This is only one of multitudes of similar statements, made by fervent supporters of railways, as to the utter failure to carry even the insignificant quantities that are brought to them under the present prohibitory charges. In 1850, when the railways were under consideration, not a word of this was allowed to be heard. This really *rash and wild* undertaking, of spending £160,000,000 upon railways was entered upon without the slightest enquiry, though the actual state of things, as represented now by leading railway men, was urged as the certain effects of the railways in 1850. The present Earl of Derby at that time protested against this *wild* scheme. He said in a speech at Manchester that "it seemed to him one of the most practicable



things the Association could attend to, was to give information on these points, the two great things, roads and irrigation. As to roads he was afraid we were in danger of being misled by the example of England. It seemed to be thought that because costly lines of railway were suitable for this country (before a line was constructed we had a complete system of canals suited to our heavy traffic), they were equally suitable to India. He believed, and so did more competent judges, that that system was a *complete mistake*. What was wanted, was, not costly lines for rapid travelling, laid down in a few parts, but a comparatively inexpensive though slow means of communication extended over all India." So, also, a former chief engineer of the East India railway, after they had been tried some years, said to a friend of mine: "But railways are a complete mistake. They are not suited to India." And now that they are done and the money is irrecoverable as well as the time, what possible excuse can be found for continuing to deprive India of this priceless advantage of cheap transit, as urged by the railway men themselves?¹

NAVIGATION CONNECTING LINKS.

But there is, now, another special reason for expending money in this way, which is, that in the different irrigation works, there are, in detached tracts, so many thousand miles of steamboat canal already executed and only wanting short lines to connect them, in order to give effect to ten times the length of those connecting links. Thus on the line between Calcutta and Ludiana, there are already cut, or cutting, the Sirhind, the Ganges, Lower Ganges, and Sone, projects about eight hundred miles, and one hundred miles more are recommended by the Bengal Government, in all nine hundred miles out of a total distance of twelve hundred miles, so that probably a sum of £1,500,000 more would complete this immensely important line, certainly one of the most important that could be found in the world; a very short calculation will show how entirely

¹ See Appendix D.



insignificant such an addition to the expenses incurred in the works now in hand would be, in comparison with the results. The charge for interest and repairs at seven per cent. would be £100,000 a year. It is impossible to say what traffic such a cheap transport, viz. :—one twentieth of a penny a ton a mile,—would create, but we should be quite safe in supposing two million tons on the whole distance, or 2,400,000,000 tons one mile, which would be equal to a charge of one-hundredth of a penny per ton per mile, one shilling for the whole distance, or one-third of a bushel of wheat, for instance. If the cost of carriage were as supposed, one-twentieth of a penny, the charge for bringing a bushel of wheat the whole distance would be three half-pence. Allowing half a crown for the average price there and the same for freight, etc., to London, North-West Provinces wheat could be landed in England for little more than five shillings, while the average price in England is six shillings and sixpence. Thus a vast trade in wheat would be permanently established. This is only a specimen of what could now be attained by a certain outlay on completing the lines of canal already so far in hand. Certainly no money could be laid out in India to greater advantage.

WORKS URGENTLY REQUIRED.

If the various European and Indian testimonies that I have now quoted¹ are carefully considered, I am sure it will be clear that the following are the works that are most urgently required in India to meet its demands both in respect of the famines and its general elevation in material prosperity, viz. :—

1. The repair, enlargement and better supply of the tanks ;
2. Construction of the canal from the Hooghly to the Ganges ;
3. The completion of all the lines of canal now partially executed ;

¹ See Appendices A, B, C, D, E, F.



4. The extension of those lines wherever practicable, especially the completion of the Godavari navigation;
5. The construction of new works of irrigation in every district, where it can be done at a practicable cost.

I must conclude with earnestly requesting a comparison of these works now proposed, especially Mr. Leslie's canal, with those actually in hand at this moment in the way of railways. The sum of half a million is being expended on sixty miles of railway in Nagpur, or nearly £9,000 a mile; the quantity carried on the lines open was twenty thousand tons, the charge fourpence a ton a mile, the actual cost, including loss of interest, sevenpence, and the return last year one per cent., and this on the very line on which a river, the Wurda, could have been made navigable so as to carry at one-tenth of a penny per ton, for £2,000 a mile.

AN APPEAL AND A PATHETIC DEFENCE.

I need hardly repeat my assurance that, after being spoken of in the opprobrious terms that the Under Secretary thought necessary to use, *where he knew that I was not present to give my side of the question*, the Secretary of State will give me the fullest publicity to my defence which the case now admits of.

Whether it was quite becoming, or for the furtherance of the public service, for a young man, who had never been in India, had never seen a tank, an irrigated area, or a mile of steamboat canal, or spoken to a ryot in the irrigated districts, and was consequently, of necessity, very ignorant of the whole subject, to speak before the House and the world in such contemptuous terms of an officer old enough to be his grandfather, who had had more than fifty years of the most thorough practical experience in the matter, who had done good service and shown himself to be a practical man, though he says it himself (for it had pleased God that he should project and execute works that have put millions into the treasury, and scores of



millions into the pockets of the ryots, or rather into their cummerbands) and who had urgently pointed out, twenty-five years ago, what is now declared by a Viceroy, an Indian Lieutenant-Governor and his Council, and several railway engineers, viz.:—that “the railways cannot carry either the *quantities*, or at the *price*, that is essential in India,” whether it was becoming or useful for a young man so to speak, is a point which I beg, respectfully, to offer for the consideration of the Right Hon. the Secretary of State and his Council. The Under Secretary of State may possibly even accomplish something himself yet for India, and he will then think it but just and honourable that he should be accused where he can have an opportunity of answering for himself, and for the two hundred and fifty millions of India. For nothing can be more certain than that in the present case the future of India's millions depends greatly upon whether money is still expended upon Railways, to cost £9,000 a mile and carry thirty thousand tons at one penny, or upon canals to cost from £2,000 to £8,000 and carry two or three million tons at one-twentieth of a penny, and whether districts are to be put into the state of Tanjore, Kistna, and Godavari, or left in the state of the rest of the Carnatic last year, and of Orissa, Behar, and Central India a few years ago.

APPENDIX A.

In '71, Assistant Surgeon Wright was sent to inquire into the cause of the fever which had been bad in that Northern part of the Madras Presidency, and the following are extracts from the Sanitary Commissioner's remarks on that officer's report. “It has seemed to me to be a point of the very greatest importance to determine whether the periodical outbreaks of fever in this district have increased in severity since the Godavari Irrigation Works have been completed.” He then shows that the average loss of life from fever in five years had been eight and a half per cent. in the Irrigated Taluks, and eleven per cent. in the Upper Taluks, and adds, “My conviction is that the accessions of fever are due to the geographical position of the district,” and again,



"the fever is due to the northerly winds sweeping over the malarious jungles of the hill tracts. The results of five years' registration demonstrate in a very clear manner that the intensity of fever in any taluk, has no relation to the extent of Irrigation of the land."

APPENDIX B.

The following extracts from the excellent official *Descriptive and Historical Account of the Godavari District*, by Mr. Henry Morris, of the Madras Civil Service, will place in a striking light the change which Irrigation has made in the district. "A severe famine desolated the Northern Circars (the name by which the Northern districts of Madras are commonly known there), in 1791. The effect of the famine was terrific, it was computed that one-fourth of the population fell victims to want, or emigrated." Again, "but the most calamitous season perhaps that has ever been experienced in the Northern Circars, was that of 1833. The crushing misery that daily came upon the people was appalling; Madras being the seat of Government, thousands repaired there. The great Northern road soon became one long graveyard, etc." Again in 1844, it is said in the same book, "About this time the district had fallen into a state so far below even the then generally sad state of the Northern districts, that Sir Henry Montgomery was deputed as a special Commissioner to report what could be done to raise it from its lamentable state of depression. That experienced officer having come from Tanjore, where he had seen the great results of attention to Irrigation, strongly urged the examination of the Delta by an experienced engineer, with a view to the execution of such a system of works for the regulation of the water, as would effectually lead to the realisation of the wonderful amount of produce, which the large extent of fertile soil might be expected to yield, if it were supplied with water, relieved from floods, and provided with navigation." And he concludes his account with saying, "through all these changes (up to 1846), they passed comparatively unchanged; but their present condition is incomparably better than anything they had ever before enjoyed."

Again, "At the commencement of our rule it constituted a portion of a neglected province, and at one time it was brought into a state of extreme impoverishment and distress. It was desolated by famine, and misgoverned by the numerous land



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owners and their advisers. Since the introduction, however, of the admirable system of Irrigation, it has brightened and revived. Famine is unknown. The people are prosperous and contented. It is the garden of the great Northern Province. The revenue, instead of being reduced, as it once was, to the verge of bankruptcy, is more elastic than it has ever been; its population has more than doubled; the material prosperity of its inhabitants is proved by their being better fed, better clothed, and better educated than formerly; its commerce has flourished, and its trade has developed in a marvellous degree; and it may confidently be asserted that it is in as peaceful, happy and prosperous condition as any part of Her Imperial Majesty's dominions." This is said of a district surrounded by districts overwhelmed by the most desolating famine ever known, to which it was formerly as subject as all the others, but not a word of this must be said in any report or speech about the famine. And the Under Secretary of State actually says that, "In the wet lands the famine had been the worst." Is it possible that words could be uttered more completely perverting the facts of the case? Mr. Morris gives the population in 1842 at 560,000, and by the last census, 1,600,000. The mortality on the average preceding 1872, was under two per cent., and this included the upper feverish taluks. This is pretty strong proof of the healthiness of India, where the water is regulated.

