**WATER CONSERVATION ACT AMENDMENT BILL 1889**

**House of Assembly, 22 August 1889, pages 674-80**

Second reading

**The COMMISSIONER of PUBLIC WORKS (Hon. J. H. Howe),** in moving the second reading of the Bill, said he would deal first with the works undertaken under the Waterworks Act, and in doing so he thought this an opportune time for calling attention to the Adelaide Waterworks. Many hon. members would remember the state of things 30 or 40 years ago, when a questionable water supply was hawked about by watercarters, and he believed the housewives of to-day would scarcely care to buy the water which their predecessors in years gone by had to put up with. (Hear, hear.) If hon. members would remember the dusty and sterile appearance of our now beautiful suburbs they would be surprised indeed at the wonderful contrast presented. The cottage homes and villa reeidences of our suburbs were not only a delight to those who lived in them, but travellers from all parts of the world had vied with each other in paying a tribute of praise to these beautiful surroundings of our city. This happy result was mainly due to the conservation of water, which had enabled the people of Adelaide to render their city one of the most beautiful in the Southern Hemisphere. We had as the outcome of this water conservation in Adelaide the sewage system, which would not have been adopted otherwise and which had made Adelaide the envy of the Australias and one of the most healthy cities in the world. People in affluent circumstances were settling in our suburbs, and it behoved them at the present juncture to not only maintain this position, but to improve it. It was with great sorrow he had read an article a week ago calling attention to the questionable position that our water supply occupied. He immediately took action, and instructed the officers of the Water Conservation Department to examine the watershed of the Torrens and to see that anything deleterious to the health of the inhabitants of Adelaide was removed. He was informed that the objectionable part of the watershed consisted of a patch of ground two or three acres in extent, which was usedas a dairy farm. (Mr. Coles—“ There was nothing to hurt.”) From the evidence he had received he was sure there was something to hurt, and be took immediate action, and that block of land was now public property. (Hear, hear; and Mr. Nash—“ That is the proper way to do it.”) He admitted that they might be called upon to acquire a great many blocks before they had done, but be would call attention to the difference between a nuisance in the immediate neighborhood of the reservoir and a nuisance that existed some distance away, as in the latter case the water was filtered, as it was drained towards the watershed. What were a few hundred pounds against the health of the city ? (An hon. member—4\* Have you seen the place yourself?”) He had seen a plan of it, and it had been explained to him by the officers, who were responsible to the Government. (Hear, hear.) If this action had been taken two years ago this scare would never have occurred at all. (Mr. Grayson—\*' It is only a scare after all: and the Chief Secretary—“Scares have to be seen to.”)

The SPEAKER—I must ask the hon. member not to turn his back to the Speaker.

The COMMISSIONER of PUBLIC WORKS (Hon. J. H.Howe)—I think I have made myself heard.

The SPEAKER—It is against the rules of the House for an hon. member to turn his back.

