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1901-07-12
nO use of Representatives
Mr. Speaker
took the chair at 2 p.m., and read prayers.
PETITION
Mr. PIJ2SSE
presented a petition from the Women's Christian Temperance Union of Hobart against the use of the post-office as a means for facilitating gambling.
Petition received.
PRINTING COMMITTEE
Report presented by Sir John Quick, and read by the Clerk.
QUESTIONS
INTER-STATE COMMISSION BILL
Mr CONROY
- I desire to ask the Attorney-General, by leave, whether the Ministry intend to re-draft the Inter-State Commission Bill in consequence of the adverse criticisms which it has received - outside, of course? And also whether that is the reason why they are not presenting the Bill to the House t
Mr SPEAKER
- The honorable member cannot ask two questions at a time ; he may ask one.
Attorney-General
Mr DEAKIN
- I hope the InterState Commission Bill will be laid before the House next Tuesday, if the health of the Minister of Home Affairs permits, but next Wednesday at latest. The criticism which will then be accorded to it by those who are authorized and qualified to criticise it on behalf of the people of Australia will receive the most attentive consideration.
TITLES OF HONORABLE AND RIGHT HONORABLE
Mr CROUCH
asked the Prime Minister, upon notice -
Whether he will inform the House under what authority Ministers of State of the Commonwealth are entitled to lie called "The Honorable " ? ' 2. Whether members of His Majesty's Privy Council of England, and of His Majesty's Privy Council of Ireland, are not entitled to bo called " The Bight Honorable " ?
Whether there is any and if so, what difference in status between the members of the Executive or Privy Councils of Ireland and of England and that of Australia ?
What reason there is for the distinction between " Honorable " and " Bight Honorable " as applied to the members of these Councils?
Whether he will endeavour to obtain similar recognition of the services of Ministers who advise the King in Australia as of those who do so in Ireland or England ?
Mr DEAKIN
- In the absence of my right honorable colleague, I have been supplied with the following answers to the honorable member's questions : -
I am not aware of any authority except the custom which applies the designation to members of the Executive Councils in British colonies, and which has in many cases been recognised by the Imperial authorities in the permission given to retain the designation after relinquishing office.
Yes.
The Privy Council of England has much larger functions than the Executive Council of Australia.
I have not so far been able to trace the origin of the title Bight Honorable.
I think such n change would lead to confusion, and am not persuaded that it would lead to advantage in general.
TASMANIAN PRESS TELEGRAMS
Mr O'MALLEY
asked the Prime Minister, upon notice -
Whether it is the intention of the Government to extend to the Tasmanian press the cheap telegraphic

rates now enjoyed by the newspapers of the other States ?
Mr DEAKIN
- It is not the intention of the Government to pay the private cable rates ; but in other respects the rate for press telegrams to Tasmania will be the same as to the other States of the Commonwealth.
BASS'S STRAITS CABLE
Mr O'MALLEY
asked the Prime Minister, upon notice -
Whether the Government will consider the advisability of purchasing the cable between Tasmania aud Victoria, with a view to the reduction of the rates charged for the use of the same.
Mr DEAKIN
- The Government will consider the advisability of purchasing the cable between Tasmania and Victoria, if it be placed under offer by the owners at a reasonable price.
DEPARTMENT OF AGRICULTURE
Debate resumed (from 28th June, vide page 1831) on motion by Sir John Quick -
That, in the opinion of this House, a National Deportment of Agriculture and Productive Industries, on the same lines as that of the United States of America, ought to be organized and maintained in connexion with the Government of the Commonwealth.
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Mr ISAACS
- I am justified in saying that it would be very difficult to exaggerate the importance of the question involved in this motion. Whether we view it from the stand-point of the farmer following his daily avocation, and trying his best to win from reluctant nature the product of the soil, or from the stand-point of the consumer anxious to obtain0 a plentiful and cheap supply of the necessaries of life, or whether we regard it as a general means of developing and advancing the welfare of the country, or even from the larger aspect as one of the means of strengthening and consolidating the Empire as a whole by helping to feed that Empire, it may be at a moment of peril, it certainly is a subject which is worthy of the consideration of this Federal Parliament even at this early stage of its career. I wish to make one confession. Notwithstanding a moderately active political life of some years, including a fair period of Ministerial responsibility, until a recent visit to other lands I had not anything like an adequate or a just conception of the tremendous strides which have been made in regard to agriculture. For many years I lived in a country constituency in this State. . I spent my life for a time among ordinary rural pursuits, though, of course, taking no active part in their operation. It was my duty as a Member of Parliament and as a Minister of the Crown to make .myself acquainted, so far as I could, with every means that was available to advance the productive industries of Victoria, and I thought I was fairly acquainted with them ; but I felt almost ashamed to observe my own ignorance when I went abroad, and saw what are undoubtedly transformations in this great department of life - transformations which are marvellous enough to command the attention of every well-wisher of Australian progress. I took the opportunity, as- best I could, of noting some of these things, and through the medium of the Leader of offering my observations upon them to the consideration of my fellow countrymen. The Victorian Government has republished some of those observations, and perhaps honorable members will find some material for consideration in the pamphlet which the Victorian Minister of Agriculture, Mr. Morrissey, has been good enough to send them. Much of the information given there was obtained at first hand. Through the courtesy and kindness of some of the foremost agriculturists in Great Britain, I had the advantage of obtaining information important as it seems to me, and as I hope it may turn out to be. The men whom I would place in foremost position are Garton Bros., at Newton-le-Willows, in Lancashire, whose work on a small experimental plot of private ground, is, I believe, the most wonderful -piece of experimental cultivation in the wide world. When honorable members learn that on a little more than an acre of land they may see thousands of types of wheat suitable for almost every country in the world, they will understand what a mass of information and scientific knowledge is crowded into that small space. Then there were men, like Professor Robert Wallace, who is not unknown in Australia.
Mr Deakin
- Hear, hear.
<page>2499</page>