I may take this opportunity of saying a few words on the subject of Revenue management in connection with Irrigation and Navigation, as the matter has been forced upon me in the course of my experience. Of course, even water itself cannot suffice without effective governing. All the water poured over Tanjore and Godavari would not have raised those districts to their present pitch of prosperity unless they had had previously and subsequently able and just rulers. Without this we should undoubtedly have seen there, in great measure, what we now see partially on the Tungabudra and, more fully, in Bengal. Tanjore has been as much favoured in its management as it has in its irrigation. It has had such a succession of able, faithful, and laborious Collectors (as they are so absurdly called still), as I believe no other district of India was ever favoured with. Though the name was a most suitable one when they were first constituted, for the idea of collecting Revenue was the only im-



portant thing in the minds of the East India Directors, I wish the name could be now altered to one more suitable to their present noble functions. Before Tanjore was watered, it had thus been prepared for it, for it was in a thoroughly healthy state of Revenue management, etc. And at the time the great works there were begun, and for thirteen years, there was ruling over the district, a gentleman, Mr. Kindersley, who, I have no doubt, was the ablest and most faithful Collector that I ever met with or ever heard of in India. And this is saying much indeed, for I am quite satisfied that there never has been in this world a body of officials so faithful, laborious, upright and able as the Indian Civil Service, nor anything to compare with it, even in England, though, of course, with some serious defects and some shocking exceptions. It has often been remarked that every civilian who came out of Mr. Kindersley's school, almost without exception, turned out a trump. Especially Sir Henry Montgomery and Mr. Henry Forbes, who both took such prominent parts in the restoration of Godavari. Godavari had been under the withering influence of the zemindari system some years before, for there, as in Bengal, the Government had coolly taken the land away from its real owners, the ryots, and made a present of it to other men, whom they called zemindars, and the consequence of this robbery was the utter ruin of the district. Happily the ruin was so complete that the system ruined itself, and the zemindaries were almost all forfeited. . And the end was that the district was left in such a state, that the Government were compelled to look out for the ablest man they could find, to try if he could remedy matters. Happily they pitched upon Sir Henry Montgomery, late of the India Council, and he found the district fully prepared for him, that is, everything in utter ruin, so that he had only to clear away the rubbish and lay a new foundation entirely, just the very field for such a man. He first laid a solid foundation, in respect of Revenue system, the soundness of which is shown by the state of the district at this moment. All this is admirably described by the editor of the *Description of the District*, just now ready for publication—Mr. Henry Morris. To me this work seems to be the very thing that is wanted just now, to instruct us in connection with the state of things in Orissa and Bengal. When Sir Henry had laid his foundation in Revenue matters, he then said: "But there remains one thing to give full effect to manage.



ment, and that is water," having seen with his own eyes what it could do, even without navigation. He was followed by another most upright and able Collector, Mr. Prendergast, under whom it was that the Irrigation works were carried out, but another essential element in the effectual execution of the works was the appointment of another from Mr. Kindersley's school, Mr. Henry Forbes, late Member of the Council in India. To him was assigned the office of providing the Engineers with men and materials, which called for all his tact, self-denial, and talent to the utmost, for it was no small matter to carry out such a vast system of works in a district where there were hardly any mechanics, and the whole population were sunk in such a state of despondence, that they were literally like a slave population. It was thus that it pleased God to bring about such a concurrence of circumstances, as was really essential to the wonderful success of the attempt to raise the district from being probably quite the lowest in India, to be the second in revenue, and by far the first in prosperity, in all India; to such a state as is described in the concluding paragraph of Mr. Morris's book. If such men as Sir Henry and Mr. Forbes could be found and sent to Kurnool, or the Tungabudra, I have not the smallest doubt that in one year everything would be in order there, and in a few years the district would be in such a state of prosperity as Godavari is in now. There is nothing in the world to prevent it. It would no doubt take a man indeed to root out the dreadful system in Orissa and Bengal, which has taken far deeper root, yet I am persuaded that even there matters could in the main be set to right, if a man of talent and decision were allowed to work out his own plans without interference. But it would no doubt be a most severe labour, and try any man to the utmost.

APPENDIX C.

Speech of the Lieutenant-Governor of Bengal at Sonapur, on the Sone, in November, 1877.

"Now the only way of averting famines arising from drought is to make the greatest use, which science and experience can suggest, of the supply of water which fortunately Nature has given us in Behar in the shape of rivers, but which supply we have hitherto allowed to run to waste, while the fields, through which these rivers pass, have been

parchea and waste for want of water. A large and comprehensive system of irrigation is under construction in Behar, the object of which is to utilise the water of the river Sone in parts especially liable to drought. Other similar schemes are being worked out in Orissa. This of course cannot be done without the expenditure of money, and the question is, who, in fairness and justice, should find this money. After very careful consideration I came to the conclusion that, as the whole of the province of Bengal suffered when there were such famines as have occurred of late years in Orissa and Behar, it was fair that a large proportion of the cost should be borne by a tax laid upon the public at large. But it also seemed to me fair, and I believe you will agree with me if you will give the subject your unprejudiced consideration, that a share of the cost should fall on the people who directly benefit by the introduction of water to the neighbourhood of their fields, and are thus assured of a good crop at all seasons, instead of being exposed to the risk, every few years, of absolute failure. When I proposed this, I was told that the people did not want water, that they would sooner be left alone to bear the risk of famine, and I was even told that the water of the Sone was destructive to fields. Shortly after this discussion took place, the periodical rains were suspended, and then we had practical proof as to whether or not the Sone water was considered injurious or prejudicial. The people clamoured for water, and to meet this demand we were forced to open our unfinished canals, by means of which we have irrigated during the last few months 200,000 acres of land,¹ which would otherwise have remained waste for the year, but which are now covered with luxuriant crops. The produce of this land represents food grain of the value of £550,000, and of this, crops to the value of £400,000, certainly, would have been entirely lost, if it had not been for the supply of canal water, but it also represents the rent of the land, of which the landholder would have been otherwise deprived, and to this must be added the outlay, which would fall on him, if he had again to give relief to his tenantry in consequence of famine.

"I have just returned from visiting the part of the country where this system has been introduced. I saw what every one *admitted to be the finest crops ever seen in Behar*, in the irrigated fields, while the unirrigated fields by their side were parched, and had hardly

¹ In January, 1878—300,000 acres. [In March, 1899—440,796 acres.]



a blade of vegetation on them. I drove for sixty miles through the irrigated tracts, and returned by one of the main canals. Nothing but this ocular demonstration could have convinced me of the enormous benefits which have been conferred upon the people by irrigation, and throughout the *only complaints which I received from the people with whom I conversed, were of the non-extension of the water supply to these villages*, though I, not unnaturally, was told by some of the ryots that they wanted the water without payment."

APPENDIX D.

Extracts from the Great Indian Peninsula Railway Report of Meeting, December 7, 1877.

The Chairman said,—“We are informed that on the 30th of June last there were some 400,000 tons of linseed, grain, cotton, and other goods, waiting for transport, to the very great loss of the mercantile community, as can easily be understood.” Here is a complete acknowledgment that the railway totally fails to carry the quantity required, even at their paralyzing rates. What could they do with the quantity that would have to be moved at the prices that Indian transit required, one-tenth or one-twentieth of that charged on the railway? Again,—“The Great Indian Peninsula carried grain at a little over a half-penny a ton a mile. They would continue to do so as long as they found it profitable to do so, but no longer,”

This is ten times what it could be carried for by steamboat canal. Thus with a charge of ten times that required on a canal, they still had hundreds of thousands of tons lying on the railway.

Again, Mr. Jones, a shareholder, said,—“I should be glad to know how it is we have paid thirty shillings a ton for our coal.” He continued,—“The importance of having cheap traffic on this line is very material, not only to the shareholders, but also to the English public. If our grain is drawn from *our* territory instead of from the American, our goods will go in at a small, unimportant duty, instead of being taxed with so heavy a duty as they are there.” Again he says,—“You charge £3 a ton on the cotton traffic. This seems a very heavy burthen, seeing the freight from Bombay to England is only thirty shillings, of which ten shillings is paid to the canal, leaving only £1.” To these things the Chairman replies,—“The reason why this cheap coal to the East



India Railway Company is dear to us, is that the transport of that cheap coal over six hundred miles, makes it very costly to us, so that while it costs that company six shillings, it costs us thirty-six," that is, thirty shillings for six hundred miles of carriage by the railway, or a little more than a halfpenny a ton a mile. Thus we see, curiously enough, the railway men complaining of the sad effects of the high cost of railway transit. They cannot but feel it themselves.

He then speaks of the coal being brought by the new line opened to the Chanda coalfield, fifty miles from their line. The charge for this is five shillings a ton. This line has cost £9,000 a mile, and the returns last year on the part opened were one per cent. On this very line from the coal pits to the Railway, the river Wurdah could be opened for a cost of £2,000 a mile by the estimate, prepared on good data, and the coal might be carried by it at a tenth of a penny per mile. What could put the infatuation of the present proceedings with respect to transit, on this line, in a stronger light than the complaint of the Chairman, compared with the proceedings of the Government to relieve them from the burden of the cost of transit? The end of this is that the railway men themselves find that the carriage by rail is so expensive, that they bring a large portion of their coal all the way from England.