The COMMISSIONER of PUBLIC WORKS (Hon. J, H. Howe) thought he had shown that it was necessary to maintain the purity of the Adelaide water supply. (Mr. Coles—“At what cost?”) They proposed to give £200 for the piece of land. (Mr. Nash—“What was the amount in dispute?’) Two years ago the amount asked was £250. He thought, however, that in order to obtain a supply of pure water it was absolutely necessary that they should turn to some supply from a purer source. (Hear, hear.) At present the watershed for the Hope Valley reservoir was becoming thickly populated by market gardeners, and it was well known they did not carry on their valuable industry without using substances which were deleterious to a pure water supply. Therefore they would have to conserve water at some place where the supply would be less liable to pollution, and where a larger quantity could be stored. (Mr. Coles—“What do you propose?’ an hon. member—“ The Barossa scheme.”) Now he would give a few facts in connection with the operations under the Waterworks Act. The Adelaide water district embraced an area of 70,720 acres, with a capacity of 948,000,000 gallons, the cost of the scheme in the aggregate being £918,000. The working expenses for the year amounted to £16,597, while the gross revenue was £59,000, the net revenue being £42,000. Besides the Beetaloo scheme, under the Act there were Government works at the Burra, Crystal Brook, Gawler, Gladstone, Hawker, Kapunda, Mannum, Mount Barker, Mount Gambier, Palmer, Port Augusta, Port Germein, Teatree Gully, and Wilmington. The total area comprised 1,260,775 acres : the capacity, 1,828,196,500 gallons ; the capital cost, £1,537,072 ; the gross revenue, £71,098 ; and the net revenue, £48,654. Hon. members would see that notwithstanding the great cost the waterworks were paying 3 1/5 per cent, above working expenses, and as time went on they would no doubt be even more successful than they had been in the past. Next, he would like to say a word or two with reference to the Beetaloo scheme. Although that work was introduced to the House at the close of a session and in a questionable form, he was positive that every hon. member who had assisted the Government to carry it would be gratified at the results achieved already. A deputation from the district recently waited upon him, and he was pleased to hear their testimony as to the value of the scheme to a hitherto waterless part of the colony. If it had not been carried out a great number of families would have had to leave the land there and go elsewhere. Now they told him that not only were they satisfied with the conditions, but they saw in the immediate future that the water supplied would enable them to subdivide their farms so that their sonsand daughters might live on the land and intermarry and add to the wealth and increase the population of the colony. The amount provided for the Beetaloo waterworks, including that for the main south of Wallaroo, was £573,732. The expenditure to date had been £315,030, leaving a credit balance of £258,702. The dam at the head works was now up 41 feet, and was about half completed. It was estimated that the whole of the works would be completed in about 16 months. The total length of the mains laid was 143 miles. The whole of the mains north of Wallaroo were either completed or in course of construction with the exception of the Wandearah and Pirie mains, which works were now advertised, and the South Hummocks main, the position of which were not yet definitely fixed. The main south of Wallaroo would be in hand as soon as the pipes were ready and the surveys completed. The reticulation of the township was at present in abeyance, and would remain so until the head works and mains were further advanced. The revenue arising from the sale of water for 1888-9 was £1,676. The district had been rated commencing on July 1, and it was estimated that the revenue would be £ 4,500 for the current year. It was most gratifying to find that although the works were only half completed we were likely to receive a revenue of nearly £5,000. On the completion of the works he had no hesitation in predicting that the revenue would soon multiply itself, and not in the remote future with an increased population, and with the reticulation that would take place in the populous towns of the Peninsula, we might look forward to this scheme paying a fair percentage on the money borrowed for its construction. The area of the whole water district was 1,097,564 acres, and the capacity was estimated at 800,000,000 gallons. He came now to the development of the interior and he might say that Parliament had very liberally voted from time to time the sums asked for by the Government for the prosecution of this work. This money had been chiefly spent upon boring, well sinking, and dam making, for the purpose of enabling our pastoralists to remain on their holdings, as also to open up channels of communication in different parts of the interior, and on the whole, although we had been unfortunate in some respects, the money had been fairly well and judiciously expended. It was only those who had been in the habit of travelling in our northern and arid country and knew the inconvenience and difficulties in connection therewith who could now appreciate the ease with which travelling could be effected in consequence of the conservation of water on the various stock routes. There had been expended up to date on this work by the Surveyor-General from loans and revenue to October, 1883, £142,964, representing 47 reservoirs, 62 wells successful, 28 tanks, and 2 bores successful; by the Water Conservation Department from loans and revenue from October, 1883 to June, 1888, £280,488; by the Engineer-in-Chief’s Department from loans from July1888, to June 30, 1889, £25,207, these two amounts representing 135 reservoirs, equal to 1,158,662 cubic yards, 62 wells all successful, aggregating 4,587 feet in depth, 25 tanks of 445,600 gallons, and 20 bores successful, aggregating 8,832 feet in depth. The total including a sum of £21,070 for reimbursement to loan for works carried out by other departments was £448,610. The net revenue from these weeks for the financial year ending June 30, 1889, was £1,150. The loan for the development of the interior now stood thus: Provision under Loan Act, £703,457; net expenditure to June 30, 1889, £360,666; leaving a balance of £342,790. He would now lay before members a few facts connected with irrigation and the proposed Lake Bonney scheme. He had read a good deal about irrigation works as carried on in other countries, and in a small way had himself experienced the benefits of irrigation. The Hon. G. C. Hawker had contributed to irrigation literature a very valuable paper indeed. Now, the history of irrigation in India was pregnant with mighty achievements, for far back into other years the princes and rulers of that country devoted their energies to the conservation of water. At the present time when any irrigation scheme was completed in India the people turned out in vast multitudes and hailed with acclamation and joy the advancing water. These people knew the value of water and the benefits that water conservation had conferred upon them. Many able works had been written on irrigation, and no more timely work had come into his hands than the interesting and instructive paper that Mr. Hawker had laid before this country. That gentleman very correctly pointed out that to conserve water in this country for the simple purpose of cereal growing would be a suicidal policy. From his reading and from what he had experienced he (the Com­missioner of Public Works) was convinced that it would be altogether out of our power to conserve large quantities of water and apply it merely to the irrigation of cereal crops (Mr. Rounsevell—“ It would not pay,”) It would be absurd to undertake irrigation works for that purpose, but Mr. Hawker did not leave us without hope. He told us what India had, and what we had not, and he had shown that it was possible to conserve water for certain purposes, for which purposes the Government would ask hon. members to follow them. Mr. Hawker said—“What India has, and we have not, is a large average rainfall, a splendid and sure supply of water for irrigation, an absolutely level country, an enormous population, and labor at almost a nominal rate. Taking these into consideration it is evident thought we may conserve water for the supply of towns and for domestic purposes, for the use of stock and for irrigation of gardens, ' orchards, and small areas of land, to carry out irrigation as in India is an impossibility. These are the conclusions I have come to after having seen many of the works I have attempted to describe in the above notes.” On behalf of the Ministry he begged to thank the hon. member for the eminently satisfactory paper he had published on irrigation, It was not only possible for us to conserve water for domestic purposes and for stock, but also for our orchards and vineyards, and the Government had no hesitation in asking the House to assist in establishing an irrigation colony on the banks of the Murray. He alluded to Lake Bonney. (Hear, hear ) His reading of works on irrigation in other countries, which had extended over several years, had made him very cautious, but he knew that if we have the land and the water and can place the people on the land at a reasonable price the scheme will be successful. He had every confidence in stating that the Lake Bonney scheme was all that and something more. We found there a great reservoir surrounded by fertile land, with a supply more than sufficient to irrigate 6,000 acres. Water could be conserved there without fear of failure, for when the river was only at half flood the lake would have a sufficient rise to afford an ample supply for the year, and 24 hours flow of the river would accomplish this. Analysis of the soil had shown that it is all that is required for the culture of the vine, the orange, and of stone fruits generally. The raisin industry alone had proved very remunerative in California, so much so that land under vines suitable for raisin-making was worth in a few years from £30 to £40 per acre. There were many vinegrowers in South Australia who were turning their attention to raisin curing, and they had received on the average he had been informed about £40 per acre per annum. (Mr. Caldwell—“You require suitable soil as well as water.”) He was endeavoring to point out that the Lake Bonney scheme would provide all that. The ground in the neighborhood consisted of a fair loamy soil**,** and even at a depth of 8 feet it was found to consist of clay interspersed with limestone and sand. He would call their attention to a few extracts which he had made from the reports be had received from his officers on the subject. They were:—“ This natural lake reservoir affords singularly favorable conditions for an irrigation scheme—the water is perfectly fresh, the supply can be relied upon, the land to be irrigated is Crown lands. On the shore of the lake the height of pumping lift is from 20 to 35 feet, the surface contour of the land Is exceedingly well adapted for irrigation purposes, and very little levelling or grading of the surface will be necessary, and there will be very little clearing to be done. The quality of the soil, although not rich, is well suited for cultivation under irrigation. There is sufficient sand beneath the soil and subsoil to allow of proper drainage. The opinion entertained by some that the soil is saline is a mistake, as the analyses show exceptionally little saline matter in either the soil or subsoil. The Government analyst reports that the soil is not saline, and in this respect it bears very favorable comparison with the bestagricultural land in the colony, or the American irrigation colonies. Chemically, in fertilising properties, the soil is of good average quality. Potash, 1/2 per cent., equal toa sample recently taken from Mr. Hardy’s Bankside garden, and to the plains in the hundred of Redhlll and other similar northern agricultural land, and above the percentage of the Colorado irrigation colonies. The percentage of phosphoric acid, from 1/20 to 1/10 per cent., is rather low, but still equal to Redlands irrigation colony in the States. Very great success in fruit growing may therefore be confidently expected, particularly oranges, lemons, peaches, apricots, plums, pears, olives, and other similar fruits; vines also for both wine and drying; and to these products may be added fodder crops for dairying, potatoes, hay, &c , &c. The River Murray affords a highway to markets, and in other respects the leading features of the scheme are very favorable. The beautiful sheet of water in the lake is 4 miles long by about 2 miles wide**,** and now about 16 feet deep, and contains about 12,000,000,000 gallons. The lake is filled from the river by Chambers Creek, and rises each year to nearly the flood level. The inlet channel, however, also serves as an outlet, through which a large quantity of the water returns to the river. As the flood subsides the scheme contemplated provides for floodgates in the channel to impound the waters. Each year at the flood level the lake will thus contain very much more water than it has hitherto done, and there need be no fear of an insufficiency of water whatever the state of the river may be at low water. It is proposed to survey 6,000 acres into about 700 blocks of from 5 to 30 acres each, and to construct about 34 miles of channels conducting the water to each lot, and provide pumping machinery capable of supplying a depth of 24 inches during the irrigation season, equal to half a million gallons per annum for each acre. There will be two pumping stations, one at south end of the lake, and the other on Chambers Creek above the floodgates, and at each site the pumping machinery will be capable of lifting 8,000 gallons per minute. The estimated cost of the work on 6,000 acres is £30,000 or £5 per acre. In addition to the machinery and channels provision has been made for bridges, floodgates in Chambers