Mr ISAACS
- The Attorney-General, I am glad to see, cheers that observation, because he has had personal acquaintance with that gentleman, and knows his work. I have received many encouraging expressions with regard to Australia from that undoubted authority. He is the Professor of Agriculture in the Edinburgh University, and at the time of my leaving the old country he was, I understood, about to deliver a series of lectures on Australian agriculture. There were also men like Sir John Bennet Lawes ; Sir Henry Gilbert, of the Rothamsted experimental farm, near London ; Sir Ernest Clarke, secretary of the Royal Agricultural Society ; Major Craigie, Mr. Brookes Hunt ; and Mr. Crawford, of the Board of Agriculture - all men whose courtesy I am anxious to acknowledge, because they enabled me to obtain a vast amount of information and knowledge on the subject, much more, indeed, than I can possibly hope to impart in a proper form. The only indulgence 1 ask of honorable members, if they do me the honour to read the observations in the pamphlet to which I have referred, is that they will bear in mind that I did not put those observations forward as a practised agriculturist. If they see mistakes in it, I hope they will put them down certainly to no desire to encumber the subject with useless information, but will make due allowance. I was so impressed with the importance of this matter that during my election campaign I made it a very prominent part of my observations to my constituents. I am pleased, indeed, to have the opportunity of supporting the motion of the honorable and learned member for Bendigo. I am aware that the time at our. disposal for private members' business is very limited, and in view of the fact that there are members who are much better qualified to speak on the subject from a practical stand-point than myself, and who, I am sure, desire to follow me, 1 will endeavour to compress my observations into as short a space as possible. But I do not desire to omit reference to some of the more important points in connexion with this great question. I do nob think that the mover of this motion desires to restrict us to the lines of the United States of America. Nor do I think that we ought to restrict ourselves to any particular lines. We ought to lay down this definite position that we as a Federal Parliament are prepared to take up the work substantially indicated in the motion, and to sanction the establishment of one great national department of Agriculture. In the United States of America the overwhelming importance of the subject has been recognised, and the American Federal Government have approached the question with a due sense of its great importance to the country. I desire to endeavour to indicate in what manner the American Federal Government have acted, and how it has preserved its position in the Constitution, while at the same time recognising the duties and rights of the States. The Federal Government has amply used its federal powers in such a way as not to transgress the powers of the States, but so as to co-ordinate and unify to a large extent national action in regard to agriculture. There is a remarkable coincidence in the action of the Federal Congress. At a very early stage in America's career, George Washington, as President, in his annual message to Congress, recommended the institution of a National Board of Agriculture, in order, as he said, to encourage and assist a spirit of discovery and improvement by stimulating to enterprise and experiment. At that time the population of the United States was approximately that of the population of the Australian Commonwealth, and their circumstances in many respects were similar to our own.
Mr O'Malley
- The population was not so large as ours.
Mr ISAACS
- I desire to mention this, because so eminent a man as the first President of that great country observed and indicated a line of action that when afterwards adopted, materially assisted to place the United States, as it now is undoubtedly, in the van of progress in the department of agriculture.
Mr O'MALLEY
- Washington himself was a farmer.
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Mr ISAACS
- In 1839 Congress interposed its first active intervention, and it did that by appropriating a very small sum of money, 1,000 dollars, for the collection of agricultural statistics, for the investigation and promotion of agricultural and rural economy, and procuring cuttings and seeds for gratuitous distribution among the farmers.' In 1S55 Congress supplemented that appropriation by directing investigations into entomology, botany, and chemistry. It was in 1862 that the United States Department of Agriculture was opened by virtue of an Act of Congress -which was promoted by a man whom we may call the father of this great

movement in America - Senator Morrill. As Washington had been the first President to indicate the desirability of instituting such a movement, it fell, by a strange coincidence, to Lincoln to sign the Act of Congress establishing this great department, thereby completing the work which had been suggested by his illustrious predecessor some 70 years before. I desire to call attention to the Morrill Act, because the Government, while, I am glad to say, expressing their sympathy with the movement and the desire to comply with the motion, if possible, would no doubt like to be informed of the particular means by which Congress endeavoured to accomplish the object. The Morrill Act provided for the endowment of national lands for the establishment of colleges, and these colleges were established, and progress made. But in 1885 and 1887 a convention of agriculturists of the United States met, and urged upon the Federal Government more united action. The outcome of that was what is known as the Hatch Act- - -a memorable Act. ' This measure provided something different from what had been established under the Morrill Act. It provided that there should be national assistance in money towards the establishment - by the States, mark you - of experiment stations. These experiment stations are, it must never be forgotten, State institutions and not federal institutions, and I doubt if the federation there could establish them at all. The difficulty is got over by the annual. appropriation b)' Congress of a sum, which, I think, now amounts to 35,000 dollars a year, in aid of the experiment stations established by the States and partly maintained by the States. I will indicate in a few moments the way in which the Federal Government keep up their connexion with the State institutions. The Hatch Act was, as its preamble shows, intended to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiments respecting the principles and application of agricultural science. A State, under that Act, has to indicate the particular experiment station for which assistance is desired, and, when that has been done, the Federal Government pass over the amount provided by Congress to the treasurer or other official of the experiment station. These institutions have relations with the Federal Government by receiving the annual appropriation, and, for convenience, free postage, which the Federal Government can grant by reason of their control of the Postal department. Arrangements are made by which the Federal Government establish what they call the Office of Experiment Stations, which has the direct control of the various officials whose duty it is to supervise the operations in a manner which is not purely directory, but more advisory. The Office of Experiment Stations makes suggestions with a view to unifying the policy and lines of working and mode of action, so as to bring about a beneficial result from the various experiment stations throughout the States of the Union. Altogether, . by the combined influence and efforts of the federal and State authorities, we have, to all intents and purposes, one system in progress throughout the whole of the territory of the United States. This is not nominally, but practically under central control, and every one is working heart and soul, hand in hand with the various farmers throughout the country, for the amelioration of their condition and for rendering them assistance in their great occupation. The opinions of English experts and English authorities of the work done in America are valuable. I find in the report of Major Craigie, of the British Board of Agriculture, a passage which is worthy of enrolment on our records, and, as I asked him personally, and he assured me he still retained that opinion, it is doubly worth our consideration at the present time. He says -

The American Government seems willing to face any cost to the community that promises to better equip the farmer with the knowledge' of his business. The authorities seem assured that in indicating methods of profitable production, and still move by the careful perfecting of the produce of the vast lands of the Republic in whatever direction of extensive or intensive culture, the economic circumstances of the moment may prescribe, they are providing a solid means of advancing the well-being of the nation as a whole.

What are the means, honorable members may ask, by which these experiment stations do so much for the country % They have their entomologists, chemists, practical agriculturists in every department, and their bacteriologists; and by experiment these officials endeavour to discover for themselves new lines of action, some of which I shall briefly indicate. The result is that the farmers of the country feel that they are no longer acting in. a haphazard fashion - that they are no longer the sport of the winds and the seasons to the same extent as they were - but that they can, by various experiments in particular localities - and local experiments as to local conditions are the secret of the whole matter - find out the peculiar qualities of the soil and ascertain the particular plants best suited for the locality. They also discover the best mode