It is very curious thus to see the railway men themselves stating how they are hampered by the enormous expense of carrying by their own railways. And the Chairman's reply to Mr. Jones on the subject of the heavy charge on cotton was, "Now this is a rather delicate point for the shareholders to urge. All I can say is, that unless we proceed with a great deal of care and forethought in reducing our charge upon cotton, you will not get many surplus dividends. Our actual charge upon cotton all over the line is about $2\frac{1}{2}$ d. a ton per mile, which I do not think is excessive." This charge makes the cost of carriage from Nagpur to Bombay, about £5 10s., or more than a half-penny a pound. Now if the Godavari Navigation had been thoroughly completed, the cotton could be conveyed to Cocanada for about 10s. or £1, saving a halfpenny a pound, a difference which a Manchester manufacturer would consider very important. For the sums of £700,000 already spent on the Godavari, and £500,000 spent on the sixty miles of railways in that part, the whole line of navigation from the Upper Wurda, might have been abundantly



completed for the whole year's navigation, if the works had been carried out with anything like efficiency, when the works were first proposed; and even when the Godavari works were stopped, the £500,000 spent on sixty miles of railway, would have both improved the Upper Wurda, giving the railway cheap coal, and have stored water for the Godavari, and finished the second barrier works, leaving only the third barrier works to be executed. Thus the railway men by urging the minor railways, are effectually injuring their main works. They, like all other interests, need cheap transit, and are terribly troubled that they are obliged to carry their coal six hundred miles by land. And thus, also, we see from this report how utterly incapable the railways are of carrying even the small quantities that their high charges admit of moving at all.

APPENDIX E.

Extracts from Report of Mr. Robertson, Superintendent Government Farms at Madras, in the Coimbatore District, 1876.

Mr. Robertson divides his report into three heads: lands irrigated by rivers and tanks, by wells, and unirrigated. The total area under irrigation of any kind is only about four per cent. of the land under cultivation; but it pays one quarter of the land revenue. The average rent of the irrigated land is about fifteen shillings, whilst the dry land is about two shillings per acre. About 88,622 acres of Government land are watered from rivers and tanks. Mr. Robertson deprecates the present wasteful method of using the water, being convinced that a larger area might be treated with equal results. Rice is the principal crop, and for five months one inch of depth daily is consumed, which makes a depth of 12 feet.

Again,—“But, inasmuch as the water is frequently derived from granite ranges, it contains the manurial qualities, and the silt is doubtless of value; hence the more water applied, the larger proportion of silt. It appears that the crops under irrigation, even where no manure is applied, are as good now as they were twenty or thirty years since. Now, whilst it is evidently the interest of the ryot who does not properly cultivate and manure to use as much water as possible, it is altogether different for the Government who find the water, and have ninety per cent. of their land unwatered. Some regulation as to the quantity of



water is desirable. Mr. Robertson calculates that, according to the water generally employed, each acre of land receives about two tons of silt; if half the water only were used, one ton of silt would have to be replaced by an equivalent of manure. Although the position of the ryots, who occupy irrigated lands, is very superior to the dry farmers, it often happens that the cultivation is not one whit better, owing to the pernicious system of subletting, which resembles the Irish middlemen.

Again,—“From experiments Mr. Robertson found that the cost of each watering when the water was raised twenty feet from wells, was about four shillings an acre; and, as each crop of cumboo, cholam, or ragi requires ten or twelve waterings, the total cost is £2 to £2 8s. 6d.

Again,—“Unfortunately for the natives, upwards of two million acres of the occupied land are altogether unaided by irrigation. The rain as registered varies from 17 inches to 36 inches in the different districts; most of this falls in May, October, and November, and often there are months together without any appreciable downfall. The consequence is, that the crops are extremely precarious, and in a time of drought the suffering is widespread and often terrible.

The reviewer concludes,—“But immediate help is needed. Why cannot the Government make loans at reasonable rates of interest, to be paid off in a certain number of years? Works for increasing the irrigated area would be most useful and profitable; and something might be done in the way of well sinking. It is to be hoped that the fearful sufferings, which we may hope are now over, may lead to permanent progress.”

APPENDIX F.

“While fever is so prevalent in Calcutta, it seems also to be raging with some severity in many parts of the province, a correspondent draws a sad picture of the state of several villages not far from the metropolis, specifying Mitahari, Sharulia, and Senargati. Fever, he says, has been raging there with the violence of an epidemic for a year and a half. He gives no statement of the mortality but represents the people as quite heartless and hopeless. The native *kobirajes* are baffled by the fever; and quinine, he says, is ineffectual. In their distress the villagers are turning despairing eyes to the Government, wondering why a beneficent *raj* does not send them medical aid.



"Another correspondent informs us that Hali-shahar has been suffering severely from epidemic fever since the middle of October. Application has been made by the inhabitants to the sub-divisional officer to move the proper authorities to send, temporarily, a medical officer and a supply of medicines to the place."

These fevers are actually owing to the want of irrigation works, to the sea of mud in which the people live in the monsoon, and the filthy water collected in pits, and filled with every pollution, which they drink in the dry season. If the water were regulated, the country properly drained during the monsoon, and streams of fresh river water were flowing through every village throughout the year, the fever would be almost entirely subdued, as it is in Godavari and Tanjore.

Had Lord Cranbrook widely circulated this communication it might—it possibly would—have completely changed public opinion. Its arguments are convincing, its reasoning satisfactory.

PARLIAMENTARY SPEECHES IN SUPPORT OF SIR ARTHUR COTTON.

My father was not wanting in defenders in the House. I give here what was said by other speakers both for and against him and his projects. This is essential. In the steps which must immediately be taken to preserve India from chronic famine, the statements and arguments herein employed are certain to be revived. It is but right the reader should know them from the start.

MR. HENRY FAWCETT.

. . . When it was stated that expenditure on irrigation works would yield a return of seventy per cent. or eighty per cent., why, he asked, did not the capitalists and commercial men of large means, who made these assertions, embark their money in so splendid an enterprise? He strongly deprecated any partisan feeling in discussing the question whether railways or works of irrigation were the better calculated to yield a profitable return, and to prevent the recurrence of famine. He was quite aware that railways had done great things for India; but, on the



other hand, all the railways had not paid, and, in the same way, some irrigation works had been disastrous failures, while some, no doubt, had been attended with success.

MR. JOHN BRIGHT.

Why should not this Committee be appointed for the express purpose of ascertaining from such evidence as we can get in England, and, if necessary, such as we can get from India, how it is that after so many years of possession—one hundred years of possession—of this very part of the country, still we have got no further than this, that there is a drought, and then a famine? There is no failure of water except at particular times, and over a particular district. But, take the year through, almost without exception, in India there is far more water than is necessary there for what is required for the cultivation of the soil, yet almost no step has been taken to provide irrigation works. We hear that there has been £9,000,000 or £16,000,000 spent on such works. What is that in India? The town of Manchester alone, with a population of 500,000, has spent £2,000,000 already, and is coming to Parliament now to ask to be allowed to spend £3,500,000 more: that will be £5,500,000 to supply the population of that town and its immediate surroundings with pure water, and a sufficient quantity of it. But in India we have 200,000,000 of population subject to the English Government, and with a vast supply of rainfall, and great rivers running through it with the means—as I believe there are the means—of abundant irrigation, and still the whole sum expended has been only £16,000,000. We have heard some authorities say it is £20,000,000; but be it £16,000,000 or £20,000,000, what is it when we consider the vast extent of the country, and the greatness of the need? I remember, years ago, that Sir James Hogg, Chairman of the East India Company, and the late Mr. Mangles, stood up in this House and insisted that the Indian Government had not failed in its duty with regard to public works in India. I showed then—that was in 1856 or 1857—that the Corporation of Manchester had, during the preceding fourteen years, spent more in public works for the good of its own population, than the East India Company had spent in the same fourteen years throughout the whole of the vast territories which were subjected to their care or to their neglect. Now, I have no doubt whatever, not-



withstanding what has been said, and notwithstanding what may be said, of the condition of their finances, it is the duty of the Indian Government in some way, if possible, to find a remedy; but, if not possible, of course famine must come, and the doomed must die. But I believe it is possible, and I will not rely on the authority of Sir Arthur Cotton alone; but if hon. members will take that book which the noble lord quoted from, they will find there the evidence—I was going to say of scores of eminent men—as to what ought to be done, and what may be done in India. There is the evidence of Colonel Chesney, in which he shows how much may be done, and how much has been neglected in regard to the question of irrigation. The noble lord stated that the Secretary of State for India had ordered an enquiry to be made in India as to some matters having regard to further progress of works of irrigation. What I want, and what Sir Arthur Cotton wants is, not that you should believe me—for I am no authority on the matter—or even that you should believe him, but that you should have a full and fair enquiry on the spot. . . . If the terms [in which the Committee is moved] were such as I think necessary, they would simply enquire into the desirability of irrigation works for the prevention of famine. The hon. member for Hackney has asked a question which other persons have asked. Why is it that if some of these schemes will pay seventy per cent. or eighty per cent., the people of Manchester, or the city of London, or elsewhere, with capital to employ, do not go India, and establish these great works, and put in their pocket this great profit? I will tell the hon. gentlemen why they will not do it. There are no people in this country who form public companies and expend money in India without a guarantee from the Government. These are circumstances which make it very doubtful whether it would be wise for any man to do it. He had better do it, he thinks, in almost any other country than India. The Indian Government does not like these independent companies. It acts upon the traditions of the old Company. The Indian Government objects to the expenditure of English money which is not under their control. . . . I have no doubt that if it were possible to bring all the facts connected with the Madras scheme before the House, it would be shown that a very large proportion of the fault, whatever it is, of the failure of that scheme, has been the mismanagement of the Government in connection with it.