Creek, clearing roads and planting avenues, fencing with rabbit-proof fence, embanking low lands, erection of wharf on the Murray and buildings in the town. A township of about 400 half-acre allotments is proposed at Cobdogla station near the river, and a considerable sum may be expected from the sale of allotments. Messrs. Chaffey are charging £20 for allotments one-eighth of an acre in the townships of Renmark and Mildura, The supervision, pumping, maintenance, and percentage for depreciation of machinery is estimated at £3,700 per annum, and adding 5 per cent, on capital cost makes a total of £5,200=17s. 4d. per acre. Adding to this 2s 8d. for the land and contingencies bring the annual rent required up to 20s. per acre. This will be admitted to be a reasonable sum when it is remembered that a water right of half a million gallons is secured, and that the 20s per acre is less than one halfpenny per thousand gallons and the land given in. It is apparent that the scheme is one of the most favorable in Australia, and success may safely be predicted for the irrigators and a satisfactory financial return to the Government. Everything that was necessary for the carrying out of this scheme would be made in the colony, including all machinery. He honestly believed that by carrying out the scheme they would establish a successful irrigation scheme, where hundreds of families would find a prosperous home. (Hear, hear.) When he first looked into the matter be had some hesitation in recommending, but from the information he had received subsequently, and his personal knowledge of that part of the colony, all hesitation had disappeared, and he believed they could establish a small irrigation colony. It was no longer necessary for them to formulate such schemes as the Barossa for cereal growing, which he considered was an impossibility as it would only irrigate a few thousand acres of land if that. (Mr. Hanyside—“ You did not say that when the Bill was before the House.”) He had not then properly studied the question. Tbe Barossa scheme is a most excellent one for the city. The Government felt that it was their duty, from the information they had, to come down with the Lake Bonney scheme, and to ask the House to support them in bringing it to a successful issue. (Hear, hear.) It had been said from time to time by croakers “What is the good of establishing irrigation colonies and settling people on them to compete with the producers in the hills ? Those industries will only lapse and there will be overproduction.” To that he replied, away with such croakings. It had not been the experience of other countries, and he believed there was scarcely such a thing as overproduction. He would point out that the dire prophecy that had been made years ago as to the overproduction of wheat had not come to pass. (Mr. Cohen—“ We can export.”) Of course they would be able to export. The more we produced the better it would be for the people. (Mr. Krichauff —You cannot sell a hogshead of wine, but you can a hundred.”) That was a fact. He would refer to the answers given by one of our best known vignerons, Mr. Hardy, to the Victorian Vine and Vegetable Commission. They were as follows “Do you think it is more profitable for the small farmer to produce the grapes and sell them to the winemaker ? I think so, and I think it is better in every way. The large maker can pay more attention to the manufacture and to the after-management of wine than the small grower. And besides it does not suit many of the small growers to go to the expense for cellarage and casks and apparatus ; they can grow the grapes. Do you purchase from the small farmers ?— I do, largely. As well as grow?—Yes. What would be the average value of an acre of grapes as sold to the winemaker?—We might calculate on an average of certainly not less than 2 tons to the acre; that would be a very moderate yield. And what price per ton?—£5 per ton delivered. Some land would produce a great deal more than that. Is there any danger of an over production of grapes by the small producers ?—I think it is likely that that may occur until the market is established—the outside market— either in England or in some other countries. At the same time it is certain that we cannot establish an outside market without an abundant supply of the article. What weight of raisins do you obtain from an acre? — I think a good well-looked-after and well-planted muscatel vineyard should give a ton to the acre; that would be three tons and a half of grapes—a moderate yield.” That was absolutely correct. He had had the good fortune to reside in the Angaston district, and years ago he had seen the farmers making stuff that they called wine, but now they carried their grapes to the winemakers, received their cheques, and were quite contented. He would read a few more answers given by Mr. Hardy :—“ You said the grape cropsat the present price would pay better than any other crop ; I suppose that means that, even if wine suffered a deduction in price, the industry would still pay ?— Well, of course grapes at £5 a ton represents wine at Is. a gallon about; but if the price of grapescame much below £5 a ton it would not be very paying; but farmers are quite satisfied to get £5 per ton for grapes ; they consider it pays them better than, anything else on their farms at present. Do you irrigate in South Australia, or is the natural rainfall sufficient? —We irrigate the orange groves but nothing else. Is the orange a profitable crop?—Yes, one of the most profitable. Would it be an advantage to irrigate the fruit orchards? — Yes. I think so, especially if done at the proper time, a great advantage.” He would not complete his argument unless he quoted from the evidence of Mr. Cureton, a Californian gentleman, who said in answer to the following questions:—“What are the chief products that are the most profitable with you ?—The most profitable thing to grow to-day is the orange ; we get a better price for it, and the crop is greater. We think nothing of getting 90,000 to 100,000 oranges to the acre, it is **a** common thing. Have you any idea of the value per acre of a crop of oranges?—Yes, they estimate a young orangery of about eight years old at from £50 to £60 per acre, over all expenses of cultivation.—Is that per annum?—Yes, and the older it is the better it is. Those trees are irrigated ?—All irrigated ; I have no experience except with irrigation. And those things could not be done without irrigation ?—Those things could not be donewithout irrigation in California. How often do they require to be irrigated in the season?—It depends upon the dryness of the atmosphere ; there is no fixed scale for it; some irrigate once in the summer, some twice, some three times, but it is a mistake to irrigate too much; it causes too great a growth of foliage, and a great amount of cutting and pruning. Are the holdings generally larger or smaller with you?—We consider 20 acres a good average holding for one family. For this particular class of cultivation?—Yes; if a man has got three boys from 14 to 20 years of age and himself, and has 20 acres to cultivate properly with fruits, it is quite sufficient.” This information would not be complete unless be gave some of the evidence of a gentleman who had had practical experience in Africa. Mr Von Der Byl, of the Cape of Good Hope, was examined before the commission, and after explaining that he had been a vigneron for 40 years, and that his estate comprised 380 acres, his evidence was reportedas follows “ 269. What is the wine production of your colony ? — About 10,000,000 gallons. 270. Do you know the yield per acre?—Yes, from 500 to 2,000 gallons per acre. 271. That is enormous ?—Yes, but the 2,000 is under irrigation ; that is where the land is very rich, and you are obliged to irrigate. 272. is irrigation applied pretty generally ?—All over the colony, through the whole length and breadth. They could not do without irrigation. 273. To the vines?—No, not to the vines alone, but to cereals as well. 274. Is it applied to the vine to any great extent?—Yes, in all our very rich districts. It is a peculiar soil: it is abeautiful rich clay mixed with limestone, and, if it was not irrigated it would not grow anything at all. 275. Then it is very similar to the soil you saw in the Kerang district ?—Yes, very similar to what I saw in South Australia. 276. The land irrigated would produce, as anoutside crop, 2,000 gallons?—No, not an outside, a general crop, 277. That would be the largest crop under irrigation ?—Yes. 278. And only attainable under irrigation ?—And only attainable under irrigation. 279. Is the quality of the wine destroyed at all ? —Not at all; our best wine comes from there. 280. What would the same land produce without irrigation ?—Nothing at all; it would simply burden the wine; it would destroy it.” From the testimony of these three gentlemen—one from California, one from Africa, and one resident in Australia—he thought it was conclusively shown that by applying water to the land we could successfully grow on small holdings valuable crops, not only for our own markets but for export as well; and he was sure the evidence which he had read would dispel any misgivings that might exist in the minds of hon. members as to the success of irrigation. He would now turn his attention to the Bill itself. It was a very simple measure, and so as not to encumber the Statute-book the Act of last year was re-enacted in this Bill. Clause 3 was the same as in the existing Act. Clause 4 of the Act of 1886 provided that the Governor may constitute any portion of the province within proclaimed hundreds a water district. As this confined the operations of the Act to hundreds it was desirable that the Act should be capable of embracing schemes as Lake Bonney and any others not included within proclaimed hundreds, and the necessary alteration had been made. It was desirable to obtain additional particulars from the petitioners for a water district, and it was proposed to repeal section 5 of the Act of 1886 and reenact it in next section with desired additions. Clause 6 therefore provided that these particulars should be supplied, and sub-section 8 stated that the portion of the work which it was desired the Government should construct should be specified, in most instances where there had been proposals for the constitution of a water district the residents had expressed a wish for the head works at lease to be constructed by the Government and handed over to the board on completion It was thought that the engineering staff of the Government could do this better than the engineer of the board. Sub-section 9 provided that the powers of rating asked for should be stated, so that a comparison might be made with the amount to be borrowed from the Commissioner. The petition under section 6 was to be from those eligible as ratepayers, and might include occupiers, who might by their action subject land rented by them to heavy water rates without the cognisance of the owners. To guard against this, provision was now made in clauses 7, 8, and 9 for a majority of the owners to consent by petition. This was required by the Victorian Irrigation Act. Then in clause 18 it was provided that sanction should be obtained from Parliament for any scheme which would cost over £5,000. In section 73 of the original Act the amount was £10,000, but this was considered to be too much. It had been found that one-fourth of the gross value of the ratable property likely to be included in a district will represent a sum altogether insufficient to construct the necessary works, and in clause 14 the proportion had been altered to two-thirds. As an example, taking the value of an irrigable area at £5 per acre the entire cost of the storage and distribution works could not exceed £2 per acre, even with a loan of two-thirds the gross value, as now proposed. This was an exceptionally low rate per acre for capital cost, which in most schemes reached £8 to £10 per acre, so that even with this increased loan only in very favorable localities would it be possible for a board to construct irrigation works with the maximum Government loan. Next he came to clause 16, which dealt with loans. It was essential that people should be encouraged to assist themselves, and as the imposition of interest at the rate of 5 per cent. was likely to cripple them, the Government proposed to make a fair concession. For the first year they would charge 1 per cent, on loans ; 2 per cent, for the second year; 3 per cent, for the third; 4 per cent, for the fourth ; and then the maximum of 5 per cent.; and it was reckoned that what the Government lost in the first four years would be recouped to them in a period of 16 years at the maximum. He would direct attention to clause 18- The power to purchase land in the principal Act only contemplated obtaining the land for the construction of works. It was desirable for the Commissioner to have power to purchase irrigable areas commanded by any scheme which it may be decided by the Government to construct. This was desirable for many reasons ; in some instances large areas of land were held by individual owners who were unwilling to come under the operations of the Act, and in others it was much to be preferred that the land should be subdivided into smaller blocks, and a greater number of persons thereby benefited. In such cases it was thought desirable for the Government to purchase the land to be irrigated, and after such division into 30 or 20 acre blocks, lease it in perpetuity under the conditions now proposed. It was proposed to take the land as in the principal Act under the Lands Clauses Consolidation Act, and of course proper compensation would be paid, and if the owner wanted to retain his homestead he would have a preferential right. He would not detain the House further, but when the Bill got into committee he would explain any details asked for. The question of water conservation and irrigation was of such vital importance to the community that he was sure hon. members would forgive him for taking up so much time. (Cheers*.)*