of growing the plants, the best mode of protecting and improving them. They select the best plants for each particular locality, and what is more - and this is, perhaps, the most important feature of all - they assist in creating the necessary plants for each particular locality.
Mr O'Malley
- Hear, hear! They master the elements.
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Mr ISAACS
- It is a great work, and is attended with marvellous success. Let me point out to honorable members what Dr. True, the director of the stations, says. He states -
During the last decade there has been a remarkable awakening of our farmers to the desirability of having more definite information regarding all matters connected with their business. The result has been that the stations and this department have been led to publish a vast amount of information both old and new, which has been freely distributed to farmers in every country of the Union. Nothing like it has ever been seen before. No country has ever before attempted so systematic and so thorough a distribution of information to its agricultural population, and no masses of farmers have ever so eagerly sought for information as have our own within the past few years. Such an intellectual awakening must have most important results, and there is every indication that it will go on increasing in volume and force until it has thoroughly permeated the entire' agricultural population of the country.
It has raised - and this is the secret of the matter - the occupation of farming from being the old-fashioned humdrum occupation of drudgery to a scientific pursuit, and one the operations of which can be regulated, gauged, and to a large extent assured. That is the sort of thing that we want in every country. What these experiment stations do is to find out what is necessary to assure success as far as can be gathered, but what is more, they distribute the information they have gained by their work and experience amongst the farmers of the country. In all directions they are doing a great work, sometimes a most technical work, and while of course descending to the drudgery - so far as it is drudgery in connexion with this occupation - they lift the great pursuit of farming to a higher level than it has ever reached before. Again quoting Dr. True, he says : -
These institutions are in law and in fact integral parts of the higher institutions for education in agriculture, representing, essentially, the University side of such education, being set above the undergraduate departments of the colleges as organizations devoted to' original research. They ore the fountain heads of agricultural knowledge, and the results of their work are more and more to form the basis of all instruction in agricultural science' from the college down to the common school, and out to the masses of workers on our farms. Already they have surpassed all other agencies in the dissemination of useful information among our farmers, and have collected a fund of new knowledge, which has radically changed the textbooks and courses of instruction in agriculture in this country.
While I emphasize the point that these are State institutions, under the control and immediate direction of the States, let me remind honorable members that without' the encouragement and the initiation of the Federal Government these experiment stations would never have come into existence.
Mr O'MALLEY
- They are subsidized.
Mr ISAACS
- They are subsidized, and I have no doubt whatever that this Federal Parliament has equal power, at least, with the Congress of the United States, in doing that.
Sir John Quick
- By our power of appropriation.
<page>2502</page>
Mr ISAACS
- Exactly. Considering that we have taken over control of the customs, of excise, and of bounties, and that we have unlimited power over trade and commerce with foreign nations and amongst the States, I have no doubt whatever that this Federal Parliament can do at least as much as the United State* Government have done in connexion with agriculture. But I want to make it very clear that the United States Government have not tried to cross the line of State action, and to make the experiment stations their own. Those stations, as I have; already said, are established by the States ; to a large extent maintained

by the States : directed by the States ; but, above all, is the unifying and the guiding power of the Federal Parliament, under the immense power of its appropriation. Congress could, if the State bodies did not faithfully carry out their work - and the work which they are to do in order to entitle them to this appropriation is carefully laid down in the Act - refuse to pay the annual appropriation over to the State authorities. Consequently the Federal Parliament, whilst maintaining its powers within the Constitution, can, it seems to me, most effectually carry out this great work in that direction. The United States has, indeed, proved the worth of the efforts that have been made. For instance, the experience in relation to the colleges, even before the adoption of the Hatch Act, led the Government of the United States to pay special attention to this matter of national aid in connexion with agricultural education. When in 1868 the Texas fever and pleuro-pneumonia appeared amongst the herds in America, and established themselves to an alarming extent in most of the cattle-growing States of the Mississippi valley, threatening to ruin the cattle growers of the west, the attention of Congress was aroused, and in 1884 the Federal Government instituted an investigation into the matter which led to the establishment of a bureau of animal industry. I would direct attention to the great 'Act establishing that bureau, because it is most instructive as showing the way in which we can weld together - while still in a sense keeping legally separate - the State power and the federal power. It was only by harmonious combined action on the part of the federal authorities and the State authorities that the terrible pests of Texas fever and pleuro-pneumonia were practically banished from American soil. It will be perceived that within their own territory and with regard to their own property the State authorities alone can act. With regard to the removal of cattle to foreign countries find things of that sort, the Federal Government alone can act. It was with that view before me that I endeavoured last evening to persuade the Minister for Customs to permit of an addition being made to clause 49 of the Customs Bill absolutely forbidding the introduction under any circumstances of infected cattle to any part of Australia. When the right honorable gentleman comes to consider the matter I think that he will offer no opposition at all to my proposal. I want to point out the danger which was run in America and which was only averted by the strenuous efforts of the State and federal authorities. The Act was passed on 29th May, 1894. It has a very long name, but it is sufficient to refer to it as the Bureau of Animal Industry Act. Mr. Thompson^ one of the principal officers of the bureau, says that the federal and State laws are not only supplementary to each other, but interdependent. They must be worked in harmony. He says that the success of that bureau in eradicating pleuro-pneumonia is a triumph that will never be forgotten by the cattle-owners of the United States. The same thing is done with regard to other diseases - tuberculosis and so on - but these are indications of the way in which the Federal Government, with its paramount power, comes in, and not only assists, but practically forces 'action on the part of the State authorities. May I say that upon one great department, to "which I have not yet referred. - the department of irrigation - Congress has more recently bestowed considerable attention. As late as 1899, it recognised more fully than it was ever recognised before, the necessity for assisting in the great work of irrigation in America. It recognised, as it must be peculiarly recognised in Australia, that all efforts to develop the production of plants, to encourage industrial workers on the soil, to improve the quality of the soil and of plants themselves, depend for their success upon moisture. Nature has not been as beneficent to us in many parts of Australia as she has been to other countries. But at the same time she has not placed out of our reach - if we are industrious and energetic enough - the means of providing for sufficient moisture to make our farming avocations a success almost anywhere. I am sure that our friends from New South Wales will recognise that with a considerable amount - although perhaps relatively a small amount - of expenditure there are millions of acres in that State which can be brought to a capital value of ten times the expenditure which need be bestowed upon the soil itself. I believe that there are millions of acres about the Darling, and further up, that could be made the means of settlement - perhaps of close settlement - in the course of time, and of improving the capital value of the land, and of advancing the material and social prosperity of Australia, as well as of New South Wales in particular. I am glad to be able now to say, not as a Victorian but: as an Australian, that I should welcome any such effort. The failures of irrigation in the past in Australia were not, in my humble judgment, failures of the system, but failures such as necessarily attend, - to a greater or less degree, every experiment upon a large scale. They were failures of administration for the time being, and ought not to deter us from further progress in that direction. In fact, I believe that experiments in irrigation are absolutely necessary to any widespread success in agriculture. The way in which Congress in the United States has assisted irrigation work has

been by the making of grants. When we remember the quantity of water that is. needed for any particular soil, the times at which it ought to be applied, and various, other considerations which suggest themselves to honorable members, it is plain that we will have to remove first of all from individual effort, pure and simple, the great task of embarking on this wide investigation... Next we want to insure, as far as we can,, that the money will not be thrown away. Investigation at the initial stage is therefore: important, and we must look forward to the. necessity-r-sooner or later - of irrigation, being undertaken upon a comparatively wide scale. The United States, however, is not the: only country in the world that offers us an object lesson. If we cross the border that separates it from its northern neighbour, Canada, we shall find there results, also on a. large scale, of which we may be justly proud. But the Canadian Constitution lends itself more easily than that of the .United States, and more easily than our own, because our Constitution is based' largely on that of the United States, to the accomplishment of this great object. In 1886 or 1887, a Canadian Act was passed' almost at the same time as the Hatch Act in the United States, which is practically on the same lines, except that the experimental stations are taken as they can be: under the Canadian Constitution under the immediate control and guidance of the Canadian Government. I do not think the effect is any different in the end. But the talented director of the .Canadian system, Dr. Saunders, bears eloquent testimony to the success attendant upon their efforts. Dr. Saunders, in his last report, refers to the effort that the Canadian Government has made on almost the same lines in point of practical results as the United States Government, and what he says is this -

The occupation of farming has been elevated in the" eyes of the community. It is no longer looked upon as a sort of drudgery suited to the dull and slow-going, but is now regarded as a suitable field for the higher intelligence of cultivated minds. It is recognised as a calling requiring much skill to conduct it successfully, and as giving ample scope for the exercise of the most active and earnest minds, and one in which information of almost every sort may be turned to practical account.