Everybody must admit the tremendous difficulties which any Government must have in managing the affairs of that vast country and its population of two hundred millions of persons. I admit that; and therefore, perhaps, it is not reasonable or just that one should bring strong charges against men who, I daresay, do the best they can in their position, but who fail in much that they do. The noble lord quoted two or three cases in which irrigation works had failed. There may be works of irrigation that pay nothing to Government, but which will save the lives of their people: and I do not like to hear the Secretary of State or the Under Secretary in discussing this question, always treat it as if it were a shopkeeper in London or a merchant in Manchester who was considering whether he should open another shop or another mercantile house. It is not exactly in that spirit in which the question should be dealt with. I believe there are many cases in India in which, probably, it would not be possible for the Government to say: "We shall get ten per cent. out of the expenditure of £1,000,000"; but a year afterwards they might say that the expenditure of that £1,000,000 had probably saved a million of human lives, and therefore, it might be worth while for the Government, as a clear duty, to expend that £1,000,000 in that work. I do not know that I have anything more than this to say. If the noble lord intends that the Committee shall thoroughly examine this question, and if they can do anything in India it should be done by a Commission in India, I do not ask them to take my opinion or the opinion of Sir Arthur Cotton. But Sir Arthur Cotton has lived forty-five years in India. He has more information in connection with works of irrigation than any other engineer. He has given the attention of a lifetime to them; he is a man of the most undoubted honour, and of the highest character; he believes absolutely what he says as to what is necessary to be done, and what may be done. I confess I think it will be difficult—almost impossible—after discussing this question with him, not to come to the opinion that his authority is one which ought to have great weight with the House. He is willing to say—I have myself heard him say—that there have been many mistakes made: there have been mistakes in the railroads, in the irrigation works; but that if famine comes from want of water, clearly to get rid of famine you must have water. You cannot have water except by works of irrigation. You have the rain from



heaven ; you have the great rivers ; and you have a great Government, which has conquered the country, and which, having conquered it, at least ought to exercise all the powers of its intellect for the purpose of saving its people from this suffering and this ruin, and ought to save this country and this Parliament from the degradation and humiliation of allowing it to be known throughout the world that millions of the subjects of the crown in India, in the course of ten years, perish by famine, which great engineers, and men of character and experience, say positively might altogether have been prevented.

SIR GEORGE CAMPBELL.

He would not enter into the question whether or not irrigation works in general were good, right, or proper in themselves—that would be for the proposed Committee to decide—but having had much personal experience in regard to several of the works to which the noble lord, the Under Secretary for India, had referred, he thought it his duty to support him in several of his statements. He felt bound to point out the utterly unreliable character of the reports of Sir Arthur Cotton. That gentleman was a man deserving of very great respect, but he was, in this matter, wholly unreliable. Though he did not doubt Sir Arthur Cotton's honesty, he thought there was some truth in the saying regarding him, that he had water on the brain. He was hopelessly enthusiastic, and had been carried away beyond all bounds of reason in his views, and was neither to bind nor to hold in his statements of what might be done if his recommendations were carried out. It was because of the reckless manner in which he had set forth his views that he had prevailed with so many ; but he (Sir George Campbell), was sorry that he had prevailed with the right hon. member for Birmingham (Mr. John Bright). As Lieutenant-Governor of Bengal he had experience of great public works which Sir Arthur Cotton had designed, and forced upon the Government, and, as Chief Commissioner of the Central Provinces, he had also had experience of some of Sir Arthur's projects. The noble lord had stated the facts with regard to one or two of these when he said they never could return interest on the money expended on them, and that they had never extended over more than a limited area, or done more than a very limited amount of good. One of Sir Arthur's projects was to create an enormous reservoir in the

centre of India, to store water there during the rainy season, and to let it down on the country when drought prevailed. That scheme was submitted to him as Chief Commissioner of the Central Provinces. He found that Sir Arthur Cotton had never been in the country where he proposed to place his reservoir, and had never obtained information in regard to it. He had simply taken a map, and having found that there were two or three rivers in the country, he had marked a circle on the map and said: "You can make a large reservoir, a grand lake there." They found that Sir Arthur Cotton had no data on which to found his assertions. They obtained men to examine and work out these projects, but having gone into them, they saw that there were physical conditions which made it impossible to carry them into effect. That was the last he had heard of Sir Arthur Cotton until he was resuscitated by the right hon. gentleman, the member for Birmingham. There was another of his projects equally wild. India and China were, Sir Arthur said, great countries. Water was the panacea for all evils, and it was the easiest thing possible to make a canal between the two countries. He was oblivious of the fact that between them there were mountains 19,000 or 20,000 feet high, and when somebody pointed this out, he said it was the simplest thing in the world to make locks. While pointing out the unreliability of Sir Arthur Cotton in these matters, he would admit that this was a great and important subject. . . . He thought the right hon. gentleman, the member for Birmingham, was not justified in saying that the people of this country could not form companies and send out money to India to work out their projects. They had done so in many cases. They had not done so in the case of irrigation works, because money invested in this way had been lost, or only recouped from the Government by means which the hon. member for Hackney had alluded to, and they were not satisfied that it would now yield eighty per cent. or a hundred per cent., as Sir Arthur Cotton had asserted.

GENERAL SIR GEORGE BALFOUR

said he had heard with regret the remarks which the noble lord, the Under Secretary for India, had made with reference to Sir Arthur Cotton. Having had many years' acquaintance with Sir Arthur Cotton, and having examined the works which he had



made in Madras, he could say that, so far from Sir Arthur Cotton being justly chargeable with the mistakes attributed to him, he believed him to be entirely free from blame. Standing up before the House he would say that he did not believe that a single work which Sir Arthur Cotton had executed had ever been a failure. Sir Arthur Cotton was a man of mighty genius; he was a man who had done much for the people; he had been a great benefactor to India, and his name would go down to posterity as one who had done great things for that country. His hon. friend, the member for Kirkcaldy (Sir George Campbell), had attacked Sir Arthur Cotton, but he would say that if the hon. gentleman had known Sir Arthur Cotton and his great services as well as he, and those who had worked with him did, he would never have given utterance to the censure he had passed on him. When the investigation was made by the Committee, which he hoped would be made, it would be found that there was no ground for some of the charges that had been made against Sir Arthur Cotton. The Under Secretary had made remarks about the Madras Irrigation Company, with a view of throwing on Sir Arthur Cotton the blame of the failure. But it was the Government itself which assigned to the Company the particular works to be undertaken, and he believed it could be proved that they had not shown good faith to the Madras Irrigation Company. No doubt great mistakes had been made, but the mistakes and bad management were greatly due, as the right hon. gentleman the member for Birmingham had said, to the Government themselves. He believed that if Sir Richard Temple, a man of great independence and integrity, and quite capable of judging about these matters, were examined before the Select Committee it was proposed to appoint, he would show that there was great mismanagement on the part of the Government officers. In many parts of the country the reservoirs were empty, and a large number of tanks in the Madras Presidency were thoroughly out of repair. There was in the Madras Presidency only one irrigation work which Sir Richard Temple asked the Government to carry out. This project, if carried into effect, would have cost only £270,000, and after all expenses had been paid, the Government would have derived from the work an annual revenue of £25,000. The Government of India and the Secretary of State came to the conclusion that this work was not yet matured, though the papers



laid before the House of Commons in 1870 showed that the project was matured in all its details.

THE SELECT COMMITTEE OF 1878:

ITS CONSTITUTION, ITS METHODS, ITS RESULT.

Lack of sympathy with his high aims and the total absence of the smallest approach to statesmanlike appreciation of what irrigation really was in itself, were never more conspicuously displayed than in the long examination to which Sir Arthur Cotton was subjected as a witness before the Committee which was the outcome of the debate.

Upon this Committee sat Lord George Hamilton, the Parliamentary Under Secretary for India, who was appointed Chairman; Mr. Balfour, now Leader of the House of Commons; Mr. Henry Fawcett, a diligent student of Indian affairs; the Right Hon. Hugh Childers, ex-Cabinet Minister; Mr. James Ashbury, a yacht-owner, who represented Brighton, and who, according to Dod, was "a builder of railway rolling stock"; Sir George Campbell, an ex-Indian civilian, with an exceedingly varied experience of India; Mr. Denzil Onslow, member for Guildford, who had been private secretary to Sir C. Trevelyan, the Right Hon. W. N. Massey, and Sir Richard Temple; Mr. John Cross, Lancashire cotton-spinner, afterwards Parliamentary Under Secretary for India; Mr. Hardcastle, merchant in Manchester; Sir Joseph M'Kenna, Bart., an Irish barrister; Mr. Sampson Lloyd, a banker in Birmingham; Mr. (now Sir Mountstuart) Grant Duff, subsequently Under Secretary for India and Governor of Madras; Mr. Mulholland, eldest son of an Ulster linen manufacturer, afterwards created a peer as Lord Dunleath; Mr. Eustace Smith, a merchant and shipowner in the North of England; and Mr. R. Vans Agnew, a landed proprietor in Scotland. Mr. Eustace Smith, at an early stage, retired. Mr. Edward Stanhope, afterwards Secretary of State for War, Mr. (afterwards Sir Joseph) Pease, railway director and owner of coal and ironstone mines, and



Mr. Ernest Noel, son of the Hon. and Rev. Baptist W. Noel, were subsequently added to the Committee.

Here was a body of Englishmen, fairly representative of the composite character of our nation, not one of whom was an engineer; not a single one of them had had the slightest acquaintance with irrigation engineering. Of actual Indian administrative experience there was only Sir George Campbell.