On the motion of the Hon. A. CATT the debate was adjourned until Tuesday next.

**WATER CONSERVATION ACT AMENDMENT BILL 1889**

**House of Assembly, 27 August 1889, pages 701-6**

Adjourned debate on second reading

The Hon. A CATT did not intend to dwell at any length upon the advantages that wonld accrue from a general system of water conservation, or the great benefits that irrigation would confer. So much had been said and well said on this subject in the bouse and outside, so many valuable contributions had been made by persons who had taken a deep interest in the matter, that he felt it would be a work of supererogation to add anything to the list. Be agreed with the Commissioner of Public Works that not the least valuable contribution to literature on this question was that of the Hon. G.O. Hawker, to whom he felt personally indebted for the trouble he had taken to compile in such a concise form so much valuable information with reference to irrigation in India. He now came to the practical application of the principles he had advocated, and going back a few years our past legislation seemed to have been largely a failure. He had the honor of introducing the first Water Conservation Bill under the Bray Government in 1883. That Bill was carried through the House with scarcely any discussion, but was thrown out in the other branch of the Legislature by a large majority. In the following year the Colton Government took no steps to legislate for water conservation. In 1885 under the Downer administration the then Commissioner of Crown Lands (Mr. Howe) introduced a Water Conservation Bill late in the session. It was read a first time and afterwards discharged from the notice-paper without any further steps having been taken. In 1880 the hon. gentleman reintroduced the Bill, and it became law. During its passage through the House, and prior to that time, having considered the question somewhat carefully, he had arrived at the opinion that the measure was not all that was desired if they proposed to give encouragement to the formation of water trusts and water districts and he endeavored in committee to introduce some more liberal provisions, notably with reference to the reduction of the rate of interest to be charged to water districts. He failed in that, and results had justified the opinion he then formed. With the exception of one water district that was in course of formation at Spring Creek, near Wilmington, little or no advantage had been taken of the measure. The principal reason of the failure was the heavy burden of interest that had to be borne. No trust could agree with a fair prospect of paying interest to pay 5 per cent. from the initiation of a scheme, and this heavy charge had debarred a number of districts from coming under the Act. Another important element was the small amount the Government could advance under the Act in proportion to the security they required. Where £5,000 was wanted for the construction of head works for water conservation purposes the Act required that £20,000 worth of securities should be given, and it was no easy matter, in fact the difficulty was inseperable, to get a number of persons not directly interested to agree to give that security, then they had had to contend against the general apathy manifested by individuals from want of a practical knowledge of the advantages likely to arise from a system of water conservation and irrigation. He recognised the tendency on the part of individuals and communities to lean too much upon the State, instead of trusting more to private enterprise. There were a few notable Instances, which he need not enumerate, where individuals had taken the matter in hand, and had carried the works out to a legitimate issue. (Mr. Homburg—" Large works ?”) It did not follow that a scheme must be large to be successful. He admitted that the State owed a duty to individuals, and he thought the present measure would largely supply that duty, and with an experiment or two**,** with reports, surveys, analysis of soil and water, and the gauging of rivers and creeks, the rest might fairly be left to private enterprise. He recognised in the principles of the Bill his own views, adopted after careful and mature consideration, and he thought the measure, when passed into law, would give a considerable impetus to water conservation. In saying this he did not advocate the carrying out of schemes without a full enquiry into their surroundings, because such an enquiry was absolutely necessary. A large number of our fellow-colonists, some of whom wrote to the papers, and some of whom spoke publicly, were very impatient at what they called the lack of enthusiasm shown by the Water Conservation Department. They thought or seemed to think that it was merely an example of examining a locally and obtaining a survey and a report, and that the work might then be at once put in hand. They told us that we might at once throw dams across our creeks and conserve all the flood waters that was now running to waste, but the excuse for such rambling statements must be found in the fact that they had not given the subject fair consideration. If we were going to work on such lines we should only waste money. Our water conservation schemes would be costly failures, and we would give a great blow to future development in this direction. Engineering experts insisted on a thorough examination, extending over a series of years, before any large scheme was carried out. They said we must understand the quality of the water, not only in times when we had a fair rainfall but in times of drought, so that we might be sure that the saline properties prevalent in periods of drought would not destroy the irrigation work in favorable years. The quantity of water must be gauged carefully over a series of years and estimated for the lowest possible supply. He might refer to what happened at Port Augusta last year. It would answer his purpose though it was not a complete illustration, inasmuch as at Port Augusta they had not availed themselves of all the advantages they might have done. Still they carried on irrigation works on a small scale without the assurance that they could always have a supply of water, and the result was in some cases absolute ruin to the gardens started there. In support of his position he would quote briefly some remarks by an expert (Colonel Sankey, B.E.), who in a report to the Victorian Government on a water supply for Castlemaine, Sandhurst, and Geelong, said:— “ Haste and failure are, I cannot but consider, synonymous terms when applied to water works.” Then he proceeded—“Ten or 11 years must be passed in careful registration ere anything in a large way can safely be undertaken.” Speaking on the storage of floodwaters he said nothing is easier than to project grand waterworks; nothing probably more difficult than to execute them, as water never makes a mistake.” In the report of the Victorian Royal Commission on water supply this necessity was urged as follows To afford such information as the State and public ought to possess of this most important of our natural resources it is necessary that the observations shall be extended over a series of years sufficient to embrace something like the maximas and the minimas of rainfall and consequent discharge.” Again, in the second annual report of the Victorian water supply for 1888, Mr. Langtree, the secretary of mines and water supply, wrote—‘‘As the records in our possession of the water-levels of our rivers, and of the rainfall on their drainage areas extend back as a rule only a few years, the results of these gaugings must be regarded as of limited value.” Then Colonel Sankey, R.E., in his report to the Victorian Government on the Coliban scheme shows that the proportion of rainfall discharged by the Coliban in the years 1868-9 and 70 did not bear anything like the same proportion to the amount of the rainfall, the figures being :—Rainfall at Daylesford—1868, 33.12 inches; 1869, 31.21 inches; 1870, 50.69 inches; and at Langley the rainfall was 1868, 22.76 inches; 1869, 23.29 inches; 1870. 49 45 inches; while the discharge of Coliban was in 1868, 10 33 inches; 1869, 2.16 inches; 1870, 25.11 inches. Therefore in 1869 the river discharged 3,163 million gallons only, while in 1870 the discharge was 36,477 million gallons. The Victorian Royal Commission on water supply give some gaugings of the Goulburn River at Murchison, which also show great variation in the annual flow, the proportion being:- Total rainfall discharged by river—1882, 31.10 per cent.; 1883, 34.91 per cent.; and 1883, only 18.65 per cent, of rainfall. What he wanted to point out was that although a large quantity of rain might fall they could not depend upon the water flowing down the river and becoming available for irrigation purposes. Hence the necessity for great care. He did not wish to retard the progress of irrigation, but he would like to impress the House with the seriousness of this point; and there was, he thought, all the more need for him to take up this attitude seeing that the Commissioner was such an enthusiastic optimist. All he would do would be to place a few plain unvarnished facts in juxtaposition to the glowing picture which had been drawn by Mr. Howe in moving the second reading of the Bill. Some of the illustrations given by the Commissioner were scarcely of much use to him as arguments. For instance, he quoted from the evidence given by Mr. Thomas Hardy before the Victorian Vegetable Products Commission, and if that evidence proved anything at all it proved that irrigation was not necessary. (The Commissioner of Public Works— “ I only quoted him to show that over production was not likely to take place.”) Mr Hardy only showed that irrigation was necessary for oranges. Then Mr. Von. Der Byl was quoted as saying that we might expect to get 2,000 gallons of wine per acre from vines. Mr. Hardy’s figures were that a ton of grapes produced 100 gallons of wine, so that it would require 20 tons of grapes from each acre to yield Mr. Von. Der Byl’s estimate. The author of “Irrigation for Farm, Garden, and Orchard,” however, gave 8 tons of grapes as a high result from an acre of land. If the Commissioner would only consult the vignerons in South Australia he would find that nothing like 2,000 gallos per acre could be obtained even with irrigation on the fertile Adelaide plains. Therefore, hon. members must not be carried away by these excessive quantities. Even in regard to oranges the Commissioner was too sanguine in his figures. He told them that 100,000 might be grown on an acre of land, but he (Mr. Catt) had paid some attention to this subject, and he was sure that the estimate was very extreme even under the most favorable circumstances. He was pleased, however, with the Commissioner's interesting figures with reference to the Hydraulic and Water Conservation Departments. When the Water Department was being subjected to so much criticism the statement of the good and valuable work that was being done by it, both in regard to conservation and development, was very gratifying. As to the watershed on the Torrens, he thought the Commissioner had perhaps acted right in purchasing the piece of land which had been alluded to as polluting the water, though at the same time he did not believe there was any occasion for hurry. He had visited the locality, and failed to see anything that would be likely to injure the water. The whole thing had been exaggerated, the medical men wishing to create a scare. As a matter of fact the Hope Valley was one of the best water supplies in the colonies, and we had reason to be proud of it. Then the Commissioner gave some information in connection with the Lake Bonney scheme, and looked at its possibilities in the most favorable way. Indeed, the contemplation of this scheme seemed to have a most peculiar effect upon the Commissioner. In reply to an interjection from him. Mr Howe stated that formerly, when in favor of the Barossa scheme, he had not maturely studied the matter, and that he would not be disposed to support it now. He trusted the hon. gentleman was not in the same position with regard to the Lake Bonney scheme, and that he would not come down directly and say he had not studied the question properly ; for If he studied these undertakings a little more carefully he did not think he would be so enthusiastic. He admitted that the proposed site at Lake Bonney was suitable, that the soil was fairly good, and that there was plenty of water, nor would the cost of conveying the water be so great as in connection with other schemes that had been suggested. At present he would not say whether he would support the undertaking or not. He was anxious to do what was right in carrying out works of permanent benefit, but he did not want to see them result in failure owing to the surrounding circumstances not being properly considered. There were several conditions which were necessary to secure before entering upon these works. Colonel Sankey, in reference to schemes undertaken by the State, said—“In order to secure satisfactory results in undertakings of this nature there must be the most rigid professional scrutiny of all projects. Everything approaching to the enthusiastic view must be absolutely set aside as worthless.” Had this rigid scrutiny been made? Then another condition was population. The same writer said—“It may at once be clearly laid down that without population there can be no irrigation.” But we had no surplus population to send to Lake Bonney in order to occupy the land when it was irrigated. Then we required expert irrigators, and these ought to be first secured in order to educate our own people, and thus minimise the risk of failure. To show how the State, when being pressed to carry out schemes of water conservation, might waste money, he would refer to a work by Mr. Robert Buckley on “The Irrigation Works of India and their Financial Results," wherein he stated—“In 1868, when great pressure was brought to bear upon the Government of India to promote irrigation by a State guarantee of 5 per cent to companies, the “Madras Irrigation Company’ was formed with a capital of £1,000,000, and a few years after another private company (The East India Irrigation Company) undertook without a guarantee the construction of a system of irrigation canals in Orissa. Both of these experiments have proved costly failures to the State.” There was another point to which the same writer referred. He pointed out that certain schemes which were estimated to cost £493,848, actually required £1,015,562 to complete them, whilst the area of land irrigated was much lessthan stated. All this pointed to the necessity for the most careful work in preparation of details of schemes. This was recognised by the Victorian engineer, Mr. Stuart Murray, in “Victorian Irrigation Report for 1886," where he said: - Before any proposal for irrigation can be usefully discussed it is necessary to know what is the minimum quantity of water that can be relied upon for use in each year. Otherwise we are apt to be led into the mistake of constructing works calculated to divert and distribute a greater quantity of water than is available ; or, on the other hand, of making works so small as to be incapable of dealing with the volume that is available and that can be beneficially used. In either case the project is handicapped ; the ultimate cost of construction is increased and the profit to the cultivators, who will be the owners of the works, is diminished. It is only after the lapse of years of observation that the normal discharge of a river and the conditions of its variation can be confidently stated; and this circumstance should induce caution while our knowledge on these heads remains imperfect.” And in “Irrigation in Egypt and Italy, by the Victorian Royal Commission on Water Supply,” were found these words “ It is admitted with but little qualification that there is no agent of agricultural production so effective as irrigation ; and that irrigation, though limited in its extent by natural conditions, depends for its degree of success upon the judgment and knowledge with which it is applied. It depends not only, as is generally recognised, upon the ability and experience of those who project and carry out great works for the provision of a regular water supply ; but finally, as is not so well recogniaed, it depends in the most vital way upon the energy and adaptability of the individual irrigator, and upon his efficient training in the art of irrigation. Practice alone can supply the special knowledge of the best method of dealing with each crop in each soil and season with the most economical use of water.” This being the case we ought to make sure before commencing large schemes that the most rigid professional scrutiny had been applied, and the other important conditions referred to carried out. We could not afford expensive failures. (Hear, hear.) We could not afford even to follow in the footsteps of Victoria and make a present of the interest as well as the principal. The Hon. Mr. Deakin, speaking at Bacchus Marsh, said—“This showed that the free grants, which the Government were actually giving to the country districts to encourage them to supply themselves with water for their own benefit, amounted altogether to £660 000. In connection with the Coliban scheme, which had been the life blood of a great district for the last 15 or 20 years, they had remitted interest to £600,000 more, and when farmers reproached him with their interest being neglected he generally looked to the little bill of free grants to country districts in connection with water supply, representing £1,250,000.” Realising this, he uttered these words of caution, not as a deterrent, but only that our work might be started on safe lines. He was glad to know that the department realised this to a certain extent, and that gaugings of rivers and creeks, the analyses of soils and water, surveys and examinations for dams and irrigation areas, are being made. The information thus obtained would be most valuable to trusts that may be formed under the Water Conservation Act. And now this brought him to the Bill itself, which was practically his own—(The Commissioner of Public Works—‘‘Hear, hear’ )—prepared under his instructions and after mature consideration. It provided for extending the scope of the Act to all parts of the province ; it required further details set forth in the petition ; and it gave owners of property a right they did not possess before. It provided for the Commissioner retaining control of the works; it reduced the amount by one half of schemes that may be started without consent of Parliament; it reduced the rate of interest; it increased the amount that may be advanced against the security of land ; and it provided for the purchase of land required for irrigation. He would now refer to a promise made to the House last session that he would, during the recess, visit as far as possible the sites favorable for the conservation of water. In company with the membersfor the district he first visited Sander’s Creek. The summer flow was 100,000 gallons per diem, and the winter flow was very large. A scheme to give 44,000,000 gallons could be carried out at a cost of £11,000, £540 for head works, and £10,460 for mains ; and the water could be supplied at about 6d. per 1 000 gallons The farmers on the flats were very anxious for a supply of water, but at a meeting which was held the farmers living near the range, having water themselves, objected to the scheme, and outvoted the others who wanted the water. Since then a smaller scheme had been prepared, at a cost of £5 000. to give water to 15 or 16 farmers. He might remark that the country in quetion is very dry on the flats, and has a small rainfall. Reedy Creek was also visited at the same time. lt had a much smaller summer supply but a large winter flow which could be conserved, and the country was favorable. In the south-east he visited Lakes Leake and Edward, whose water was at one time thought to be artesian. It was perfectly fresh, and the Conservator of Water considered it was not artesian, but only supplied from the drainage area around the lakes. The catchment area of Lake Leake was 600 acres, and the annual rainfall 36 inches. The Lake’s surface of 80 acres was estimated to contain 600,000,000 gallons, its depth did not vary much in a series of years. It contained water sufficient to irrigate 320 acres to a depth of 12 inches. This could be depended upon, and 12 inches with the large rainfall would be sufficient. The land about the lake was favorable for agriculture, but unfortunately it was in private hands. There was 1,600 acres of Government land about a mile away, but it was very poor. Water could be supplied to the land adjoining the lake by gravitation by merely cutting a channel12 feet deep on the north-eastern side through section 413, hundred of Riddoch, and the water could be led over the land, and could be supplied at such cost as to give 12 inches per annum per acre for 8s., or about two and three-quarter thousand for Id. This was a very favorable site, but the land must be purchased from the present owners before operations could be carried out. The cost of the scheme (without purchase of land) was estimated at £1,500. The smaller of the two lakes— Lake Edward—had a catchment area of about 860 acres, the lake itself covering 40 acres and having a depth of 33 feet. It might be interesting: to hon. members to know that the town of Mount Gambier is 131 feet above sea level, Lake Leake 318 feet, and Lake Edward 864 feet, and that both lakes are considerably above the surrounding country. He visited at the same time the Mount Gambier Waterworks, and had an interview with the mayor and others on the question of irrigation and of the charge for water for that purpose. The charge at present was 6d. per 1,000, providing 600,000 gallons are taken, but at present no one was taking water for irrigation. As the pumping machinery was idle half the time he offered to reduce the charge considerably if water was taken in large quantities. With larger machinery water could be supplied at 2d. per 1,000 gallons, and it might be worth while to supply it at first even at a loss as an experiment in irrigation. He also visited Baldina Creek and found the site well adapted for the growth of many products. The soil was good and the water in summer slightly brackish, but not so much as to prevent water-cress growing. Gaugings of the creek showed a large summer flow in the dry seasons, but such a large quantity of silt came down the creek that it would not do to erect a large dam, and it was decided that the best method would be to place a small weir in a favorable spot near the land to be irrigated. The land was in the bands of the Government. He instructed the Conservator of Water to place an advertisement in the *Gazette* and the local papers offering 10-acre blocks on lease at a rental of 18s. per acre, such rent entitling the lessee to 24 inches of water per annum. The works are to be commenced immediately upon applications being received tor eight blocks of 10 acres each. He learned from the Treasurer that applications had been received for the number of blooks, and he hoped the works would soon be put in hand. He visited Mannum, the residents having asked that irrigation works might be established there. The land proposed to be irrigated was situated at from 40 to 140 feet above the bed of the river. About 200 acres of township land were in the hands of the Government. Under the difficult circumstances he urged the residents to establish a water district under the Act, and promised legislation in the direction of liberalising the Act. The estimate for raisingand delivering water at the height named was from £7,000 to £8,000. At Mannum they witnessed the excellent effects of irrigation in Mr. Schutze’s garden. They also visited Pellaring Flat, in the forest reserve, andsaw there a very suitable site for a small irrigation colony. The soil was excellent—a good sandy loam with a large quantity of decayed vegetable matter—at the debouchement of Sander’s and Shepherd’s creeks. The elevation at the highest part of the irrigable land was from 30 to 40 feet. Instructions were given that the land should be resumed from the Forest Board and irrigation works commenced. This scheme and that at Baldina were experiments which might very well be tried without incurring very great expense. He had also visited the Burra Creek at World’s End, and from a cursory examination he believed a large quantity of water could be conserved in the bed of the creek without any great outlay. At the request of the residents he afterwards visited Twoowie Springs. The residents were very anxious to establish an irrigation colony there, but unfortunately there was no Government land in the neighbor­hood. He believed, however, with the assistance of the Government they would be able to carry out the scheme. A dam 40 feet high and 200 feet in length would conserve 66,000,000 gallons of water at a roughly estimated cost of £10,000. The drainage area was 66 square miles, and the average rainfall 14 inches. The country below was very favorable for irrigation, and the residents should certainly carry out the scheme, which would irrigate 120 acres to a depth of 24 inches or 240 acres to a depth of 12 inches. He also visited Pekina, where there was a splendid site for a dam. The area of the watershed was 63 square miles, and the rainfall 14 inches. By the erection of a dam 66 feet high and 376 feet in length, 300,000,000 gallons of water could be stored at a cost of about £25,000. The area that could be irrigated would be 600 acres to a depth of 24 inches or 1,200 to a depth of 12 inches . There was some Government land available near the town, but the residents urged that the scheme should come under the Act. There was a large summer flow in the creek, estimated at 100,000 gallons per day. The water was slightly saline, but good results had been obtained in gardens near the creek. He knew there were some hon. members, including Mr. Playford, who held that it would be a waste of money to build dams as the creeks would silt up, and he admitted that there would be a great difficulty to contend with in this. He had looked at the question all round, and while he recognised that there was a great deal of force in the argument he did not think they need dread it so much as Mr. Playford dreaded it. By making catch cams in the gullies leading to the creek the question could be dealt with without any serious consequences. In the last scheme he knew some of the land was disturbed by cultivation, but much of it was from pastoral land. At all events he did not think that question should deter the inhabitants from carrying out the scheme, seeing that the provisions of the Bill were so liberal. He had trespassed somewhat lengthily upon the time of hon. members, but he had felt it his duty to refer briefly to the promise he gave last session that he would visit certain localities and report to the House. He expected to have given an official report, but he now gave the House his impressions. He had given the question considerable attention, and so far as most of the schemes were concerned he thought they might be carried out with profit and advantage to the general community. He thanked hon. members for the patient hearing they had accorded him, and from the enthusiastic manner in which the Bill had been received he hoped soon to seeit law. (Hear, hear.)