Now, let me show the House that he does not confine himself to mere generalities. Let me point out some of. the absolute results that have been obtained on Dr. Saunders' central farm, which was established in 1889. Taking the first three years, from 1889 to 1891, of the establishment of the farm, and comparing the results with the average product per acre of oats, barley, and wheat respectively during the three years from 1896 to 1898 inclusive, Dr. Saunders gets the following wonderful results : The average crop of oats showed an increase of 23 bushels 23 lbs., per acre ; barley showed an increase of 12 bushels 7 lbs., ; and wheat an increase of 4 bushels 50 lbs. He says - and this is the encouraging part of it, as it seems to me - that these results were due to a moderate use of fertilizers, to the ploughing under of green crops, the more thorough working of the land, early sowing, and the selection of more productive varieties for seed. All these tilings are within our reach, in the majority of instances. Now these are the encouraging results, and if we turn to some of the means by which they have been accomplished, there is one point to which I would like to direct the attention of the Government. In the Canadian House" of Commons, while they passed an Act of this beneficent nature, and established an organization that conferred all these benefits on the farmers of the Dominion, they did not permit things to drift, but established and kept in continual operation a Standing Committee of the House of Commons on Agriculture. That Standing Committee has always been able to make suggestions, to take evidence, and to make recommendations to the Minister, and it never comes, as far as I can gather, into conflict with the department at all. It is of assistance to the Government, and I submit for the consideration of the Government that we should have a Standing Committee of this House, not only dealing with agriculture, but also with trade and commerce, to be conducted not on party lines, not with any particular reference to the fiscal policy of the country, but in such a way that it would always be open to consider suggestions made by merchants, agriculturists, and others, and that it would have the power to take evidence, to make recommendations to the Government and to Parliament, and generally supervise the great matters of production and commerce throughout Australia in a manner that I believe would be ultimately beneficial to us all. Turning to England, we find no Government or very little Government co-ordination such as is to be seen in the United States or Canada. I believe that in regard to Gartons' and the Rothamsted Experimental Farms, we have the summit of all agricultural experiment in the wide world. I believe that the Gartons surpass anything else in their cross fertilization experiments, and that the" Rothamsted experiments stand out conspicuously as the most advanced of their kind in any part of the world. "What I do say, however, is defective in England is, that there is not, as in the United States and Canada, any central power of co-operation and

co-ordination which can unite the forces existing with such strength in England, and enable the farmers of the country to obtain advice and assistance in one collective form. In the United States and Canada, if a farmer wishes to know the best thing to do with his land, he applies to the nearest experimental station, and they send a man to examine his farm and advise' him. If he wants to know what sort of crop to put in, or whether he should fallow, or when he should sow, and so on, he gets advice from the authorities at the Government farm. These authorities, not only set to work to select the best seeds, but to produce them by the wonderful process of cross fertilization ; and what is more, when they have obtained these seeds, or plants, or trees, or whatever it may be, they do not do as is done sometimes in this country by the Government departments, offer to sell them at a comparatively high price to the farmers, but they distribute them gratuitously to the producers of the country. I ask whether it would not be a wise policy for us to follow their example. What consideration should a few pounds be to us in a matter of this kind if we can increase the productiveness of the country?

Mr A McLEAN

- It would be returned nearly a hundredfold.

Mr ISAACS

- Of course it would. More than that, it would bring back more than ten times the amount in freight on the railways - to put it in the most selfish fashion. I want to see the broad and enlightened policy foreshadowed for us and displayed for our benefit by these great countries taken advantage of. Perhaps I may be thought a little enthusiastic, but I have no hesitation in saying this, that unless some such system is adopted, we shall fall behind. I think it is imperatively necessary that we should do it.

An Honorable Member. - Have you inquired into the New South Wales system?

Mr ISAACS

- I have made myself fairly familiar with the New South Wales system, and I believe that in the person of Mr. William Fairer New South Wales has one of the most advanced experimentalists in the world. I have no personal knowledge of the gentleman, but I have a knowledge of his work, and I believe that in the great field of cross-fertilization, which promises to offer the most astounding results of the century for all mankind, he stands in the very formost position. But we have other men in Australia who can take up this work to a large extent. We have Mr. McAlpine, and Mr. French ; and I believe the work to which I have referred is already being done in Tasmania to a large extent. Then in South Australia we have Mr. Marshall and Mr. Grasby, and if I do not mention other names, it is not because I forget the services rendered by the gentlemen, but merely because it is useless to recapitulate a number of names in a matter of this sort.

Mr Kingston

- We are very much indebted to Professor Lowrie, in South Australia.

Mr ISAACS

- He is a gentleman to whom we are all indebted. I want to say, in this connexion, that it is imperatively necessary that we should take early and active steps. In all departments of agriculture, and, more particularly, if I may be permitted to emphasise it, in regard to cereals, it is important that we should notice what is going on in the world around us, and one of the tilings we ought to observe is that population is increasing at a much faster rate than the production of bread. Some three years ago, Sir William Crookes, the President of the British Association, drew attention to this fact, and pointed out that under the present conditions of culture, there might be, in the not distant future, a scarcity of bread. He pointed out that in connexion with the old system of what is known as extensive culture, the new land that was available for cropping was becoming less, whilst the number of mouths that required to be filled with bread was increasing, and he drew the attention of the world to the fact that it was necessary to introduce more scientific methods of production. His statements challenged instant attention from men in England, the United States, and Canada, who offered their opinions on the matter, and he was supported to a large extent by "the Honorable Mr. Hyde, the statistician of the United States, in his statements as to the diminishing quantity of wheat lands of a virgin character. It was pointed out, moreover, that the population of the United States was increasing so fast, and the amount of new land available for wheat culture was diminishing in such a very much larger ratio, that in another generation the United States - unless different methods of culture were adopted - would not be able to export the quantity of wheat necessary to feed the people of the British Islands. That is an important consideration. Sir William Crookes also said that no