Sir George Campbell ought not to have sat on this Committee. As a witness he might be of service; as a judge he was in the position of one who had already made up his mind so far as irrigation was concerned. This is evident from his questions. But there is direct proof. In *Memoirs of my Indian Career*, by Sir George Campbell, this passage appears:—

“I was directed by the Government of India to examine Sir A. Cotton’s proposals for great irrigation schemes in the Central Provinces. He wanted to make the Godavari navigable throughout its course, and a great highway of commerce, by removing the barriers which obstructed it; and the deficiency of water during the greater part of the year he proposed to cure by the construction of enormous reservoirs, on an unprecedented scale, on the upper basins of its affluents, from whence also a magnificent system of irrigation was to be derived.

“On looking into the matter I found that the so-called barriers of the Godavari were really long stretches of rocky and utterly unnavigable channel, which could only be surmounted by canalising a great portion of the river on a large scale and at a very great expense, and that, even if this were done, the river would be navigable but a small part of the year. I found also that the bulky traffic of the Central Provinces flowed west, not east—its surplus grain was wanted on the Bombay side, not on the Madras coast, and the cotton and other valuable products had their natural outlet at Bombay. As to the great reservoirs, I discovered, to my surprise, that Sir A. Cotton had never himself worked out his projects, but had merely drawn



lines on the map and said, 'Make them there,' without any real examination whatever.¹ I very greatly doubted the safety of prodigious embankments impounding enormous quantities of water such as he proposed, even if it were practicable; and seeing that we had already a very excellent system of irrigation on a less ambitious scale, and that there was no great necessity for another system,² I was not anxious to incur the risk. I accordingly reported against the whole scheme; it was afterwards dropped, and has not been revived. The tide turned and Sir Arthur Cotton ceased to be regarded as a prophet, though his name must always be inseparably connected with several very creditable works which he carried out in Madras."

That is to say, Sir George Campbell did not sit on the Committee to ascertain the facts regarding irrigation, but simply to register a foregone conclusion. With what consequences, let the "terrible" (the word is the Viceroy's) condition of the famine-stricken people in these Central Provinces, ruled by Sir George Campbell, testify.

A general survey of the three days on which Sir Arthur Cotton was under examination will give an idea of two things—one, the wide range of the witness's acquaintance with India irrigationally, and the other, the narrow and hostile attitude towards a general extension of irrigation throughout the various Presidencies, Provinces, and Chief Commissionerships, manifested by the Committee

¹ Sir George Campbell, when he wrote this, had heard Sir Arthur Cotton say (of this very reservoir) in 1878: "But I have seen it; I have been up there, as I say, at the very spot," and yet, in his autobiography, written in 1891 and 1892, he repeats the charge!

² The value of the condemnation of Sir Arthur Cotton may be judged by the untrustworthiness of this *ex cathedra* deliverance: "Already . . . an excellent system, . . . no great necessity for another system." And, yet, in the very provinces Sir George Campbell was referring to, there have, within four years, been two destructive famines, and forty per cent. of the people in one district are receiving Government relief at the time when this note is penned (June, 1900). ". . . no great necessity for another system!"



throughout. All who know anything of the Committee Rooms of the House of Commons can readily picture the scene. Those who do not know these interiors may imagine a big, square, room, lighted by high gothic windows overlooking the Thames, containing a large horse-shoe shaped table, around which the members of the Committee are assembled, while inside, the witness under examination, the stenographer in near proximity to him.

Probably, at no time did Sir Arthur Cotton so fully set forth his plans for Indian regeneration as when before this Committee; certainly on no single occasion did he cover so wide a range. The hostile questions put to him never once caused him embarrassment; on the contrary, they served to bring out in more striking manner his wonderful mastery of all the details of varied needs in wholly dissimilar localities.

It is desirable that Sir Arthur Cotton's plans for the restoration of prosperity to India should find adequate expression in this Memoir, as an act of justice to his foresight and character and as an equal act of justice to the suffering people of India. A synopsis of his evidence, with excerpts from the Blue Book record, will enable this to be done.

The first day's examination was on Thursday, 20th June. Of the sixteen members constituting the Committee only nine were present, the absentees apparently being Mr. Balfour, Mr. Fawcett, Mr. Childers, Sir Joseph M'Kenna, Mr. Grant Duff, Mr. Edward Stanhope, and Mr. Pease. But, seemingly, there is a mistake in the list of attendances; Mr. Childers asked some questions, and, therefore, must have been present. Considering who the witness of the day was to be (and each Committee-man would know, in advance, who was to be examined), it does not say much for their notion of public duty or their sense of responsibility towards India that so many and such important members of the Committee were absent. For example, had Mr. Fawcett heard Sir Arthur Cotton's most cogent statements, how much of force and practicality might have



been given to what he afterwards did for India while a member of the House of Commons.

More than nine hundred questions, in all, were asked of Sir Arthur Cotton. Lord George Hamilton, as Chairman, began by inviting the witness to describe his experience in India, and generally to give his "opinion as regards the remunerativeness or direct returns from public works in India."

The answer embraced these points:—

1. Direct returns from public works nationally undertaken are not a sufficient guide; "the Government are not in the position of a private company but of a statesman." The amount of direct returns is important, but only of relative importance. "For instance, the Tanjore works have been the principal means of raising the condition of two and a quarter millions of people to such a state of wealth and prosperity as we may safely believe no district of India ever attained before." The revenue in that district has increased by £330,000 a year. Such results are good but they are secondary to the other effects upon so large a population. Food can always be obtained and healthiness promoted by proper drainage.

2. "The utterly inadequate feeding of the people (of India) is perfectly astonishing."

3. Transit and cost of transport are hardly less important than irrigation. Nay,—

"I have so far changed my views that I consider this THE PRIMARY QUESTION IN THE MATERIAL IMPROVEMENT OF INDIA, *and before that of irrigation in importance.*"

"We have before us this awful fact, that from ten to twenty-five per cent. have perished in Madras districts while there was food enough in India, and therefore, solely from want of efficient transit."¹

¹ Striking confirmation of present-day experience to the same end comes before me whilst the proofs of this chapter are being corrected. From *The Times* of August 10, 1900, I quote the following communication from India, written by Sir Arthur Cotton's old comrade



RAILWAY ENGINES WANTING WATER 269

"In Madras, Mysore, Hyderabad, four or five millions (must have) perished,¹ after spending £120,000,000 on railways,² besides incurring a debt on them of £50,000,000."

in-arms, General Fischer, R.E., whose evidence, quoted in the appendix to this chapter, is of great value :—

TO THE EDITOR OF *The Times*.

SIR,—I send you below a copy of a telegraphic notice which appeared in the *Madras Mail* of July 12, 1900, and which appears also in other Indian papers :—

"Railway Difficulties in Northern India."

"LUCKNOW, July 11th.—The B.B. and C.I. Railway Company has advised other railways that through bookings of food-stuffs for places on the Rajputana-Malwa Railway cannot be accepted, owing to the impossibility of working the food traffic, in the absence of water supply for the engines."

If you will be good enough to publish the above in London, it will give the good people of England a better idea of the fearful famine now raging in India than anything else is likely to do. People at home have been led to believe that railways in India are all that is needed to protect this country from famine, and that a good and sufficient water supply was a mere craze of the late Sir Arthur Cotton's. As it now appears that railways cannot be worked without a proper and sufficient supply of water, and as it is officially declared that the mortality among the ryots' cattle is perfectly appalling, and the losses incurred thereby beyond computation, and as a blade of grass cannot be grown in India without water, which cannot now be obtained even for the favoured railway works, nor at any time when the rains fail, as they do so frequently nowadays, by the destruction of the forests and jungle to supply the railways with cheap fuel, is it not time for the people of England to inquire why good reservoirs cannot be established in India similar to that now constructing on the Nile, and so preserve this country from the dire effects of famine, without coming on their charity every two or three years?

Yours truly,

BANGALORE, July 14.

J. F. FISCHER, *General, R.E.*

P.S.—It is now officially known that the destruction of the ryots' live-stock cannot be estimated; to all this loss we must add the losses of human lives and the labour of years, all caused by the want of a proper water supply, which can be very easily remedied in India, if only the opposition to this in England were once got rid of.—J. F. F.

¹ This was an under-estimate. In the places named, the total famine deaths in 1876-78 cannot have been much less than seven millions of human beings.

² In a later chapter it will be shown that the highest average mortality of this period (1877-78) was in railway-traversed districts.



Railways, as compared with canals, are unable to convey all the traffic of prosperous districts, save at a great cost.

Water traffic is conveyed very much cheaper than land traffic.

Enormous sums have been expended on railways as compared with irrigation.

To 1876.

Railways, £170,000,000; £3,000,000 per annum interest loss on money expended.	Irrigation, £16,000,000; net gain, yearly, of £500,000.
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[If railways (which produce nothing) had been equal in interest-paying power to irrigation works, instead of there being a deficit of £3,000,000, there would have been a net revenue of £5,000,000.]

4. "So far as our irrigation works extend, they have completely protected the people from death by famine, and we have no reason for supposing they will not always do that."

"In this fundamental particular THE IRRIGATION AND NAVIGATION HAVE BEEN A COMPLETE SUCCESS, AND THE RAILWAYS A COMPLETE FAILURE."

As to increase of productiveness when river water was available for cultivation, "in Godavari we used to reckon that it increased the crop in grain by Rs. 20 an acre at least." In the North-Western Provinces and in Orissa the increase has been put at Rs. 15 per acre.

"This is besides the cheap transit, the drainage, the security from river floods, the abundance of forage, the supply of wholesome drinking water, etc."