On the motion of Mr. GILES the debate was adjourned till Thursday.

**WATER CONSERVATION ACT AMENDMENT BILL 1889**

**House of Assembly, 29 August, pages764-6**

Adjourned debate on second reading

Mr. GILES had great pleasure in supporting this measure, which was one of the most important the House would have to deal with during the session. No doubt the existing Act was not liberal enough, because it would take some years before any return could be got from any irrigation scheme undertaken. Therefore the longer the period before the interest was chargeable the better chance would there be of success. He did not think the interest should be charged until the works were completed, and if such a clause were inserted he would support it. To encourage people to come under this Act, and help themselves, would be one of the best things that could be done. The more we could encourage independence the better it would be for the welfare of the colony. The great difficulty was not to find places in which to obtain water for these irrigation schemes, but in finding the people who would work together in carrying them out. By this Act, however, this difficulty ought to be done away with. He would oppose any scheme which the Government might bring forward which did not require a guarantee. The proposal of the Government to establish irrigation works at Lake Bonney was, he considered, a mistake. The scheme was a good one, but it was breaking a principle to allow the Government to do without a guarantee. What this Bill said shouldbe done with a guarantee, should not be done without one. If once they broke that principle they would have every district in the colony asking for similar assistance. In the district of Frome there were several places which would be suitable for such schemes; and where they would pay. (Mr. Bartlett-—“At Lake Bonney we have the water”) At Lake Bonney

the water had to be pumped, but at the places he alluded to the water would run itself. These places, again, would have a good market for their produce, and had everything which would make such schemes pay there. Lake Bonney was an out of the way place without any market, though he would support the Lake Bonney scheme were it not that it did away with the independence of the people. They could not expect people to give guarantees when the Government started opposition schemes of irrigation. At Orroroo the expenditure would be small, and the number of people settled there would help in the consumption of water, and yet he would not support the Orroroo scheme being carried out by the Government. We could not give the liberal terms the Bill proposed, and also let the Government initiate schemes. (Mr. Bartlett—" The Murray waters are running to waste.”) They were not running to waste. It had been shown most clearly by the late Commissioner of Public Works that if we went on taking water from the Murray for irrigation on a large scale there would not be sufficient in the lakes below and the water would become brackish. He remembered crossing sheep as high as Wellington some years ago, when the water there was brackish owing to the sea water coming up. Then we had thousands of acres of land in the hills which without irrigation were suitable for gardens. Yet this land had not been touched or taken up. There was a large quantity of land held under lease in the Tiers which could be used for gardening, and which did not require any irrigation at all. It seemed to him that we were in too big a hurry, and if we pushed the thing too fast we should cause the waste of a great deal of public money. If the land in the neighborhood of Adelaide was not taken up it must show the want of a market, and if there was no market close to the city how could it be expected in the case of Lake Bonney. (The Commissioner of Public Works— " Oh, we heard that cry 30 years ago.”) No one knew more the value of land in South Australia than he did, or that it ought to produce ten times as much as it did, but still the fact remained that this land in the bills, which was admirably suited for gardens, was absolutely not being used. He would support the Bill

The COMMISSIONER of CROWN LANDS (Hon. T. Burgoyne) said the general cry had been that we had a land peculiarly adapted for irrigation, and that by irrigation alone could we make this country what it ought to be. (Mr Catt—“Not by State aid.”) He was surprised at members, who knew with what importance the subject was regarded, should endeavor to cast a damper in any way on any scheme of irrigation that might be proposed they all knew that the construction of a reservoir to hold back the water was the most expensive part of an irrigation scheme, and here at Lake Bonney we had a natural reservoir ready made and in excess of anything we could in our wildest dreams imagine that the hands of man could produce, and this without any cost on our part. Mr. Catt was inconsistent in urging that we should spend large sums on reservoirs when we had this reservoir ready made and a large river running by. If we wanted to try these experiments we should take advantage of this opportunity. He believed the soil round Lake Bonney was equal to anything we had in the colony ; that was average soil for fruit culture. It was 6 or 8 feet deep, and the roots of the trees could go down foot by foot year after year, whioh was one of the most important things we had to consider. He believed that the application of water to this land would result in putting a large and progressive population on the soil, one that would add to its own and the country’s wealth. He deprecated the pessimistic notion that because our grandfathers had not advanced that we would no nothing (Mr. Homburg—“ That is beside the mark. The question is whether this is the beet place.”) The facilities of the spot were an immense natural reservoir, good soil, and an unfailing supply of water. Could the hon. member point to another place so favorably suited? (Mr. Catt—“What about the Sewage Farm, where everything is so favorable to Irrigation *?’)* That was a different case altogether. He believed the scheme would result in a splendid success, and it could not be a failure.

Mr. LANDSEER had listened with pleasure to the Commissioner's opening speech on the Bill. He was very glad to find that our water conservation in the past had been such a financial success, and had produced, among other things, such a beautiful city as Adelaide. He did not think we should go to any further heavy expenditure for headworks, for he believed that if we wanted an increased supply it might be obtained on the artesian principle, and that such could be found in the Mount Lofty Range. In Queensland and elsewhere water had been struck by deep boring at places where it was formerly considered absurd to search. He could not say he would directly oppose the Lake Bonney scheme, but he would remind the Commissioner that formerly it had always been supposed that any irrigation scheme should be under the trust system. He feared that if this scheme were placed in the hands of the Government we should find that unsuitable men got on the land. He would not run down the locality, for he knew no place on the river to compare with it (The Commissioner of Crown Lands—“ Hear, hear.”) He feared, however, that those who went on the land would before long ask to surrender it and get it at a reduced price. We had already handed over a large piece of irrigable land to Messrs. Chaffey Brothers, and those gentlemen had done what they promised, so that it hardly seemed a fair thing to start an opposition affair at so early a period. Again, there should not be too much of a speculative character in any undertakings of the Government and he feared this scheme might prove a heavy loss to the Treasury. It would very probably be disastrous to Messrs. Chaffey. He also doubted whether the water supply would really be sufficient. They had already given power to Messrs. Chaffey Brothers to take a considerable quantity of water out of the Murray, while Victoria had given them greater privileges. Mr Catt had pointed out that large works were in contemplation in Victoria and New South Wales, while a friend of his informed him that there were so many proposed in New South Walea that they would not allow sufficient water in the Darling for the navigation of a boat even. In consideration of all these works it would be well to pause before they allowed any additional works to be carried out that would still further decrease the amount of water in the river. During the last three months Lake Alexandrina had been as salt as the sea, and for six weeks he had to supply his horses with water from other sources. If the natural flow of water at the present time was not sufficient to keep the lakes fresh what would be the result if they went in for the colossal works proposed ? He did not ask hon. members to be very cautious before they expected the results that the Commissioner of Public Works did It would be all very well to fertilise the soil near Lake Bonney, but they would spoil the country near the lakes at the entrance of the river. By carrying out these works Victoria and New South Wales could ask what right had South Australia to ask them to cease carrying out works while she continued to do so? The only way to properly meet the difficulty was to throw a weir across the river. He would not assist the carrying of the Bill unless the Commissioner of Public Works would give an assurance that the land at the entrance would not be spoilt. (Hear, hear )