feeling of despair need be felt, because the chemists and the laboratory were at hand to assist in the production of the additional wheat required, and it is already true that immense strides have been made in that regard. The almost recent discovery of the bacteria which form the nodules on the roots of leguminous plants, and convert the free nitrogen of the air into the fixed nitrogen necessary for the nutriment of plants, is promising to work an immense revolution in the methods of agriculture. The process of inoculating soils has already been adopted in Canada, and in England at Rothamsted's.
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Mr SYDNEY SMITH
- Also in New South Wales.
Mr ISAACS
- Yes; and in Victoria and South Australia also. But what I would like to see at this point is more systematic and co-ordinate effort on the part of Australia. "We are undoubtedly having good work done, but we are not having it done to the extent with the force, vigour, and system that are desirable, and the farmers of Australia are not getting the benefits that the farmers of Canada and the United States are obtaining at the present moment from the immense united and systematic efforts that are being put forth in those countries. In these departments of cross-fertilization and the fixture of nitrogen two great lines of agricultural progress are open to us.
Mr DEAKIN
- Intensive instead of extensive cultivation.
<page>2506</page>
Mr ISAACS
- Yes ; that sums up the matter. It stands to reason that smaller plots of land will have to be dealt with in the future than in the past, find we shall require to see that that land' is not exhausted. We want to avoid fallowing as much as possible, for every year of fallow is a year of loss. We want to obtain the greatest product from a given piece of land, and we can only do that with the aid of science. We can no longer trust to the haphazard operations of olden times. It is not only in the quantity of wheat produced that we have to place our reliance. In .a marvellous paper which 1 read about two years ago in the Agricultural Gazette of New South Wales, Mr. Farrer pointed out that the quality of wheat might be so improved, again by cross-fertilization - by improvement of the breed - as to obtain a much larger proportion of gluten, enabling us to mix with wheat starch from other things such as rice and potatoes, and by that means increase the quantity of bread, because it is the insoluble gluten in wheat which enables the light bread to be made. We cannot make light bread of barley or of oats. The yeast will not make the Hour of either rise because it does not contain that insoluble gluten which wheat has to a large extent and which rye has to a very small extent. But he points out that if we increase the quantity of gluten in wheat by this breeding we increase the quantity of bread in the world. The Gartons have done this to an enormous extent. Some of their samples - of course I have not been able to test them, but I have the opinion of men who know - are simply wonderful. And they have done more than that : they have produced by this system a barley and an oat which will thrash - in some cases an oat which is almost if not quite hull-less. If we can get an extra quantity of gluten in wheat, a hull-less oat, and a skinless barley, or a barley which will thrash, we can utilize them in the foods of the world in a manner which men like Professor Jago, the great bread authority in England, points out may have untold results. These are lines which are open to us. These are lines which are worthy of the consideration of a Parliament which is charged with the welfare of the whole people of Australia, and I press them upon the attention of my honorable friends as strong impregnable unanswerable reasons why we should devote our best energies to the establishment of a Department of Agriculture. Australia should be prepared, it seems to me, to take advantage of the great educational opportunities which exist to supply her own people with bread, because if she lags behind she will run the risk of being supplied by outsiders who are more active in this field. The cost of transportation to-day is comparatively small. It is astonishing how small it is getting in comparison with what it was. Both on railways and on steam-ships the cost-of transportation is lessening visibly and considerably and continually. That is both encouraging and deterrent. It should deter us from inaction. It should encourage us towards action to supply foreign countries. In London we have a market where we can sell every grain of wheat we can spare after feeding our own people, and we ought to be prepared to supply that wheat at prices not greater than other countries do. But we cannot do that unless we take advantage of the

improved methods which are now being adopted in other parts of the world. The difference in the cost of transportation on railways in the United States may be seen from one or two examples. In 1854 the leading trunk line terminal in New York received on an average 2^ cents per ton of. wheat per mile, and in 1899, about half a cent. The ocean freight on a ton of wheat from New York to Liverpool, as late as 1884, was about 5 dollars 75 cents; to-day it is under 2 dollars. The size of ships, their capacity, the various advances in machinery, and so on, enable us to lessen the coat of landing cereals and products at the market, and we ought to take advantage of those opportunities. And more tl an that, let me say for the encouragement of honorable members, that in a recent work, which is in the Library, it is pointed out with regard to Australian commerce - and Australia, remember, since the Suck Canal was made, is 4,000 miles nearer to London than it was before - that in 1895 the entries and clearances of the Australian colonies were 6,900,000 tons greater, than the total foreign trade of the United Kingdom when Melbourne was founded in 1837.

Mr Piesse

- What is the authority 1

Mr ISAACS

- I am giving the authority which is found in a book in the Library - The Progress of l/ie Nineteenth Century. The facts are encouraging enough to invite us to embark on this work with a light heart. We need not be extravagant ; we certainly should not be parsimonious. I recognise that I have occupied a fair share of the time of honorable members.

Mr O'Malley

- Go on.

Mr A McLEAN

- It is very interesting.

Mr ISAACS

- I do not desire to take up an improper proportion of the time of honorable members. I feel that this is a great question. If we reckon it in cost of human labour, so great has been the advance of science in every department, that in the United States the cost of the production of a bushel of wheat, or of a bushel of corn, or of a ton of hay, has wonderfully diminished within the last few years. In point of time alone - and it is comforting to reflect on these tilings - it is estimated that in 1855 it occupied four and a half hours of human labour to produce a bushel of corn, and in 1894 only 40 minutes. The relative cost of wheat was less than a third; the time as between 1830 and 1S96 was as three hours to ten minutes, and the cost as between 17 cents and 3 cents. In regard to hay, from 18C0 to 1890 a ton required in human labour 36 hours from the beginning of the mowing to the pressing, and in 1890 about eleven and a half hours ; while the cost at the latter time was 50 per cent, of what it was at the earlier time. When we see these marvellous advances have been made, we should endeavour, not only to keep abreast of them, but for our profit as well as our pride, to strive to be ahead of all. I desire to say this, and only this, in conclusion : feeling that I have done anything but justice to this great subject. I believe that if we undertake this work we shall do much to give heart and encouragement to those of our fellow citizens who are engaged in this occupation. Remember, sir, that all our splendid Commonwealth architecture is only useful so far as it can be used to maintain, promote, and advance the great productive industries of the country. All this paraphernalia, as I may term it - necessary paraphernalia - is only the gold lace of the Constitution, unless we can make of it an engine for the promotion of the materia], moral, and social welfare of the people. Bright said that the nation was practically in the cottage. That, of course, symbolizes the whole thing, and we find that the nation is evidenced in the labourer in whatever capacity he may be employed - not using that term in any restrictive sense, but using it as applied to every man who is doing work for the advancement of his country. What we need to do with regard to agriculture in all its varied forms, is to liberalize it, to raise it to a level higher than it has ever occupied before, to give it a dignity, a worth and a profit which may raise the Australian nation in the whole scale of civilization.

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Mr McCOLL

- 1 rise with all the earnestness of which I am capable to support this motion. I would compliment the honorable and learned member for Bendigo on bringing forward the motion, and on the able speech which he has made; and also the honorable and learned member for Indi on the speech which he has just

delivered. It is most interesting and encouraging to see gentlemen of their profession throwing their keen insight, their powers of research, and their great intellectual abilities into this subject. I feel that they are on right lines, and that, if their lead is followed by honorable members in this House and in the Senate, the Commonwealth will not have been formed in vain. It may be thought strange that gentlemen of their profession should take up the question ; but they are following a very illustrious example, because I read that the first comprehensive book on English husbandry was written by Sir A. Fitzherbert a Judge of the Common Pleas. They are. following a very illustrious example, and we are all very glad indeed that they are doing so. It has been said that it is far too early in the day to attempt what is shadowed forth in the motion, We are pointed to the example of the United States, and told that it was constituted for 70 or 75 years before anything in this direction was done. We are told that at the present time we have not the money to spend, and further that we shall clash with the States if we attempt anything in this direction. If this is not the proper time to set this question in motion, what is the proper time ? We have to remember that the circumstances of to-day are different from what they were 30 or 40 years ago. What the United States people were well able to achieve 50, 60, or 70 years ago, might not be so easily achieved in these days of keen competition and cut-throat business policy all over the world. We have to bestir ourselves and not lag behind, or we shall find ourselves cut out of the markets of the world, and we will not make the progress we ought to make. We have 4,000,000 of people in Australia, and we have to see to their welfare. Our duty is, as has been pointed out by the honorable and learned member for Indi, to work most heartily in co-operation with the States, and to do what we can to lift up the whole community to a higher state of prosperity than we enjoy at present. Agriculture, no doubt, will be for many years our main industry. It seems altogether absurd to say that this great Commonwealth, established to forward the interests of all Australia, is to ignore at its inception the industry which is the greatest we possess. The Commonwealth has taken up trade and commerce, and has absolute power in this connexion to the exclusion of the States, and yet we are not to take up that great industry on which nearly all trade and commerce is based. Such an idea seems utterly ridiculous, and therefore I say this is the proper time for us to take the matter up. We need not rush into any schemes at great expense, but we must make a start. We cannot run at all yet, but unless we start to. walk now we will not be able to run at the speed we ought to later on. The honorable and learned member for Indi has referred to the higher esteem in which agriculture is now held, and he was quite right in his remarks. Some years ago agriculture was not looked on as a pursuit requiring scientific training, but was, to some great extent, regarded as a pursuit in which no gentleman could engage.