"In Godavari the passengers are carried eight miles for a penny, and the canals are crowded with passenger boats.¹ *This perfect liberty of intercourse is the very life of the district.* If all India were supplied with such cheap passenger

¹ This is now (1900) being altered as the boat licences, etc., have been increased in the interests of a competing railway only just constructed. See pp. 282-284.



transport, where the passengers could be taken up and put down anywhere, and every one was free to travel either in his own boat or by any passenger or goods boat, at any hour of the day or night, and at any speed, without having to wait for a train or go to a station, it would be impossible to estimate the benefits it would confer."

"The effects of railways must be stated rather by what they do not do than by what they do do.

"They do *not* provide food for man or beast ;

"They do *not* carry the great traffic of the country ;

"They do *not* carry cheaply enough to answer their main purpose ;

"They do *not* touch the local traffic, either of passengers or goods, perceptibly ;

"They do *not* pay the interest of their cost and debt ;¹

"They do *not* drain the country ;

"They do *not* provide wholesome drinking-water ;

"They do *not* prevent fever ;

"They do *not* create traffic ; and, what is a most important point, in case of disturbance it will be impossible to protect them, because you cannot patrol them with trains of armed men while the ordinary traffic is running."

"In short, as a chief railway engineer said to a friend of mine, they are not suited at all to the circumstances of the country, and India is, at this moment, in as great want of a complete system of water carriage as if no railways existed."

Objections to irrigation :—

1. Fever. "I have lived all my life in the paddy fields and never had myself, or knew of, an attack of fever in others, from irrigation."

2. Efflorescence called reh.² "I never saw an instance of it.

¹ At this time the amount which had had to be found from the general revenue to pay the guaranteed interest was no less than £24,658,649. (See remarks at the close of this chapter.)

² Reh is the vernacular name in India for efflorescent salts which accumulate in the soil and subsoil waters of large tracts of India.



It is quite an exceptional thing, and, therefore, is no more a reason for giving up irrigation than a death on a railway in England is an argument for abolishing railways here."

3. Diminished produce. "At least twenty millions of acres from one end of India to the other have been irrigated for hundreds of years, from rivers, tanks, and wells, without any diminution of produce." The Trichinopoly ryots in an address to the Governor of Madras in 1877, said: "All the great irrigation works have converted the tracts into scenes of matchless fertility and wealth, and have for ever protected them from the disaster of recurring droughts."
4. Refusal of Water. "In Madras, out of thousands of works, we have only had one single instance of any difficulty of this kind."

When this takes place to a serious extent, the land is rendered sterile. In the Upper Punjab efflorescence is known as *kallar*, and in Oudh and other parts of India the affected lands are called *usar*. Ball (*Economic Geology*, III., 696) writes: "As affecting the general prosperity and revenues of the country, the subject of how to mitigate or diminish the evil has naturally attracted a good deal of attention, and numerous reports and papers have been published which contain more or less trustworthy information, and more or less of practical suggestion." "Primarily the saline matters are derived from the decomposition of rocks, and, taking the case of Northern India, the rivers descending from the Himalayas carry down in solution proportions of salt which vary with the character of the strata traversed. The salts so carried in solution consist principally of calcium and magnesium carbonates, and sodium sulphate and chloride. In addition, of course, the alluvium or silt which is brought down, consisting of finely comminuted minerals, includes materials which, on decomposition, are capable of supplying bases for the ultimate formation of the same salts under suitable conditions. In a region of intense evaporation, and where there is not a free drainage outlet of water, these salts, by long continued concentration, accumulate in the soil or in the subsoil waters, and over and above this, rain water charged with carbonic acid, falling on a porous soil, has the effect of decomposing its mineral constituents and of carrying down the salts so formed in solution either to the region of subsoil water, or else for only a few inches or



5. Great Expense of Locks in making Canals Navigable. "This is a mistake." After giving instances, "The cost of the locks, therefore, on all the main lines of India is by no means a serious objection." In the Carnatic there would be six hundred miles without a lock.
6. Evaporation of Water. "This is quite an insignificant matter."
7. The Great Cost in Upland Districts. Grant this. "It has nothing to do with the hundreds of millions of acres in the plains of the Ganges, the Indus, the Brahmaputra," still capable of being irrigated.

Answers to objections as to profit of works in Tanjore, extent of land cultivated, and actual returns to revenue—only assertions made, no disproofs being furnished. So with Godavari and the works carried out there.

feet below the surface. When the surface of the ground again becomes dry, this saline water rises by capillary attraction and evaporates, and a salt efflorescence remains, which at length so permeates the superficial layer of soil that cultivation becomes impossible. With free underground drainage, which would admit of the rain passing through and washing the soil, this would not occur, especially where the surface was well protected from evaporation by vegetation."

"Irrigation by canal water, when not accompanied by deep drainage has had the effect of increasing the amount of reh deposit, and large tracts have been in consequence thrown out of cultivation. The indirect action which has produced this result has been fully explained by Mr. Medlicott (*Selections from the Records of the Government of India*, No. xlii., p. 32, of 1864). In this case, the direct increase in the amount of saline matter is inconsiderable owing to the comparative purity of canal water; but the so-called table of subsoil saline water has, by the addition of irrigation water, without an increase in the drainage, had its level raised to an extent which has rendered capillary attraction operative, and so these saline waters, which were previously to a great extent innocuous, have been brought into injurious contiguity with the superficial layers of soil. Thus is explained the apparently paradoxical fact that irrigation, by comparatively pure canal water, has been followed by an increase of salts in the superficial soils."—*Dictionary of the Economic Products of India*, pp. 400-401.



Why have the works in Orissa so far failed? "The expensive head works having been executed, the distribution works were stopped in the middle; the canals were begun at both ends, and then the link to unite them and allow them to effect anything was refused."

[A wholly independent authority was quite of a different opinion from Sir George Campbell and the members of the Committee.

"As it happens," he¹ says, "there is another point of view from which this investment can be regarded, and from which the scheme assumes another aspect. Subject to frequent floods, to occasional droughts, and to the interruption of its communications, the district was formerly always on the verge of famine. When any of these catastrophes did occur, the density of the population rendered them terribly disastrous. The floods, in one district, in one season, destroyed crops valued at £1,000,000. The famine of 1865-66 cost the lives of one million people, and the Government £1,500,000 to save the remainder. During a period of thirty-six years the remissions made by the State amounted to nearly a twelfth of all the revenue received. Prior to these works the whole province depended upon one crop in the year; if this failed, from excess or deficiency of moisture, all failed, and there was nothing but starvation before the people. To-day there are two hundred and fifty thousand acres commanded upon which one crop can be saved, or upon which another can be raised in its stead, three hundred and seventy-five thousand acres are protected from floods, and there are one hundred and seventy-seven miles of canal, by means of which produce can be transported to any region of dearth. If the fifth canal were locked like the other four, this would be much increased. Thus, after all, a permanent protection has been afforded at no greater cost than would be spent in two years in the spasmodic effort to save life and mitigate disaster. If the works had been undertaken with this

¹ Hon. A. Deakin, M.L.A., in *Irrigated India*, pp. 286-287.



end alone, they would be pronounced successful. In such an aspect they have fully justified their existence. The failure has been in theory and in prophecy, and the success in fact."]

Foolish evidence had been given to the Committee as to proposed lines of canals. "It has been stated in evidence," said Sir Arthur, "that there is a range of mountains between the east and the west coast on the line of the Godavari—*there is no such thing*." "The watershed between the Poorna and the Warda is without the sign of a hill, and it is just the same as the line between the Sutlej and the Jumna, on which the canal is nearly completed." "There is not a single serious natural obstacle from sea to sea."

"Madras, Cocanada, and Surat ought all to be coaling ports at this moment, and millions of tons of manure ought to be supplied to the land instead of being burnt."

"I will venture to say that hardly any country ever underwent such a change from poverty and inanition as these provinces (Central Provinces) would undergo if they were thrown open to the world."¹

"There can hardly be any doubt that the increase of salt revenue alone in these tracts would pay the whole interest and expenditure of this line of canals."

"The little State of Travancore, with a revenue of half a million, has spent £100,000 a year on a canal and other public works."

"I do wish we could condescend to learn a lesson from our native friends, or borrow some dark Commissioners from them for our own provinces, and see if we could stir up our Governors to do for our vast provinces what they are doing with a thousandth part of our means."

"The canal to connect Cuttack and the Upper Mahanadi with Calcutta has been left with eighty miles in the middle uncut. The vast headworks of the irrigation, which give command over a vast tract of country, are now charged

¹ The contrast between the might-have-been predicted in 1878 and the distressful condition of these very provinces in 1900 is appalling.



to quite a small tract, and the canal extends to sixty miles from Calcutta and then stops in the middle of the delta, *at nothing*, and then the engineer is charged with the failure of the works! . . . Is it not incomprehensible that such imbecility should be shown?"

"Suppose the railways had been dealt with in this way, the great station at Calcutta built and the road carried one hundred miles, and another executed out of Benares, and then the works stopped, what would be the result?"

"The [navigable] works are all but completed, and the canals have cost £2,000 a mile, against £20,000 for railways, and £9,000 for the petty railways in that part of the country. Think of £500,000 being expended on sixty miles of railway, while money could not be found to complete this four hundred miles of main (canal) communication!"

So much for the witness's main statements. Now for some of the questions put to him and his replies thereto:—

Replying to Lord George Hamilton, in an answer of great length and of the highest value, the witness incidentally remarked:—

"The enormous returns of the Godavari works are in spite of every effort to prevent their being completed. It has taken thirty-two years to obtain £700,000 for them; £20,000 a year for works which, from the very first, have been a most prodigious success, and nothing would induce the authorities to carry them on with ordinary vigour.