On the motion of Mr CALDWELL the debate was adjourned till Tuesday next,

**WATER CONSERVATION ACT AMENDMENT BILL 1889**

**House of Assembly, 3 September 1889, pages 778-81**

Adjourned debate on second reading

Mr. GLYNN expressed his sorrow that Mr. Catt had taken such a pessimistic view of the prospects of irrigation in South Australia. (Hr. Catt—“I did not ”) The speech that gentleman had delivered on the subject of irrigation under the supervision or Direction of the State was at all events rather pessimistic. It seemed to him surprising that one who had occupied the position of Commissioner of Public Works for two years should have taken the attitude the hon. member had. If Mr. Catt would turn to the first page of the last report on “ Irrigation in Victoria,” written by the Hon. A. Deakin, he would find that the writer advised activity. He stated—“ What we most require in Victoria in order to hasten the success of irrigation is not theory but practice—(Mr. Catt—“ Hear, hear ; that is exactly my view’)—not that we have had theory enough, but that we have had a great deal more than has yet been applied.” Hon. members might probably follow the ex-Commissioner of Public Work’s statements as correct, but he would point out some of the false arguments he had used. Mr. Catt had stated that the expenses would be proportionately greater for large schemes than for small ones. (Mr. Catt—“ Where do I say so ?”) It was in the hon. member’s speech. (Mr. Catt—“ Read it ”) There had been absolutely nothing done by the Water Conservation Department in the way of irrigation. There had been a great deal of talk about it. (Mr. Catt—“ Who is to blame for that; I was only in the position for a short time.”) He did not know who was to blame, but from the starting of the Water Conservation Department to the present time the result had been the production of 13 or 15 reports. (Mr. Catt—“ Very good reports they are.”) But they were reports which should have been acted upon. The adoption of some of the reports had been recommended by the Conservator of Water, and yet not one of them had been acted upon. (Mr. Catt—“One is being carried out; you are inaccurate.”) He could state that the outcome of the reports which had been made had been nothing, and if theorising were to be continued as it bad been indulged in in the past nothing at all would be done. If Mr. Catt’s ideas were to be carried out there never would be irrigation except in populated land. The present Bill would apply to land which was admirably situated for irrigation, and where there is no population. On one occasion the hon. member had warned the House against the possibility of their being misled by statements he had made. He (Mr. Catt) relied upon the statements of Mr. Deakin, but that gentleman did not always speak consistently. This report, which was embodied in an interview, did not give the exact facts of the case. Immediately after that interview he had written to the Water Conservation Department and asked them whether certain specifications which were sent him for trusts were national works or not. The engineer for the water supplies replied that such was the case. Mr Catt had said that the Governmert ought not to undertake a large scheme. Perhaps that gentleman wanted private enterprise to step in, but when lastyear a private syndicate applied for 160,000

acres the Commissioner had not granted it. He offered 80.000 acres**,** but owing to some subsequent muddling the whole matter fell through. Now, according to Mr. Catt and according to the report on the files of hon. members, the Baldina scheme, which was one of Mr. Catt’s schemes, would not probably be a success because the water was too much impregnated with saline particles. He believed it would give for 12 inches to the acre of water about a ton of salt. Mr. Catt had quoted Colonel Sankey as saying that it took 10 or 11 years before anything should be done, because a lot of gaugings should be taken. Well, we had gauging a of the Murray extending over 10 years and gaugings at Echuca extending over 20 years in the office of the Conservator of Water, and if they were not sufficient to attempt something upon there would be no end of talk and no beginning of action. Mr. Catt said before doing anything we must experiment still further, but he knew that at Mannum Mr Schultze had made irrigation a great success, and that at a farm at Woodville irrigagation had been made to pay on a small scale with an expenditure of £8 per acre. Another objection was that there would not be a market for the produce. The reports with regard to the fruit industry published yesterday showed that we had not got enough fruit to make a market. (Mr. Playford—“We can grow all these fruits without irrigation ?’) Then why did they not do it? What was the use of talking about our inheritance in the hills if we did nothing with it ? Because the Lake Bonney scheme was carried out it would not exclude the possibility of success in the hills. Mr. McMordie in a report to the New South Wales Parliament on the diversion of water from the River Murray said—“ A great deal has been done in the way of keeping this Mildura irrigation settlement prominently under public attention, and it seems to be sometimes assumed that a great experiment is being tried by which the value of irrigation in these colonies is to be tested and its progress in the future in a large measure decided. It would be a grievous mistake if any such idea got hold of the public mind, or if the value of the Murray waters to this colony should be estimated on such a basis. The degree of success or failure which settlers (not the licensees) at Mildura may attain can be no more than a measure of how far these people underrated or overrated the possibilities of irrigation in all the circumstances of soil, climate, position as regards markets, cost of land, &c., &o., which to so large an extent must have in the face of competition which is sure to arise in other localities more or less favored a determining influence on the ultimate financial result of their ventures.” After referring to the prices paid Mr. McMordie proceeded—“ Purchasers at the above prices have to prepare the land for cultivation, fence it, plant it, &c., at their own expense, and to pay a yearly charge per acre for water sufficient to defray the working expenses of the irrigation machinery and works, and maintaining and keeping the same in good order and condition. Every purchaser of land acquires an interest or part ownership in the property of the general irrigation works proportional to the area owned by him, and transferable with the land or each acre of the land ” As to the Lake Bonney scheme they had got the reports of the Conservator of Water, and the estimates he (Mr. Glynn) had presented to the House had been corrected by very able men before he submitted them. From these it would be seen that the scheme at Lake Bonney could be carried out at half the cost per acre per annum of the other schemes on the Murray. Mr. Catt required to be watched very carefully. He had mentioned Victoria, and the Victorian system was not fundamentally different to that which would be adopted in connection with the Lake Bonney scheme. Mr. Deakin, writing on the subject of State irrigation as against private enterprise, said: —“ The establishment of a comprehensive system of irrigation by private enterprise is possible only under unusual conditions. If it embrace many sources of supply, large areas, or conflicting interests, it is impossible. The capital required is large, the returns are hot rapid, and the full benefits secured by the close occupation and complete utilisation of considerable areas are so diffused that the State which reaps those benefits in unnumbered ways is certainly justified in assuming large responsibilities with their initiation. This becomes palpable when it is perceived that, as with Egypt and Italy, carefully matured schemesensure an enormous agricultural production and the stable prosperity of a large number of producers. It may safely be asserted from foreign experience of many generations that irrigation is one of the soundest national investments where engineering ability executes works which are afterwards taken over under local control guided by a carefully compiled code of water laws and regulations, while the land whose production is enhanced is charged with the interest upon the capital expended in supplying it. All of these conditions we ought to possess in Victoria.” Of course in reading these reports it would not do for members to read the cover and then imagine that they had mastered the contents of the work like Mr. Catt, who had quoted the first two pages of a work on India, and then posed as the exponent of the opinions of the author. (Mr. Catt—“I took that as an illustration as to big schemes.”) Here was the quotation from the hon. member’s speech: — “To show how the State, when being pressed to carry out schemes of water conservation, might waste money, he would refer to a work by Mr. Robert Buckley on “ The Irrigation Works of India and their Financial Results,’ wherein he stated—“ In 1858, when great pressure was brought to bear upon the Government of India to promote irrigation by a State guarantee of 5 per cent to companies, the “ Madras Irrigation Company” was formed with a capital of £1,000,000, and a few years after another private company (The East India Irrigation Company) undertook without a guarantee the construction of a system of irrigation canals in Orisa. Both of these experiments have proved costly failures to the State.’ ” What was that meant to convey, but that this authority was against the construction of works by the State? (Mr. Catt— “ Nothing of the sort. I meant that we might waste money on the same lines.”) if Mr. Catt had turned over to the third page of Buckley’s interesting work and had gone through the work—(Mr Catt—“I have read it through twice.”) Then he was sorry the hon member had not profited by it. Up to 1846 all the works of India, except railways, were carried out by the Army Construction Department; but in 1846, when a policy of railway construction was started in India It was suggested, and the suggestion was adopted that private companies should, under the direction of the State as regarded the character of the lines and their route, carry out the works under a guarantee on the actual expenditure of 5 per cent Buckley said “The Madras Irrigation Company since its formation has succeeded for one year only in meeting its working expenses. These two companies were the only ones connected with irrigation works in India. The Madras Company still continues to carry on its works under Government guarantee The East India Irrigation Company was purchased by the Government in 1867, at which date the Government had decided that both railway and irrigation works should be constructed directly by their own agency, which they considered to be more economical and more easily controlled than the guarantee system.” The authorities quoted by Mr. Catt completely refuted the position he assumed. The instances he had named were the only two failures in India. One was going still, and the other had to be purchased by the State at a loss, because the State had to give a bigger price than the real value. There were 17 schemes which showed a profit of 7 1/2 per cent, on the outlay, and all these were Government schemes! (Mr. Catt—“ Well matured.”) Yes, it took 20 years in some instances, but do not let us reject a scheme because of that objection. The Government of India got about 5 1/2 per cent, by the schemes going and in course of construction, and they got as high as 20 and 30 per cent., so that Mr. Catt’s objection would not apply. Now he wanted to say a few words about one or two schemes which Mr. Catt had recommended for adoption. The first was the Baldina scheme, in connection with which the hon. member estimated that the water would cost 18s. per acre for 24 inches; but his estimate for the Lake Bonney scheme was only 15s. per acre for the same quantity. Then there was the Sanders’s Creek scheme. How could the hon. member advocate that it should be carried out ? (The Hon. A. Catt—“I only suggested that the people should take it up.”) Surely the hon. member did not want them to commit suicide. Mr. Catt’s estimate for this scheme was at 5d. per 1.000 gallons. (The Hon. A. Catt – That is not for irrigation purposes, but for domestic use.”) The hon. member knew well enough that he recommended the scheme for the purposes of irrigation. (The Hon. A. Catt—“Only to irrigate garden plots.”) The hon. member was dealing generally with the subject of irrigation. For 12 inches this would be £5 16s. per annum, or £11 10s. for 24 inches, which was much more than twice the estimate of the Lake Bonney scheme. (The Hon. A. Catt—“The Saunders’s Creek scheme was only for domestic purposes.”) Well, then, why did the hon, member bring it in and usethat as an argument in connection with irrigation schemes ? The hon. member also urged that we should try small schemes first. Look at Mount Gambier, where they charged 6d per thousand gallons, but no one would take the water; and the hon. member explained that if they had a larger scheme there the charge would only be 2d. per thousand gallons, and that then the water would be usedf for irrigation. Did not that prove the position that he took up, and disprove the idea of the hon. member for going in for small schemes ? (The Hon. A. Catt That is a pumping scheme.”) So was the Lake Bonney scheme, and as a matter of fact gravitation schemes cost more than pumping schemes, because headworks had to be constructed at a great outlay. He hoped hon. members would not be deluded by the ex-Commissioner of Public Works, who was misled by the gloomy view he took of South Australia. If they waited for schemes that would be absolutely certain to realise the hon. member’s conceptions they would never do anything. Mr. Catt had picked up premises from a wrong source, and had accordingly arrived at false conclusions, and his (Mr. Glynn’s) object had been to point out the inaccuracies.