That was not the view in olden times. Agriculture was then looked on as the noblest occupation a man could follow. Amongst the old Romans, the most' skilful agriculturist was held in the highest esteem by the community. 1 am glad to say that in recent years there has been a change. Probably the low estimation in which agriculture was held formerly arose from the depression of agriculture in England during the last 50 or 60 years. After the change in the fiscal policy farming went out of fashion, and foodstuffs came in cheap ; but now agriculture has to be conducted on a scientific basis. It forms an avenue for the employment of the most skilful intellects and the best men of science, and the whole fabric of agriculture has been raised in the estimation of the people. We have to recognise the true position of agriculture in Australia. It is our foundation industry, and everything should be done that is possible to advance it. There are many phases of agriculture that might be dealt with. Agriculture is far-reaching and very attractive, and the subject might be regarded from many points of view - from the educational point of view, or from that of methods of production, bounties and bonuses, protective duties, exports and markets, stock, seeds, and plant, and many others. But I do not propose to touch on these, which I will leave to the honorable and learned member for Indi, who has dealt lengthily with them, and to other honorable members. I propose to lay a few facts before the House, more especially in regard to the relation of our water supply to agriculture. The great requirement in Australia for successful agriculture is a proper supply of moisture - the two are inseparably connected. Agriculture is absolutely dependant on the manner in which we use our means of conserving water.

Mr Deakin

-In most parts.

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Mr McCOLL

- In most parts; but I am speaking of Australia as a whole, which is in what we may term the irrigation zone. That zone extends from the 15th to the 35th parallel of latitude. If any one looks at the map of the world, he will see that all the countries that are within these parallels have to use every effort to conserve, distribute, and utilize the whole of their water supplies, in order that they may progress. Just as those countries apply themselves to the conservation, distribution, and utilization of their water supplies, so they prosper, and just as they neglect to conserve the supply, so they decay. I wish to cali attention, to-night, to the practical lessons that are taught, not only to our own country, but to other countries. Australia is divided by the tropic of Capricorn - half of it is in the higher temperate zone, and the other half is in the tropical zone.

Mr DEAKIN

- Sub-tropical.

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Mr McCOLL

- Yes, sub-tropical. We find in Victoria, and I suppose it is largely so in the other States, that our early inefficient and somewhat iniquitous land laws drove our people away from the fertile lands on the coast, where there is a fair and adequate rainfall, away back into the arid areas. We find that in those arid areas, under conditions which have been existing since ever the areas were taken up, life has been a continual struggle. While a few men have been able, through having money, to take up large areas, and, by keeping a large amount of stock, have been able to make money, the great bulk of our farmers on the areas allotted by our Land Acts have had a hard and continuous struggle for existence, and a great many of them, probably the majority, have actually gone to the wall in the battle of life. That has been the case largely in Australia, but more especially in "Victoria, which I know of more particularly. Can this condition of affairs be remedied? Certainly it can be remedied to a very great extent indeed. But it can only be remedied by using our facilities to their very utmost extent. In Australia we are not so favoured as they are in the United States. We have no Bookies, Sierras, or Alleghanies, with their heads towering up thousands and thousands of feet, covered with eternal snows, which send the waters down to the plains. But we have mountains of fair range. We have in Victoria the Alps, the Grampians, and the Dividing Range. In New South Wales we have the Blue Mountains, and the Liverpool and New England Ranges. In Queensland we have the Craig Range, and the Bellenden Kerr Range, with a height of from 4,000 to 6,000 feet. Away to the north we have tropical rains pouring as much as 10 inches to 120 inches per annum, out of which water could be easily saved and largely utilized, AVe have noble rivers to which we can look, and we have storage all over the face of the country where could be conserved rainfall which is now running in waste to the sea. We have also smaller rivers which lose themselves in lakes, marshes, and sandy places. All this could be remedied by the conservation of water over the whole of the country. Of the rivers the Murray is perhaps the noblest of all, extending for a distance of some 1,300 miles through Victoria and New South Wales, and thence through South Australia. The other States also have their noble rivers which could be utilized, and which it is our duty to utilize. There are the Hawkesbury, the Hunter, the Clarence in New South Wales; in South Australia there are the Torrens, the Gawler, and the Light; in Queensland the Burdekin, the Fitzroy, and the Brisbane ; and in Western Australia the Murchison and the Fitzroy. Our main concern is not with rivers entirely within the States, but with those rivers which come under the purview of the Inter-State Commission, namely, the Murray, the Darling, the Lachlan, and the Murrumbidgee. These rivers can be made of almost boundless utility. We must use these rivers as much as we possibly can, and only the Federal Government can do that. The States Governments have never been able to utilize their rivers except in an infinitesimal degree. It will require action by the whole of the Commonwealth - the union of States - in order that we may enjoy the blessing which can spring from the utilization of these rivers. It is said that the proposed department of Agriculture is, perhaps, not justified at the present time. But on the question of water supply alone the department would be amply justified, apart from all the magnificent results which the honorable and learned member for Indi has quoted to us to-day. Not only does our future progress depend on the way in which we utilize these streams, but our present position demands that we should use them. I endeavoured to ascertain the losses of stock in the various States during the last few years, but I have not yet had replies to my communication ; but we all know that in the Riverina alone the losses of stock have been for the last five years 25,000,000 head. That is without taking into account the increases which ought to have taken

place, had the existing stock not been destroyed. The four rivers I have mentioned command an area, roughly speaking, of 250,000 square miles. Colonel Home in his full, report, which was based very largely on what I still deem the more valuable report of Mr. McKinney, Engineer for Water Supply 'for New South Wales, has given interesting particulars as to what can be done with this great territory, and what roughly the cost will be.

Mr Willis

- Have we power to do it ?

Mr McCOLL

- That is a matter for further consideration. We have largely the power to do it, and we are discussing matters to-day on the basis that the Commonwealth and the States will work together in harmony on this great question.

Mr Willis

- We have nothing to do with it.