"To this day money cannot be found to complete them, while the only dispute is whether they yield twenty-seven, twenty-eight, or forty per cent.; and now, after thirty-two years, only seven hundred thousand acres out of one million are irrigated. If £100,000 PER YEAR HAD BEEN GRANTED FOR FIVE YEARS, THE WHOLE DELTA WOULD HAVE BEEN IRRIGATED TWENTY-SEVEN YEARS AGO, before the great rise in the cost of labour, and the district would have been yielding a revenue of £750,000 a year for the last twenty-seven



years, making an addition of many millions in the treasury beyond what they have returned."

"*During this time* there was not the least question about supplying £500,000 for the sixty miles of railway to Nagpur, which, it was acknowledged, would not pay four per cent."

"The plain fact is that the dread of the officials is cheap transit; the whole power of the Government, with its Treasury, is to force the people to carry dearly a small quantity by the railways, rather than allow an enormous traffic to grow up at an almost nominal cost by the canals. This is what stopped the Damodhur canal from the coal-fields to Calcutta, the completion of the Orissa canals, the Godavari navigation, etc."

"I am quite certain that if these works are carried out by men heartily forwarding them, not by men secretly endeavouring to their utmost to prevent their producing their legitimate effects, they will not only almost completely prevent famines, but add hundreds of millions to the value of Indian produce."

"What India wants, I am fully persuaded, is that at least £30,000 should be spent in every district on an average per annum on irrigation, besides carrying out a complete system of navigation to the same extent of expenditure—together £10,000,000.¹ We should see such a revolution as hardly any country ever underwent."

"A steamboat canal can be made cheaper than a railway; it can carry cheaper; it can carry all that is wanted, and that a railway cannot; and it can carry at ample speed for every purpose. . . . It can, in most cases, be combined with irrigation and drainage; the supply of good, wholesome, drinking water will always accompany it."

"In setting about to judge between myself and my

¹ This must be a misprint. Take one hundred and sixty-four districts, and £30,000 for each district, the amount would be £59,200,000, which sum may be compared with the sum expended on railways, namely, including cost of land and other items, nearly £200,000,000.



opponents, may it not be justly considered whether a man who has certainly been most successful, and has had by far the longest experience [of any irrigation engineer in India], knows what he is talking about; and then cannot wise men judge of the plain facts and figures which he has set before them?"

"Are Tanjore, Kistna, and Godavari at this moment strewn with hundreds of thousands of the skeletons of victims of famine?"

"Are the districts of Bengal and Madras, on which millions have been spent on railways, rolling in wealth and plenty, in freedom from fever and death?"

"Has the revenue of Bengal, have the revenues of the railway districts of Madras, been raised by an addition of one hundred and fifty per cent?"

"Did any railway ever raise a crop of human food worth a million of money in the midst of the famine as the Madras Company's irrigation works did, saving the Government £500,000 in their famine expenditure?"

"Supposing these facts were brought forward by a man who, after fifty-seven years' practical experience, did not know how to cut a canal, or where one could be cut, how would that alter the matter?"

The Chairman (Lord George Hamilton) asked a large number of questions, chiefly upon the statements summarised above. Especially concerning the great works undertaken in the preceding twenty years, which did not then pay, the witness was pressed to admit he was wrong in his statements. At last an admission was obtained, but it did not help the noble questioner much. "Yes," Sir Arthur consented, "sanguine anticipations" had not then been realised. But, he reminded the Committee, neither had they any returns from the Godavari navigation. Why? Here is the kernel to much of the dissatisfaction to that date. "A work estimated twenty-five years ago is put off, stopped, gone on with, stopped again, and gone on with again for twenty-five years . . . and then, just at the last moment, when it is entering the populous country, it



is put a stop to altogether, and you say that the engineer is at fault, that his estimates have failed. What can stand against that?" What, indeed? It does not appear that the irrigation engineers have had fair play—certainly not as compared with railway engineers and contractors.

"Although to you the Indian Government may seem to have been very unreasonable, it is possible, is it not, that they may have had good grounds for not going on?"

"No," said the undaunted engineer, "they had no grounds whatever. That is what I insist upon and am prepared to prove."¹

"Unfortunately, the Warda canal would not have been navigable at the very time that it would have been wanted," said authority.

"We are not obliged to carry coal at any particular time. It is quite a mistake to suppose that a line of transit is of no value that is not open the whole year round. The Erie canal is open only seven months in the year, and it is the great artery of the United States."

¹"The tone of the Orders of Government on these reports is still less satisfactory; still less encourages any hope of decisive improvement hereafter. The object most conspicuously observable in them is to get rid of the papers. No real interest is exhibited in the question; no anxiety is evinced to call forth the zeal of officers, or to promote improvement of their districts in this respect; no interest is manifested in the pictures which they draw of the want of roads, or any sympathy in the feelings with which they cannot but look on the reality daily before their eyes; and on the other hand, there is no word of disapproval, of admonition, or of instruction, for those who have no eyes for these vital wants of their districts, or who, seeing them, are indifferent, and make no effort or suggestion for their removal. In short, these Orders afford no evidence of any real sense on the part of the Government, of the entire absence of roads, or of the social backwardness and disability, which such a state necessarily implies, or of the intimate connection between the state of the communications and the revenue, or any real anxiety to promote their improvement. On the contrary, there is a manifest unwillingness to recognise the real, wretched state of the communications as detailed by some Collectors—a disposition to make the most of the very small improvements reported, or aid afforded by Government, and an anxiety to throw upon the people themselves the task, to which they are utterly unequal, of improving the roads."



"Did ever any canal cost as little as £1,000 a mile?"

"Yes, the Kistna and Godavari canal, ninety miles, cost £1,000 a mile right across the lay of the country."

"You admit only three navigable canals pay?"

The witness admitted that was so, and proceeded to ask if any railways whatsoever would have paid if they had been stopped in the midst of an unpopulated country, far away from any great centre of traffic, although costly stations had been built in which to accommodate the traffic. "And, besides, had kept the construction work hanging on for twenty years."¹

¹ In further elucidation of this point the witness said: "The Ganges canal was brought to Cawnpore, and had six essential defects in it, and the locks connecting it with the river were not allowed to be used. The Orissa canal was carried sixty miles from Calcutta, and ended in the middle of the delta. Supposing they had done that with the railways. What in the world had those got to do with the actual returns of the canal? And this canal, carried from Calcutta and ending at nothing, not even in a great town in the heart of the delta, is now actually yielding three and a half per cent., and increasing most rapidly." On this latter point a most valuable minute by Colonel (now General) F. H. Rundall, R.E., then Inspector-General of Irrigation, was placed before the Committee. In it Colonel Rundall said:—

"As an illustration of the manner in which boats ply from one distant place to another, I may mention that, when inspecting the Midnapore canal the other day, I found boats from such opposite places as Benares, Dacca, and Patna, all plying in that canal, though only six months had elapsed since it had been opened for through traffic.

"The activity on the canals during the past year has been very considerable. On the Ganges canal there has been a traffic of ninety-one thousand tons carried probably between two hundred and three hundred miles.

"On the Calcutta canals about one million eight hundred thousand tons have been moved.

"On the Orissa canals there have been two hundred and twenty-one thousand tons lifted on two hundred and ten miles, or, at the rate of one thousand tons per mile.

"On the Godavari canals eight hundred and seventy thousand tons were lifted over a length of three hundred miles, or, at the rate of two thousand nine hundred tons per mile.

"No figures for comparison with the railway for the current year are yet available, but, during the first half-year of 1872, six hundred



"Do you really mean to say that you think that for the last twenty years every Viceroy and every official connected with the Public Works Department and the Council of India generally, and all the Secretaries of State, have been actuated by, as you put it, the dread of cheap transit?"

"Yes, I only say what are facts. I ask, Have you *finished* anything irrigationally? It is not what I say. These are facts."

Mr. Sampson Lloyd was much puzzled at these statements; he could not believe what he had heard. "Why should any man dread cheap transit?"¹

Readily came the reply: "Because it would stultify the railways; that is the sole point."

"Only think," he scornfully added, "of a canal by the side of the Eastern Bengal railway, which carries some two hundred thousand tons, carrying two million tons, and swarming with passengers, and goods, and boats! What a terrible affront to the railway that must be!"

The Chairman could not accept this view, and pressed

and forty-six thousand tons were lifted over a length of one thousand two hundred and eighty miles on the East Indian railway, giving about five hundred tons per mile of railway, or, if an equal amount of traffic obtained in the second half of the same year, the total lifted was about one thousand tons per mile during the year."

¹ Later, Mr. Sampson Lloyd having communicated with Colonel Fischer, R.E., respecting the traffic on the Godavari canals, to support the evidence he gave, received the following statement for 1877-78:—

1. Number of passenger boats licensed	120
2. Number of cargo boats licensed	1,671
3. Register tonnage, cargo boats	36,011
4. Timber rafts	3,639
5. Tonnage in canals	536,672
6. Ton mileage	12,658,265
£	
7. Value of cargoes estimated or declared	3,696,502
8. Navigation receipts	4,496

"The number of passengers is not given, but one hundred and twenty boats took out licenses, and these carry on an average fifty a day."



for further statements—which were given, and all of the same tenour.

Perhaps, to show how little things change in the immemorial East, even under a British Government, evidence may here be submitted showing that navigation canals are still subject to biassed treatment when a railway has to be protected against water cheapness. The incident occurred in 1898, while Lord George Hamilton has been Secretary of State for India, and therefore, cannot fail at least to interest him.

