

How the Land near Adelaide was Raised.

The land in the vicinity of Adelaide had been elevated over 300 ft., following the retreat of the pliocene seas, and later there had been a corresponding lowering of the land to permit of the sea's return to the region of the gulf. The extent of this last submergence had occurred at different times, the sea alternately receding and encroaching by repeated pulsations of the earth's crust. The immediate cause of two great gulfs of South Australia had been the formation of the great rift valley between the South Coast and Lake Torrens. The evidence at command established the fact that the present aridity of the climate of South Australia was also of comparatively recent origin.

A Water Region of the Past.

South Australia was a land of lost rivers. At no very distant date Central Australia possessed a hydrographic connection with the Southern Ocean, and to a large extent must have been one of the best watered regions of Australia. The recent existence in Central Australia of large herbivores as well as such aquatic animals as Ceratodus oregonians, crocodiles, and other forms of fluviatile life demanded an abundant rainfall and permanently flowing waters. The remains of such a fauna occurring amidst sandy deserts and waterless wadies supplied convincing proofs that the climate of Central and South Central Australia had changed very much for the worse within recent times. This conclusion was confirmed by the fact that existing topographical features stood related not so much to the present as to an extinct system of drainage, the loss of which involved the extinction of a great variety of life that was dependent on such fluviatile conditions. A study of the physiographical features of South Australia enabled one to define the primary cause of this momentous change in the evolution of the country.

"Geological Might-have-beens."

The development of a new water-parting within a short distance of the southern coast, which intercepted former lines of drainage, had far-reaching effects, and supplied an adequate explanation of those hydrographic and climatic changes in geologically recent times that had so profoundly influenced the destinies of the country. At the same time it explained the remarkable absence of rivers from the southern seaboard in the later geological history of South Australia, and was an illustration of the momentous consequences that might turn on what might appear as an unimportant physiographical change. A simple tilt of the earth's surface, a sag to the north, and a ridge to the south, had the effect of obliterating a bounteous hydrographic system that had taken a full geographical cycle to bring it to perfection. In such circumstances contrasting the past with the present, South Australians might be excused if they indulged in regretful reflections on the "Might-have-beens" in the geological history of their country.

THE SCIENCE CONGRESS.

BIG PROBLEMS DISCUSSED.

A BISHOP AND LABOR.

THE INFLUENCE OF THE EAST WIND.

EDUCATIONAL QUESTIONS.

Melbourne, January 9.

At the Science Congress to-day the Bishop of Tasmania (Dr. Mercer) expressed his views on "Labor as the basis of the social system." Demand, he said, rested ultimately on personal wants, the direct clash of which was seen most easily in the case of simple barter. But the promptings of individual caprice must somehow be merged in the generalised desires of social groups before a system of economic exchange could be established. The extreme doctrine that each should have according to his needs had a certain place of its own as in family life, but applied to production and distribution on the large scale it would, he held, end in economic anarchy. Less Utopian, but still unpractical, was the proposal to put all kinds of labor on the same level and to make labor time the sole measure of value. The principles of justice would thus be flouted, for skill, industry, strength, and learning would be rewarded no more highly than their opposites. The present policy of trade unions, in so far as it was based on such a doctrine, could only be of an ad interim character. Since goods were for the satisfaction of individual needs, any attempts to fix values by arbitrary enactment must result in social injustice. The system of market prices was almost entirely the result of the automatic working of social forces, and it would be hard to find a satisfactory substitute. Labor was not the sole source of value. Land and capital, apart from questions of State or individual ownership, had their part to play.

"We may grant that a living wage must be established," said the bishop, "and that wages boards must seek to readjust the more glaring instances of social injustice, but we must be content to preserve a large sphere for industrial freedom in a system of free exchanges in open markets, if industrial stability is to be assured as one of the foundations for social progress."

Agricultural Scholarships.

Mr. Alfred G. E. Edquist, lecturer on Nature study to the South Australian Education Department, suggested in a paper a certain number of agricultural scholarships for boys leaving the primary schools, but not sufficiently advanced in education to profit by a course of study at the agricultural colleges. Holders could be allowed to live near high schools on approved farms, where they would obtain two or three years' practical experience and also the opportunity to receive further instructions in reading, spelling, English, composition, arithmetic, and simple bookkeeping at the local high school.