Mr McCOLL

- We have everything to do with it. Of the east coast I need not say much, because there is water there. The upper part of the Murray is hilly country as far as Albury, and the suggestion made by Mr. McKinney, and concurred in by Colonel Home, is that there should be a weir at Bungowannah 7 miles below Albury. That weir would distribute water both through Victoria and New South Wales, the water leaving the weir 25 miles from the head and spreading over the surface of the land. Most honorable members know the system of irrigation in Victoria, which is what we term a semisurface channel system. Water is taken from a height, and brought down until it reaches the level.' Then banks are raised, so that the water is partly under the surface and partly over the surface, enabling a gravitation supply then to be given. This water from the weir at Albury would be above the surface 25 miles from the head, and this would enable a gravitation supply to be given. In all our schemes we should endeavour as much as possible to aim at a supply by gravitation, because pumping is far too expensive except for small areas and perhaps for very valuable products. In Ne\v South Wales alone this weir would supply 1,620,000 acres, or, roughly speaking, 2,500 square miles of country, the whole of which is described in Colonel Home's report as being of good soil, as the honorable member for Riverina knows very well.

Mr Willis

- We have only the right to take a reasonable supply.

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Mr McCOLL

- On the Murrumbidgee it is recommended that there shall be a weir near Yanko Creek to command 3,600,000 acres, The soil there is good, and the cost of a weir to store 9,268,000,000 cubic feet, is put down at £150,000. The cost of the Bungowannah weir is not put down, but I have consulted with professional men, who say that the cost would not be by any means prohibitive. Another weir spoken of .is below the Umarella River, and this would store 6,000,000,000 cubic feet of water at a cost of £45,000. Another weir is recommended below the Goodradigha River to store 10,000,000,000 cubic feet of water at a cost of £71,000. The -tract of country north of the Murrumbidgee could be watered by canal, 6 miles below Wagga, for 130 miles, with 80 miles of branches, which would command 1,500,000 acres, at a cost of £509,260. In the Lachlan there is a delta formed by the junction of that river and the Willandra, comprising an area of 6,000 square miles. The storage site would hold 3,750,000,000 cubic feet, and the work of constructing a weir there would cost £30,000. On the Darling, with its 19,000 square miles of catchment area, - 10,000 of which are in New South Wales and 9,000 in Queensland - there is ample opportunity for storing and distributing water at a very small cost. There are also in that country numerous lakes, many of which the pastoralists have locked up in grazing areas. The lock made at Bourke has been a great success and has been constructed at a very slight cost. The summary of these reports is that they strongly recommend weirs at Bungowannah and Yanko Creek. I would point out that the latter weir would take in the waters of the Murray River before very many of its tributaries had joined it, and therefore the waters from those tributaries would go to swell its volume and could be utilized lower down. I have, on the very best authority, a computation of the water available at this point for use. The highest discharge per minute ever known - and readings have been taken since 1877 - is 1,800,000 cubic feet, and the least discharge is 25,000 cubic feet. The highest total discharge - taken from the readings - was in 1894, when

it was represented by 78,750,000 cubic feet. Allowing for one-half of that discharge to go to waste in distribution, percolation, and otherwise - and in discussing irrigation we must always base our figures upon the least discharge known - it would irrigate 927,422 acres a foot deep by gravitation. The possible results of the distribution of such a quantity of water over that area of land are something enormous, and that work would not preclude the formation of locks lower down to still further utilize that river. There is one peculiarity about the Murray River, namely, that it loses an enormous quantity of its volume before it reaches Swan Hill.

Mr Deakin

- Between Echuca and Swan Hill.

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Mr McCOLL

- Between Albury and Swan Hill - particularly between Echuca and Swan Hill - an enormous quantity of the waters of the Murray seems absolutely to disappear. It is said that the volume of water which goes into the sea at the Murray mouth is not much more than one-tenth of the volume of that stream in its passage down the river. This volume of water absolutely disappears, and therefore, by conserving the water higher up, we should save a great deal of that which now goes to waste. The value of that water it is almost impossible to estimate in pounds, shillings, and pence. I have said that the water from that weir alone would cover 950,000 acres a foot deep. In Mildura they are paying for water at the rate of 15s. per acre for one year. Our own water trusts are charging varying amounts from 6d. to 2s. an acre for a watering of 3 inches. If, then, we compute the value of this water, winch would cover 950,000 acres to a depth of one foot, we shall see that the returns from such a scheme would be enormously more than_would pay for the construction of any works that could possibly be carried out. Our duty, therefore, is to bar every stream, to utilize every storage, to intercept and save all the water that we possibly can, because when we have saved every drop of water, and got it into a proper position for utilization, we shall still have a large amount of territory upon which we cannot place water. I say that there is no finer field for the exercise of wise statesmanship than in the utilization of the water resources of the country in order that we may utilize the land and put people upon it. By joining the soil and water 'in this way, our people in the future will not be the sport of the seasons as they have been in the past, but we shall make the seasons subject to our own requirements, and be able to utilize them. What is our position in Australia to-day 1 We have 4,000,000 of people with 3,000,000 square miles of territory, or four people to each three square miles. Half of these people are to be found in the cities and towns. I have gone through a list of seventeen towns, none of which has a population of under 10,000. How are these cities and towns to be kept up unless we encourage agricultural industries ? We have men without land, and land without men, and our duty is to bring them together. The work that is being done in the United States, as touched upon so eloquently to-day by the honorable and learned member for Indi, amply shows that we have full justification for establishing this department of agriculture here. We have to find the true relationship of our land, and its capacity to the crowded cities that we have at the present time. As the honorable and learned member pointed out, national prosperity can only follow the fullest development of all our resources. There is no limitation whatever upon us, but those limitations which we choose to make ourselves, or which we will not clear out of our way. We cannot live here and become a great nation on a Constitution and a civil service. We must develop our resources in every possible way if we are to become a great nation and have the population that we should have. The new farms that we ought to see settled are what we must look to, to feed the cities that we have established. The obstacle in the past has been the rain failure. People have, been driven to the cities. But there is another side to this question, and I invite honorable members' attention to what I have to say in this respect. In the arid districts we have to remember that there is nearly always unfailing sunshine. All that is needed is water. In fact, the whole of the interior of Australia - the district of Riverina especially - is nothing more than a great sanatorium, probably as healthy a district as can be found in the whole world. There is the rainless air, and that is what makes the place healthy. It is damp heat and cold that bring ill-health and disease. There is a book which was recently issued by Mr. W. E. Smythe, called "The Conquest of Arid America." It is a book which honorable members should read, though, perhaps, it is written rather in a " spread-eagle" way. The writer says that aridity is America's greatest blessing, and he gives proofs of his .statement. He says that aridity is America's greatest blessing, far beyond its forests and its rivers. In connexion with this question of

aridity, it is interesting to notice that nearly the whole of the ancient civilizations were located in the arid regions of the world. It is strange that people should have settled there, but the fact remains that it was in those regions that the ancient civilizations grew great and prospered, just because they utilized the water. There are other features in connexion with this utilization of the water and of the land beyond the mere agricultural question. It has its great influence on social, domestic, and industrial life. If we go back to the past, and look at Egypt, Asia Minor, Palestine, Persia, and Mexico, we shall find the remains of the vast works which the people of those countries had established, showing how they utilized the water. On the Nile, we have 6,000,000 acres' of land supporting 5,000,000 of people, and the product of irrigation on the Nile is paying the interest on a national debt of £103,000,000. The interest is £3,958,302, and that is paid almost entirely out of the product of irrigation Now, that land has been worked for ages, and it is still fertile. It has been thought that that fertility was mainly owing to the sediment brought down by the Nile, but Professor Hilgard, one of the foremost authorities on the matter, has shown by analysis and research that that sediment is not equal to three loads of manure on each acre of land. He says that the fertility of this land arises from the fertility inherent in itself, and only requiring to be developed by the application of water.