Mr. CALDWELL gave the Hon. Mr. Catt credit for having devoted a large amount of time during the recess to gaining information with regard to the various possible water conservation schemes in South Australia. With reference to the measure before them he regretted that its principles had not been included in a comprehensive scheme of local government years ago. As it was no advantage had been taken of the Act that had been in existence for some time. The storage of water was one of the most important matters we had to consider. There were large areas of land that could not be occupied without water, and he felt that no obstacle should be placed in the way of any legislation for the purpose of remedying the effects of our climate. Of course in supporting the measure they would not commit themselves to any particular schemes, but would simply show that they recognised the general necessity for the measure. Still he thought the Bill did not sufficiently meet individual cases. Water districts were to be created, but there might be instances where one man could if assisted dam up a water­course and successfully irrigate a certain area. (The Commissioner of Public Works—“ That can be done.”) Well, he could not see anything in the Bill dealing with that aspect of the question. Then he thought there ought to have been something definite in the Bill with reference to the waters of the Murray, because that was the only great river we had. and sooner or later the riparian rights of the different colonies would have to be settled. Mr. Catt had said that we had not men in our Water Department capable of undertaking irrigation schemes, but he believed that we had a number of very efficient officers who were simply rusting for want of scope for their abilities. (The Hon. A. Catt—“What I say is that we want a skilled irrigationist.”) The Chaff eye did not want any irrigation expert, and were doing their work with South Australian surveyors. Some hon. members were deluded in their belief that the Chaffeys had imported Americans to do their wor for he understood they were working with South Australians as surveyors, engineers, and laborers. He would give the Bill his best support, and his only regret was that such provisions as the Bill contained were not placed in a compact measure of local self-government.

On the motion of Mr. DUNCAN the debate was adjourned till Thursday.

**WATER CONSERVATION ACT AMENDMENT BILL 1889**

**House of Assembly, 5 September 1889, pages815-20**

Adjourned debate on second reading

Mr. DUNCAN did not intend to discuss this measure, inasmuch as the Commissioner of Public Works had exhausted the subject from his pointof view, whilstthose hon. members who had followed him, particularly Mr. Catt, had gone fully into the question ; but there were a few points upon which he would like to elicit a little information He was rather inclined to think that as a Select Committee was now enquiring into the subject it would have been better that hon. members should have been in possession of their report before being asked to legislate upon the question, because no doubt the evidence obtained by the committee would be of great service to the Parliament in considering such a Bill as this. The question opened up a wide field for discussion—a field that it was almost impossible to comprehend at a glance— and when a measure dealing with it was introduced hon. members and the people generally would conclude that it would be of a comprehensive character. But this Bill, notwithstanding the important debate that had take place upon it, was a very modest little measure indeed Its object was simply to amend the Act of 1886. That Act aimed at the encouragement of the formation of local water districts controlling the conservation and distribution of water. The cost of the construction of the works was to be provided by the Government, and the interest on the outlay was to be guaranteed by the people. This Bill merely proposed to extend and liberalise the provisions of the Act so as to induce the people to avail themselves of the Act more than they had done in the past. The liberalising of the Act had his thorough sympathy. As had been pointed out the legislation of 1886 had only resulted in the carrying out of one small scheme at Wilmington, and if hon. members were satisfied with that their ideas were certainly not very ambitious. He was sure they would agree that as the effect had not been of a more extensive kind they might well consider whether better results could not be obtained in the future. Besides the work at Wilmington there was a novel proposal which had been submitted to the Commissioner the other day, and that was the exten­sion of the provisions of the Act so as to assist a manufactory at Lobethal. If that was all the good that came out of their legislation it must be faulty somewhere, and required revision. This question of water conservation was one the magnitude of which could not be over-rated, and to regard this little Bill as one dealing with the question generally would be a great mistake. Of course it did not aim at that, and as he had pointed out it was only an amending or tentative measure. Now the Commissioner had referred at length to the advantage that had resulted from the expenditure of money on water conservation, particularly in connection with Adelaide and one or two other places, and he thought he was perfectly justified in drawing attention to this. He (Mr. Duncan) could remember the barren appearance which the suburbs of Adelaide formerly presented, but now the whole aspect of the surroundings of the city had been pleasingly changed, and one of the most gratifying features in certain parts of the year was the presence of green orange groves. All this change was due to the proper application of water. Then the Commissioner had pointed to the large expenditure which had already been incurred in the development of the country, but it was to be feared that a misconception might arise as to how this money had been spent, and when replying he would ask the hon. member to make this clear. The Commissioner’s words were—“ This money had been chiefly spent upon boring, well sinking, and dam making, for the purpose of enabling our pastoralists to remain on their holdings ” The only inference from this was that the Government had spent the money with the view of keeping the ppastoralists on their runs, but he did not think that the hon gentleman exactly meant that. So far as he knew the Government had not spent a single pound for any such purpose, and what the Commissioner meant was that the Government had spent the money in opening up roads and in providing water on stook routes. (The Commissioner of Public Works—“Hear, hear ”) Of course there was no wiser or more profitable expenditure to the State than this, and it was the only way in which the Government could get the interior occupied. He was satisfied that the time when they could get private individuals to go into the interior and open up the country at their own risk and expense was almost passed. For years past the pastoral interests had not progressed, in fact, they had suffered greatly. Some of the pioneers who had pierced far into the interior were now finding that it was beyond them, and that the costs were beyond private enterprise, and some of them after having given it a trial for years had come back. He pointed this out as he had on former occasions, as he thought the time had arrived when the Government and the Parliament would have to say “ Are we satisfied that the limit of settlement has been reached *?”* From the experience of past years he knew that the limit of private enterprise had been reached. The right course for the Government to adopt was to admit that there were thousands of miles in the interior suitable for pastoral settlement, and to assist that settlement. (Mr. Rounsevell—“ Permanency of settlement will overcome it”). He was afraid not. Unless the Government could by a judicious expenditure of money place water on the land and allow people to take it up the experience of the past was proof that, as in the past, that country would remain unoccupied and unsettled. There were people who thought that the country could be opened up by piercing It with a railway and that settlement would follow. He did not believe anything of the sort. The costs of sending supplies into the interior was a small item, as for some years people were able to carry their stores up by camels, and their use had enabled stations to be carried on when they otherwise would not have been. The camels could pierce the country in all directions from Port Augusta to Port Darwin. It was not through the want of being unable —even at somewhat; moderate rates—to obtain supplies that the country had not been settled. Of course it would assist people to have their supplies carried up at a lower rate, but that was not the difficulty. Water was the great difficulty (Mr. Rounsevell—“ Give them 60 or 70 years tenure and that will get over it.1’) He was afraid that the huge expenditure In the past had not been laid out in the best possible way. He was aware that a great deal of good been done in providing travelling stock reserves with wells. The question for the future was that these roads should lead somewhere. If private enterprise could go no further the time had arrived for the Government to open up country by providing water. He did not think he would be going one step beyond perfect accuracy if he affirmed that there was not one mile of country settled in the interior by Government expenditure. People and stock not only required to be able to travel about, but to travel somewhere with a definite aim in view. Immense tracks had been taken up under the Government in the Northern Territory— especially in the southern part—but a great part of that country was taken up for purely speculative purposes. It was not taken up with a view of developing the country. A great portion of it had only been taken up on paper, and settlement had not followed as they might reasonably have expected it to have done. The Hon. Mr. Catt had placed in his hands a plan showing the extent to which stock routes had been opened up, but there was no doubt-and it confirmed the statement made by the Commissioner of Public Works and admitted by himself—that the Government had done a great deal to open up the country, but it only emphasised what he had said, that when seeking to open up the country there should be large settlement at the end of these expensive routes. The Select Committee on water conservation in considering this question might possibly make some suggestions that would be useful to include in the Bill. He thought it would be advisable that the Bill should not be takten out of committee till they had some report or progress report as to whether the Select Committee might not wish something on the subject included in the Bill which was not there now. We were living in a dry country and we had dry seasons and good seasons, and they all knew that people could not settle with satisfaction to themselves or with satisfaction to the country if there was not a reasonable supply of ordinary good water. That being so, and as there are dry districts, he favored all schemes that would afford reasonable supplies. He did not favor schemes that went in for growing wheat by irrigation, but schemes which had a practical end in view—schemes to provide water for man and beast, and to enable men to remain on the land without having to devote perhaps the whole of their energies to carting water for the animals on their farms. In carrying out such schemes they could make no mistake. (Mr. Bartlett — ' How about the scrub farmers?’) He did not set himself up as a practical scrub farmer, but he knew something about it, and he had constituents who were scrub farmers ; and it was not always the men who talked most and rushed to the Government for this, that, and the other who stuck to their farms, but those who carted water in the hope of good seasons to come. While he agreed that it was desirable to provide ordinary schemes, he quite agreed with Mr. Catt that they should be exceedingly cautious in carrying out speculative schemes the dimensions of which they could not estimate. Rather curiously they had the subject before them in a sort of double-banked form. They had Mr. Glynn’s motion and the Government Bill, and the thing had become so interlaced that it afforded hon members an opportunity of making two speeches. He thought the Commissioner of Public Works was to blame for this, as he dragged the Lake Bonney scheme in neck and crop. Referring to that scheme he had formed one of the party that went up theRiver Murray, and notwithstanding that hehad read agreat deal about theMurray, and had been familiar with people who had lived upon it, he had not the slightest conception of the vastness of the territory in that direction till he took that trip. That was one of the reasons why he thought it was well that members should see things for themselves, because as a rule when they came to see things they were different to what they were as read about. He was strongly impressed with the vastness of our territory on the Murray, and having there what we lacked elsewhere—an abundant supply of water—there was a strong reason why settlement there should not be so precarious as it was elsewhere. If the experiment of the Chaffey Brothers proved successful there was no measuring the extent of similar settlements on the banks of the river, and be for one wished it every success, because it would point to a great future for settlements on the river. Now they ought to be very careful that they took no step to jeopardise the success of that scheme, and he thought that seeing we had first of all offered people encouragement to go there they ought to give them a fair opportunity of profiting by the monopoly they at present held. Although there might not be any hard and fast provision in the agreement with the Chaffey Brothers to the effect that the Government would not enter into competition with them, he thought morally we were bound to stand aside for a little while and give them an opportunity of reaping some of the fruits of their enterprise. The Chaffey Brothers were not likely to be foolish enough to undertake so huge an experiment for the good of the colony. They did not come here to invest, their money in order that good might accrue to South Australia. No; they went into the thing simply as a speculation, and he said all honor to them for it. If their speculation were a success we could step in and follow it up to any extent we liked. But if their experiment were a success the reasonable inference was that there would be no need for the Government to incur any expenditure, because there would be others only too glad to enter into similar undertakings. Then the Government would be in the position of being able to gauge more satisfactorily the value of the lands. At present we were in the dark, but if the Chaffey’s’ scheme were successful it would stamp the value of the land on the Murray. Let us hold our lands for two or three years, and then at the end of that time we would be able to decide to what extent the Government might judiciously go in the establishment of such undertakings. He had very considerable doubts as to whether these irrigation lands could successfully enter into competition with lands where no irrigation was needed. The Commissioner had pointed out that by the application of water to land a certain number of fruits could be produced; but we did not require irrigation to grow those fruits. Within many miles north and south of Adelaide they could be grown without irrigation, and how was it going to pay people who bought land on the Murray at £20 per acre, subject to an annual charge thereafter of he believed £1 per acre, to grow fruit, when the fee simple of abundance of land could be obtained much nearer Adelaide at the outside of £5 per acre. Where the profit came in was beyond his comprehension, and that was one of the difficulties that the people who so strongly urged the settlement of people on the land would have to get over. Consequently he old not see his way clear to support the proposition that the Government should go to any expenditure to enable people to grow fruit on the Murray. The Commissioner had referred to the growth of the olive, and had quoted a report thereon. Would it pay to grow olives anywhere in the colony ? (Mr. Catt—“ Certainly not. It doesn’t pay to gather them.”) Exactly. Was it not a fact that olives were grown extensively throughout the suburbs, and that the people growing them offered them to whoever would pick them? (Mr. Bartlett—“Go to Mr. Wurm, of Stansbury, who is planting trees every year, and he will tell you whether it pays or not;” and Mr. Solomon —“The Adelaide Corporation say it doesn’t pay.”) There was practical experience against mere theory. As the Hon. G. C. Hawker pointed out, a great deal depended not upon whether things could be grown but upon whether it would pay to grow them. The farmers had been advised to grow olives, sunflower seeds, and osiers, but it was no use growing these things if they could not sell them, when by growing wheat they could always find a market for their produce. While he wished all irrigation schemed success, he agreed with Mr. Catt that we should advance very cautiously and see the result of the experiment now being made. Mr. Landseer had pointed out how the impounding of water from the Murray might result in damage about the lakes and at the mouth of the Murray, and he would urge the Government continually to impress upon the Governments of the other colonies the necessity of coming to some understanding on the subject of the waters of the Murray.