Australian Education.

Mr. C. A. Sussmihl, lecturer in geology and mining at the Sydney Technical College, in a paper for the mental science and education section, offered suggestions for the improvement of the Australian system. A large number of more highly-specialised teachers was needed, he said, and he suggested, with regard to Universities that the conditions should be modified, so as to ensure an efficient preparation in elementary science and modern languages for those students taking technical courses, and that leaving certificates from approved secondary schools be accepted in lieu of matriculation. Instruction in the non-technical subjects, he said, should be made more suitable for the needs of the technical courses and in the technical courses themselves, particularly in the engineering section, more option should be allowed and a higher degree of specialisation be provided for.

More technical courses were required, and more attention should be given to post-graduate work. The principle of direct State control was suggested as being the best for Australian conditions, as against control by independent boards of trustees. The absence in nearly all cases of adequate entrance conditions to the higher technical courses was regrettable, and the need for adequate secondary education should be insisted on. The salaries paid to technical teachers were too low, and the principle of payment of fees was to be condemned. Technical teachers were in many cases expected to cover individually too wide a range of subjects for them to be possibly proficient in each one of them. They should be allowed to do professional consulting work, as similar officers in American colleges were not only allowed to do it, but were expected to do it. Many of the courses of study in the technical colleges were of too low a standard, and they should be raised. The equipment in all technical colleges and even in the universities for the higher branches of technology was very inadequate. All technical education, except that given in the universities, should be under direct State control. The standard of the higher technical courses should be raised in many cases, and every effort should be made to provide reasonable adequate facilities and equipment for practical and experimental work.

Hygiene.

Dr. J. W. Springthorpe contributed a paper on "Some Desiderata in Australian Hygiene." He said the Australian was energetic, enterprising, progressive, and free to act beyond most others, but he devoted his energies rather to remedies than prevention. He relied far more on legislation than obedience. The individual should be educated to know the dependence of both health and disease upon physical and vital and psychological law. There should be a place beyond that allotted under present conditions for hygiene in the educational curriculum. An efficient sanitary service could only be attained when medical officers of health were full time officers with public health diplomas, and when inspectors were

trained and certificated. The central authority should have mandatory as well as educational powers. A great uplift might follow the issue of an authoritative plan of campaign. The present authorities, good as they were, were too limited in their powers and too marked with the scars of conflict to gain complete acceptance.

The Wages Question.

Mr. R. M. Johnston, the Tasmanian Government Statistician, dealing with the wages question, said the general standard of living of the people as a whole could only be raised by cheapening the cost of commodities by further improvements in labor-saving machinery and allied natural forces. An arbitrary increase in nominal wages, if restricted to a few industries, might increase both the nominal and the real wage (the purchasing power) of wage-earners belonging to those trades. If the mere raising of nominal wages were too widely extended it would tend to lose its advantage to those whom it included, owing to the fact that they were customers as well as producers.

Effective Voting.

Mr. F. W. Barford, of the Commonwealth Statistical Bureau, read a paper to the social and statistical science section on a study in proportional representation. He suggested a scheme for the House of Representatives based upon the massing of the existing constituencies into 13 large ones, of which eight should return five members each and five return seven members each. The seats would be allotted to the respective parties according to the number of Droop quota polled by each. Parties failing to secure a Droop quota could have their votes transferred according to a plan explained in detail in the paper, the elector to have the power of discriminating between individual candidates by giving their preference votes according to Laplace's scheme of preferential voting. The scheme advocated for the Senate was a modification of that for the House of Representatives. He suggested that a strong expression of opinion might induce the Federal Government to take action in the matter, for which the present time was most opportune.

Changes in Australian Climate.

Extraordinary changes in the climate and conditions of Australia formed the subject of the first report from the quaternary climate committee of the association. Before the present period, it stated, was one of more arid climate, and antecedent to that was another climate distinctly humid in character quite different from that now existing. A study of the flora of the coast strongly suggested that the climate had there grown much more moist than in the period immediately prior to the last.