DISCUSSION.

MR. H. BRODERICK said he was sure that he expressed the feelings of the members when he stated that the author's paper was one of the most interesting that had ever been read before the Association. The author had spent much time and labour in preparing his valuable paper and drawings, which proved the wisdom of the Government in selecting him as Commissioner to the Indian Exhibition. He had much pleasure in moving that a hearty vote of thanks be accorded Mr. Franklin for his valuable paper.

Mr. A. D. Nelson considered that the paper contained information that was of the greatest importance to the whole Colony, and he wished to compliment the author in the highest terms for the very able manner in which he had brought the subject before the Association. He was convinced that if a well-devised scheme of irrigation was carried out by the Government it would have the effect of settling a large population on the lands of the Colony, and must result in general prosperity.

Mr. J. B. Henson endorsed the previous speaker's remarks, and considered that the subject under discussion was one of national importance. In the session of 1889 he read a paper on "Irrigation in the Nepean and Hawkesbury Valleys." He was pleased to hear that these works were now in progress, and he hoped that the members would be afforded an opportunity of inspecting them when completed.

Mr. Seaver considered we must all feel indebted to the author for his very valuable and instructive paper upon "The Ganges Canal," illustrated as it had been by so many clear and artistic views, from which the construction and surroundings

of the canal could be easily understood. The author had shown us what a magnificent system of irrigation had been carried out in India in the face of almost insuperable difficulties—difficulties with which we in this Colony would not have to contend against. It was not at all likely that our works would approach in magnitude those which had been so graphically described, such as the great regulator and dam at Myapore, with its massive revetement walls and solid masonry or to the super-passage works which carried torrential rivers over the canal, as those at Puttree and Ranipore. Neither was it likely that our aqueducts would approach in size to that stupendious triumph of engineering, the great Solani Aqueduct at Roorkee. Our works, large and extensive as they might be, would be of very different design; our rivers, not having the rapid fall of those in India, would not require to have their grade reduced by the use of costly drops and falls, and our floods had not the rushing and resistless force of the torrents which flowed from the snow-capped Himalayas. All these differences proved that we would have a much easier problem to solve than that which that illustrious band of Indian engineers had to battle with nearly half a century ago. The great works described by the author were on permanent rivers, which constantly flowed from the mountains, and which were at their best when most required; but in our case, with the exception of the Murray and Murrumbidgee Rivers, our rivers were not permanent, and the systems to be adopted would rather resemble those of Scind and the Punjaub, in which the irrigation waters were obtained from the rivers in times of flood. This system was much less costly than the others, for, in the case of permanent rivers, extensive sluices, dams, and regulators were required, while only the simplest works were necessary for inundation canals. At the close of his paper the author mentioned the advantages which had accrued from irrigation in India, both to the people and also to the Government, and he (the speaker) was sure it would be equally advantageous to

the people and Government of this Colony. We had only to look at Victoria to see what could be done by this means, and we would find that about forty water and irrigation trusts had been formed since the year 1883, and that at the present time the quantity of land which could be irrigated from those works was nearly 3,000,000 acres. If with a very limited nnmber of rivers Victoria could do so much, what ought not the people of this Colony be able to accomplish with the magnificent rivers they possessed.

Mr. Franklin, in reply, said he was aware that his paper was not calculated to offer a very full chance for discussion. He had given a simple, practical illustration of the grandest system of irrigation carried out in the world. It was the very first work undertaken in India. Before this a canal constructed by the Mogul Kings had existed, conveying water from the Upper Jumna to Delhi. When the British commenced to rule in India they made the canal more perfect; the Eastern Jumna Canal was the outcome of that, and this work was in existence to-day. The Upper Ganges Canal contained the heaviest works known in the world for such a purpose. If we diverted our small rivers, and took them by branch lines to the great rivers, the system would be nearly the same as that followed out in the Upper Ganges, omitting the great works he had described. The Engineer-in-Chief of our Irrigation Department had informed him he could point out places in New South Wales in which water, carried by canals with an easy slope, would be suitable for irrigating our western country. Enquiries had been made throughout the whole of this Colony with regard to irrigation. He (the speaker) had travelled over the whole of New South Wales obtaining information, taking levels, &c.; this information was now on record, and would, he hoped, be found exceedingly useful. He was glad to say that eighty per cent. of the members in the House of Assembly were pledged to support the system of water conservation in this Colony. He intended to educate the people

throughout the country, and to show them as nearly as he could, by discourses and by pictures, what had been done in India. About £22,000,000 had been spent on irrigation in India. Referring to irrigation works in operation in Victoria, the speaker said that whereas the vast extent of land known as the Wimmera was once scarcely habitable, irrigation had increased the value of that land by £1 per acre. Alluding to the success of Mildura, he said this prosperous settlement—the outcome of the enterprise and skill of the Brothers Chaffey—showed what could be achieved by irrigation. He intended to make this question of irrigation a national matter if possible, and if this were done they would hear no more of the unemployed.

In conclusion, Mr. Franklin said the time had arrived when the people of New South Wales should be practically shown that by their assistance, and by the assistance of their representatives, irrigation could be successfully carried out in New South Wales.