If we began works on the Murray the Governments of Victoria and New South Wales might go and do likewise. The waters that came down the Murray were not unlimited, and if we were to impound waters and Victoria and New south Wales did the same serious consequences mightensue. It seemed to him that something would ultimately have to be done at the mouth of the Murray, whichwould have to be locked to prevent the fresh water going out and the salt water from coming in. It seemed to him a very proper subject for consideration as to whether the other Governments shouldnot be invited to go into this matter with us, because it was of as great importance to Victoria and New South Wales as it was to South Australia. Mr. Landseer had pointed out that only recently the water in the lakes was so salt that he had to sendhis horses elsewhere to water them, and they had been told that fruit trees that had stood for many years had, owing to the sea penetrating to the lakes, been destroyed. Any impounding of the water causing the breaking-in of the sea would therefore act disadvantageously to the colony. Before the Government began further impounding or winked at any further impounding: by Victoria and New South Wales they should see that something was settled on the question. We had a Water Commission, which had been in existence for a couple of years, and was it not more than a farce that absolutely nothing had been done ? If he were a member of that commission he would feel inclined to resign. The Government should press on the other Governments the necessity of taking action. (The Commissioner of Public Works—“The Federal Council can take action ”) If the Federal Council was going to be any thing more than a figurehead, if anything practical or useful was going to come out of it, surely it should take action on a question like this, which affected the whole of Australia. If this Government could not bring pressure enough to bear on New South Wales, then recourse should be had to the federal Council by our delegates at the next meeting of that body. He hoped the riparian rights of the states along the Murray would be one of the subjects for discussion at the council’s next meeting. (Hear, hear.).. Whatever might be done under the Bill he hoped no opportunity would be given to the Chaffeys to say that there had been a breach of faith with them. Let the Government be quite sure that starting other irrigation works was not a breach of faith (Mr. GJynn—“What guarantee have we given them?”) He would like an explanation from the Commissioner as to subsection 4 of clause 6, which was as follows:—“ The names of three persons (qualified, as hereinafter provided, to become members of the board) nominated by the petitioners for appointment by the Governor to the first board for the proposed district.” He had looked through the Act, but could not find the qualification. (The Commissioner of Public Works— “ In the principal Act it says, “ratepayers residing in the district.’”) He would also ask what followed the appointment ? (Mr. Catt—“ That is all provided for in the old Act.”) He thought it a pity the old Act was not repealed and a consolidated measure brought (Here, hear.) He would direct particular attention to clause 18, which stated—“The Commissioner may enter upon, take, acquire, purchase, and hold permanently such lands as he may from time to time deem capable of being beneficially irrigated from any waterworks constructed, or in process of construction, or proposed to be constructed, and also such lands as by reason of their contiguity to such irrigable lands he may deem desirable to enter upon, take, acquire, purchase, and hold for the purposes of this Act, and, all such lands shall absolutely vest in the Commissioner; provided that in every case where the Commissioner cannot agree with the owner or claimant the amount of compensation to be paid in respect of the value of the land, with improvements, so taken the amount of compensation shall be ascertained, and the case in other respects shall be dealt with as if the land so taken had been taken under the principal Act for the purpose of constructing waterworks.” He asked the Commissioner and the House to consider whether they should not place some limit on the purchasing power of the Commissioner of Crown Lands. (The Commissioner of Public Works - “He cannot expend on any waterworks more than £5,000 without the consent of the House.”) He thought the matter might at any rate be made a little clearer. An enthusiastic Commissioner might launch into altogether unwarrantable expenditure. (Mr Glynn—“It is in the Act that he can’t go beyond £5 000 without consulting the House ”) "Yes. but the Commissioner might cut the scheme up into a number of divisions, and thus effect his purpose. (The Commissioner of Public Works—“ We have not got the water.”) He hoped the Bill would lead to greater results than the parent measure, although he felt that if water conservation grew and prospered a much more extensive Bill than this would be required.

Mr GILLEN agreed thoroughly with the remarks of the last speaker as to the interior. We had millions of acres in the interior which could be used to greater advantage if the Government spent a few thousands in opening up the country by providing water for travelling stock. The carrying capacity of the land near Alice Springs he knew to be grand, and there was an opportunity there for any enthusiast in water conservation to show what could be done by a moderate expenditure. In the farming districts we had a striking example of what can be done by water conservation in the Beetaloo waterworks, which had proved the redemption of numbers whose farms would otherwise have gone back into the hands of the pastoralists. Mr Bartlett had told them of country in the north-east growing mallows 20 feet high . He knew most of the north-east, and he had never seen marshmallows of that height, but he knew that with water conservation the land there might be cut up into much smaller blocks than those in which it was now proposed to offer it to the public. Travelling through that country two years ago he found many spots where a small bloc of 40 or 50 square miles would keep any individual if the Government would open up wells. He would like to see the present Government, instead of going in for extensive irrigation schemes in the settled districts, spend a few thousands in the northern districts, where the land would carry a large population with water. If the Government did this in the north-east he was sure they would be more than repaid by the higher rentals they would receive from the smaller blocks. Not a hundred miles from Adelaide they had a beautiful spring, from which people were carting all last summer, and from which it would be very easy to supplythe whole of the Blyth scrub. Most of the people in this part had paid for their land and had received no concessions. He would like to see a report obtained as to the advisability of constructing waterworks there. He would be glad to assist the Government in a system of well-sinking right through as far as a man has been. A few months ago the prospectors on the Alice Springs goldfield asked for a small vote for sinking wells, and the request was laughed at by the large squatters of the interior, who said it was Impossible to get water. However, the Government granted £300, and before half the money was spent they struck good water. This result showed that what is wanted in most cases is a little energy and perseverance. (Hear, hear.)

The-COMMISSIONER of PUBLIC WORKS (Hon. J. H. Howe) thanked hon. members for their reception of the Bill. It was a simple measure, but it would, he believed, accomplish something of greater magnitude than the original Act had done. It would enable the Government by its engineers to construct head works, and would also enable the residents of suitable places to avail themselves of the principal Act by conceding more liberal terms. For the purpose of allowing one or two districts to prosecute desirable works at once the Government proposed to make the Bill retrospective. He thought he had answered Mr. Duncan’s enquiries. The hon. member would see that parts 3 and 6 of the principal Act would meet all that he had contended for as to the expenditure of money in the interior of course the interpretation which Mr. Duncan had himself given of his (Mr. Howe’s) remarks was quite correct. All he wanted to point out was that the expenditure of money on stock routes had enabled the pastoralists to remain on country which otherwise they would have had to abandon. For instance, in seasons of drought there might be rain on the western side of the Flinders Range and none on the eastern side, and the opening up of these routes enabled the pastoralists to get their stock away from the dry country to those parts where there was water and feed. As to Mr. Gillen’s remarks, he could assure the hon. member that he agreed with what he had contended for, and his suggestions should have careful consideration.

The Bill was then read a second time.