Mr Isaacs

- - That is very evident in America.

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Mr McCOLL

- Yes ; Professor Hilgard points out that there are irrigation districts where the soil is not losing its strength, where it is still as productive as ever, and where the water comes from artesian wells, and that there are other districts which are fed by clear springs,- with scarcely any sediment at all. Now he finds out by analysis of these soils, and he has made over one thousand analyses, that they contain to an enormous extent potash, lime, magnesia, and sulphuric and phosphoric acids, elements which are required for the successful cultivation of the soil. These elements have been accumulated throughout the ages by the process called weathering of the soil, and they are there to be utilized simply by the application of water to them. He finds by analysis that these arid soils, which were looked upon only a few years ago as almost valueless, and which were sold at from 2s. 6d. to 5s. per acre, are now, through the application of water, worth from £10 to £20 per acre. These soils, compared with the soils of the eastern States of America, which are considered good, contain three times as much potash, six times as much magnesia, and fourteen times as much lime. He finds, further, that these arid districts are always rich districts, and that in limestone districts agriculture can always be carried on successfully, with the application of water. We have in the north of Victoria in our mallee country, possibilities which no one can very well conceive, if we can apply water to that large tract, and the same tiling may be said of very large areas of country in the adjoining State of New South Wales, and also in other States We read of Damascus and other countries where, by the use of water, they were enabled to enjoy the utmost comfort and to surround themselves with the greatest beauties, and we know that here we have the opportunity of matching those conditions, not in one place, but in dozens of places. We may also look to the developments of more recent years in such places as Los Angelos, Utah, and Denver, and a dozen different places in America. A friend of mine who recently visited Los Angelos was completely struck with its beauty and the comforts by which the people were surrounded, and he told me that it looked like a little bit of heaven dropped down to this earth. We can produce the same results here by the application of water to our soil. Irrigation is not an adjunct of agriculture, but over a great portion of this country it will have to be agriculture itself. The results of irrigation and the application of water to the soil are more far reaching than the mere increase in the productiveness of the . soil, because the general economic changes that follow are more marked. I should like my democratic friends to notice these facts. One of the effects of irrigation is to compel the establishment of small farms, because no monopoly in land can exist under a proper system of irrigation. It brings about co-operation in works, and the equitable distribution of water. It fosters industrial independence, and upon the small farms established under this system the labourer can earn all that he needs for himself, his wife, and children. The return for labour becomes almost as much a certainty as anything can be certain, and men become assured of a good living. It gives the comforts of the town with all the pleasures and joys of a country life. One advantage that is derivable is that it enables us to supply moisture in varying quantities just as the plant may require it. We have the

water at command, and can give a small quantity or a larger supply just as it may be needed. So we are able to command the seasons instead of being dependent upon thorn. America has gone ahead enormously in this way, and we have opportunities here, just as they have in America, if we choose to take advantage of them. What the future of Australia will be if we properly utilize our water supply resources no one can conceive, but without that utilization of water it requires a very small gift of prophecy to say what the future will be. These words of mine are no dreamer's vision, but they can be transformed into solid facts if we are able to face the position that lies before us, and prove equal to the fulfilment of our proper destiny. History has told us the story over and over again, and we have only to follow her teachings in order to insure success. What we should do first of all is to make inquiries as to what is now being done in the United States. We require a survey by which we can ascertain the rainfall over this continent, the capacity for storage, and the volume of our rivers, and everything else in the way of useful information relating to our water supply and its utilization. In America the River Mississippi, the father of waters, is dependent upon large storages in order to maintain it as a perennial stream, and we shall have to work hand in hand as States in order to secure the most beneficial results in this matter. We do not want to regard the border line as separating us in our irrigation projects, but we want to realize that whatever works are carried out will be equally beneficial to the people on both sides of that line. The cost may be somewhat great, hut surely we can face it. I am told that the State of Western Australia is entering upon a project for taking water through pipes for a distance of 360 miles, and the source from which the water is derived is many feet lower than the point at which it is to be delivered. Six pumping stations are to be established in connexion with this scheme, and the estimated cost is £2,500,000; but it is likely it will extend to £4,000,000 before it is completed. Surely if one State can take in hand a work of that kind, we should be able to spend a million or two upon water supply in order to secure the benefits that I have spoken of to-day. We have gone very largely into water supply works in Victoria, and we have spent a very considerable amount of money, some of which has not been wisely spent and has not proved productive. That, however, has not been the fault of irrigation itself, but has. been due to the subject being a new one to us, and to the foot that our farmers and engineers were unskilled and inexperienced.. As in all experiments, the work had to be carried out at a certain amount of loss. The - cost of national water supply works has been £838,100. The total amount of money lent to irrigation trusts is a little over £1,000,000, and the total amount spent on country water supply by the State, ex- elusive of the Yan Yean, Coliban, and Geelong works, is £3,330,000. That was a considerable amount to spend, but unfortunately we are not deriving the benefit we should be from a great part of that outlay. . We have not the water supply that is. necessary to fill the channels that are constructed, so that many of our works have been productive only of disappointment and loss. That, however, may be remedied very largely by undertaking the work I have spoken of to-day, by which the water could be conveyed from Albury right away to the;western borders of "Victoria. This question! of agriculture, with its cognate subject irrigation, is one of the greatest the House can consider - far greater than the Tariff or any other question, because it means the encouragement of the settlement of the people on the land. We cannot grow as a community unless our people find productive employment. It makes one ashamed to see hundreds of people looking for work when we have in this continent such boundless capacities for employment. With a proper system of irrigation and the introduction of the best agricultural methods, employment. will be found for every one, and comfort and happiness will be generally promoted. By agreeing to the suggestion that has been made by the honorable member for Indi, and . by carrying out the ideas that have been put . forward to-day, we shall be able to settle thousands of people in comfortable homes, whore they can live by following agricultural occupations. We shall lift up to a much higher plane the occupation of the agriculturist, and generally produce results which: will reflect credit on ourselves as the first members of this House of Representatives.

Debate (on motion by " Mr. Sydney Smith) adjourned.

Motion (by Sir John Quick) proposed -

That the resumption of the debate stand an order of the day for this day fortnight.

Mr MAHON

- I beg to remind the honorable member for Bendigo that some three or four weeks ago, in order to accommodate him and, I think, the honorable member for Northern Melbourne, I postponed a notice of motion of mine which appears on the notice-paper for the 26th instant.

Mr Higgins
- That is true.
Mr MAHON
- If the honorable member for Bendigo adjourns his motion to' this day fortnight, I understand from the Clerk that it will take precedence of mine, and I think, since I have obliged the honorable member before, he might oblige me now and postpone his motion so that it shall not conflict with mine.
Mr SPEAKER
- It will be quite competent for the honorable member for Bendigo, when the business is called on this day fortnight, if he so desires, to move that the consideration of his motion shall be postponed until after the motion standing in the name of the honorable member for Coolgardie is dealt with.
Question resolved in the affirmative.
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15:55:00
House adjourned at 3.55 p.m.