My authority is a work published in 1899 by the Superintendent of the Government Press, Madras. Here is a narrative which I find begins on p. 168, and which, because of its importance, I quote in full in the text. It cannot be relegated either to an appendix or embodied in a foot-note. The official narrative proceeds:—

“The rates sanctioned in 1883 on the Ellore canal remained in force for upwards of fifteen years, but have now (1898) been increased as explained below.

“Early in 1893 that portion of the East Coast (State) Railway which runs along the Ellore canal of the Godavari and Kistna systems was opened between the two rivers, and later in the year completed to Cocanada; it is in order that some idea may be formed of the effect of the railway on the canal traffic that, in the statement on pages 164–165, it has been shown what that traffic was in 1892–93 (*i.e.*, 1st April, 1892, to 31st March, 1893), as well as in 1896–97.

Railway v.
Canals. “The railway between Bezwada and Cocanada had not long been opened, when its officers began to complain that it could not successfully compete with the water carriage, without a considerable enhancement of the charges for use of the canals, or at all events of the line between Bezwada and Cocanada, consisting of the Kistna-Ellore canal and the Godavari, Ellore and Cocanada canals. Many ways were urged of effecting this, the most favoured being an almost prohibitory toll at the Godavari river locks. The matter was in 1896 referred to a committee, who recommended a reversion to the arrangement in force before 1883 (see statement on page 166), by which the Godavari, Kistna, and East Coast, or Buckingham



canals were treated as separate and independent systems of navigation, with the fees to be paid for their use very largely enhanced, in some cases quadrupled, from those in force since 1883, and a preliminary notice to this effect was published. This would have been handicapping the canals with a vengeance, and not only the canals with which the railway is in direct rivalry, but also those which serve parts of the country which the railway does not reach, and which are positively 'feeders' to it; the result would have been that the best interests of the public and the Government would have been sacrificed, with the object that a portion of the traffic, which preferred to use the *State* canals, might be *forced* on to the *State* railway, so that the latter might be thus artificially made to show better returns.

"Fortunately, before the Government was finally committed to this course, further consideration was given to the subject and wiser counsels prevailed. After some time the matter was ably dealt with by the Chief Engineer for Irrigation, Mr. W. Hughes, in a note which will be found with P.M.G., No. 319 I., dated April 18th, 1898. In this, he points out that in all the most advanced countries of Europe 'the tendency is to treat canals as roads, freeing them from all charges except remuneration for services actually rendered, and looking for a return in the general increase of the prosperity of the country which the canals serve. They are considered rather as complements than rivals to railways, each kind of transport being specially suitable for certain kinds of traffic. In no progressive country is any direct profit on (canal) navigation sought' by the State; and that it is 'felt to be a national misfortune,' that, 'in England the railway companies were allowed to get control of many of the canals.'

"He deprecates the attempt 'to adopt the same system here,' and he combats the idea 'that the railway cannot get a fair amount of traffic owing to the through traffic on the canals, unless the latter be so taxed as to prevent boats carrying for less than $4\frac{1}{2}$ pies per ton per mile.' As regards this he says:—

"'The railway traffic between Bezwada and Cocanada in 1896 was 72,000 tons, which is nearly the amount by which the canal traffic fell off. The railway was at the time charging $2\frac{3}{4}$ pies per ton per mile, but was handicapped by the breakage of bulk and delay and exposure of goods at the Godavari crossing. Nevertheless, practically all the salt, cotton, and oil-seeds, which



constituted the more valuable part of the canal traffic went to the railway, and there seems no reason to doubt that the railway can largely increase its rates and still keep the valuable traffic when the Godavari bridge is completed, or other arrangements made to take loaded waggons across the river. The experience of other countries all goes to show that since the great improvements of recent times in permanent way and rolling stock, railways running in competition with canals get nearly all the more valuable traffic, leaving the canals to carry goods of much bulk or little value, trade in which is effected by a very slight difference in freight.'

"He then commends the scale of licenses for use of the canals which will be found in the remarks which follow, and which need not be set out in detail here.

"With reference to his proposed enhancements of navigation charges, the Chief Engineer of Irrigation remarks:—'This is a tariff for revenue to satisfy the objection of the Government of India that the navigation is being worked at a loss. The amount of additional revenue required to cover the present deficit and the further falling off, which will occur when the Madras-Bezwada line is opened, is, of course, purely conjectural. The rates entered are such as it is thought traffic will bear without sensible injury. The rates for annual licenses are increased twenty to thirty-three per cent., and for six weeks' licenses, twenty to one hundred and fifty per cent.—the reason for the great variation in the latter case being that, in the 1883 tariff, a uniform rate of eight annas was imposed in lieu of two tolls irrespective of the class of vessels. The six weeks' rates now proposed are roughly one-fifth of the annual rates. The rates for steamers are trebled. The canals are generally not deep enough for steam traffic, and steamers, unless very small, and worked at a low speed, do much injury to the banks. It is decidedly a bad time to increase rates at all, but the increase cannot be avoided if the receipts and charges are to be made to balance.'

"Government accepted the recommendations made, and the new scale of fees came into force in May, 1898."

After this let there be no more official indignation when irrigation engineers, and those who believe in the extension of irrigation, declare that the canals do not receive fair play where railway interests are concerned.



Once, and once only it seems, the Chairman had the better of the witness, and was able to quote his own words against him. But the triumph, again, was not for long.

"Do you remember the report you wrote on the Madras Irrigation Project?"

"Yes, I remember it."

The witness had said it was because of the non-completion of these works that they did not pay. The Chairman proceeded: "Did you not say of the Madras Project, 'One great advantage of this system of works is that it is composed of parts each forming a complete system in itself, and which, as soon as completed, will yield its own returns independently of the remaining parts . . . as soon as one part is executed, it will at once come into effective operation and yield returns.' That prediction has not been realised?"

"No," the witness candidly replied, "it has not. The water has been refused by the people. I could not contemplate that. I had been fifty years in the country, and never heard in my life or dreamt of the water being refused by anybody. No one could have supposed that there could have been such inconceivable mismanagement that the people cannot take the water."

Lord George Hamilton was determined the witness should not go unscathed, even though he had so good a plea to urge.

"Still," said the noble lord, "from some unforeseen circumstances your prediction has not been realised?"

Sir Arthur Cotton was a little stung by the persistence of the questioning on this point, but he maintained his coolness.

"Not from any defects in the works, but from a defect in the management. I am a manufacturer, and I make a locomotive, and I say, 'Here is a splendid locomotive,' and it is taken to the railway, it bursts because the man is drunk who works it. Am I answerable for that?"

Mr. Onslow found a way out for the further and complete vindication of the witness.



"What is the defect in the management to which you allude?"

It was explained that the Company had not been fairly treated. "The Duke of Buckingham, who is Governor of Madras, is my authority for that. In the Government Minute it is stated that the Irrigation Company have real cause of complaint. The Government were declared to be under an obligation to set matters on a proper footing without further delay. The Deputy Collector of Kurnool issued orders practically preventing applications for water being made as heretofore by the ryots to the irrigation officers direct."

The answer was complete. Nevertheless, a number of further questions were asked, and were all answered with ready information and complete courtesy. Three years later the Famine Commission of 1878-80 reported on this incident. First, they quoted from the report of Mr. Forster Webster and Major Scott Moncrieff, R.E. (who afterwards did such good irrigation work in Egypt) who inquired into the matter, and reported that they had read up much correspondence, and had taken evidence from various individuals in the Kurnool and Cuddapah districts. Although, for reasons already given, they did not think that under the best auspices the canal could have been a success, they considered Mr. Lister was warranted in ascribing its failure partially to:—

- "1. The absence of good revenue administration in the taluks traversed by the canal;
- "2. The unsatisfactory relations which have existed between revenue officers and the Company;
- "3. The feeling of antagonism that has arisen between the Company and the ryots;
- "4. The whole system of management which exposes the ryots to worries and exaction."

The Commissioners themselves were even more emphatic, for they said:—

"It was too readily assumed at the outset that the water would be taken at once, and that it would suffice to entrust



the management of the revenues of the canal, and the supply of water, to the ordinary district officials, in addition to their regular duties. Applications for water were to be made to the village accountant, who was to open a register and send in monthly reports. The tahsildars and revenue inspectors were to attend to the control and distribution of the water; in no case was any additional pay given for these additional duties. These arrangements were soon found to be unsatisfactory. Mutual recriminations between the officers of the Government and those of the Company soon began; and, in 1878, after much discussion, a special inquiry took place, from which it appeared that the practical failure in extending the irrigation was mainly attributable to the absence of good revenue administration, unsatisfactory relations between Government officials and the officers of the Company, and antagonism between the Company and the ryots, arising out of a harassing system of management.”¹

Many more questions were asked regarding the Madras Irrigation Company, especially by Sir George Campbell, who rubbed in the remark, “You remember that this work was one which above all others you recommended?” “Yes,” was the reply, “and it is one of the most complete and successful works, if the water was used, that could be constructed in India.”

But, there was vindication to come even for the Kurnool canal. The Famine Commissioners of 1878 remark: “The canal was of great value during the late famine, as it irrigated 87,226 acres in the Kurnool and Cuddapah districts.”²

On railways, again, the witness was strongly pressed. He had referred to the absurdity of constructing railways in Bengal.

“Then, it seems now,” urged Sir George Campbell, in his least pleasing way, “from our experience you were wrong in your predictions?”

¹ Page 162 of *Famine Commission Report*, part ii. “Measures of Prevention and Protection, 1880.”

² *Famine Commission Report*, 1878, p. 347.