

A Mathematician's Plea.

Professor H. S. Carslaw, in his presidential address to the astronomy, mathematics, and physics section undertook to define the mathematical mind and defend the mathematician. The subject was the relation between pure and applied mathematics. It was a matter for regret, he said, that in several of the younger universities room has not been found for a separate chair of mathematics, the subject being combined with physics. These temporary expedients should be discontinued as soon as possible.

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"WHAT MIGHT HAVE BEEN."

SOUTH AUSTRALIA'S LOST RIVERS.

A GEOLOGIST'S PEEP INTO THE PAST.

HOW THE FACE OF THE EARTH WAS CHANGED.

SEA BED THAT BECAME DRY LAND.

Melbourne, January 8.

A curious picture of dead Australia was drawn by Mr. W. Howchin, F.G.S., lecturer in geology and palaeontology in the Adelaide University, in his presidential address to the geology section of the Science Congress to-day on the evolution of the physiographical features of South Australia and the application of the principles of the new physiography to the Australian land. This, he said, had already produced fruitful and revolutionary effects in the interpretation of surface features. Mountain ranges previously regarded as of very high antiquity were now known to be of comparatively recent origin. South Australia was second to none of the Australian States in the interest that attached to its geological and physiographical features. The existing topographical features of the country had been in the main sculptured during the latter half of the Cretaceous era. During the earlier part of that era the southern portions of South Australia were for long periods under the sea, and during later periods the land had been permanently above sea level and had slowly assumed its present continental features. It was until lately believed that the Mount Lofty mountain ranges were of very high antiquity dating from the time when Cambrian rocks were forced into stupendous folds and over-thrusts by tectonic forces, and that the present uplands were the worn-down remnants of very lofty and very ancient mountains.

Origin of South Australia's Gulfs.

They now knew that the existing hills were comparatively recent in their origin, and had been caused by epigenetic, rather than tectonic movements. The two important inlets of the sea known as Spencer Gulf and Gulf St. Vincent, were also of very recent origin, and owed their existence to earth movements, which were probably still in progress. In post-pliocene times, the land stood at a greater elevation than it did to-day. The river systems were highly developed, radial in structure, and continental in extent, at that time. The drainage was north and south. At present it was east and west. The older drainage had been entirely wiped out. The rivers were dead, and could be traced only by their dry channels and alluvial deposits. The present drowned valleys of the gulfs in those days formed dry land, or rather were extensive flooded plains built up by the fluvial sediments brought down from the interior of the continent.

The pharmaceutical delegates heard two interesting papers—on modern methods of analytical control and the other on ergot and its active principles. A general discussion took place on the desirability of encouraging the cultivation of medicinal plants in Australia.

The Australian Boy Criticised.

A frank criticism of the Australian boy lent a special interest to the presidential address, delivered by Mr. L. A. Adamson to the mental science and education section. He was equally outspoken, too, in regard to the Australian girl. The sense of the wide, free space of this country came easy to the Australian boy, he said. He had no class consciousness and was not afraid with any amazement when he spoke to his elders. (Laughter.) But the boy was not the worse for that. In alertness, self-reliance, and power of initiative he had no superior. His breeding and the nature of his country made him ready to face chances. If it was true that the Australians were a gambling people, one must remember that this land of flood and flame was, and must be, a breeder of gamblers, or, to be more polite, of men who willingly took risks. Their readiness of resource was shown by the fact that Australians who wandered as many did, to make a living abroad, almost invariably succeeded, thanks to the merciful Australian theory that no work could degrade a man. But to get the best out of the Australian boy they must be careful not to give him tasks beneath his capacity. They must work him up to the collar, or he would deposit his mind in a corner of the classroom, and put it to sleep. On the other hand, the Australian boy was too often brusque in manner, perhaps a defect of his qualities. He was wanting in cultured taste, for which defect his home must bear the responsibility, and he was too often lacking in chivalrous respect for girls of his own age.

The Boy and the Girl.

Proceeding, Mr. Adamson said it had been frequently said that their boys were lacking in reverence and respect for their elders. In part, this was not intended, but it could not be denied that the average Australian boy was lacking in chivalrous respect for girls of his own age, nor was he wholly to blame in the matter. There had taken place a gradual and even rapid breaking down of the old formality of intercourse between the sexes. The life of the camp and beaches was only symptomatic of the change that had been going on in the social system. Whichever sex might be at fault later on, he would say

without fear of effective contradiction, that in adolescence it was almost always the girl who began the casual acquaintanceships made in public places, if not by actually accosting the boy, then by what might be mildly termed, "the look of encouragement." Nothing was more socially amazing than the way in which parents of respectable position allowed their daughters to roam the streets unchecked, adding scalps to their belts in an unwholesome rivalry of seeing who could pick up the greatest number of chance acquaintances. Then followed a correspondence almost invariably started by the girl. Was there no combination possible to bring about a reform which should make their girls value themselves at their true worth, and so recover the lost respect of boyhood and take their rightful place?

The Veterinary Profession.

A review of the veterinary profession in Australia was given by Professor J. Douglas Stewart, of Sydney, in his presidential address to the Veterinary Science section. Legislative enactment was necessary, he contended, in the interests of the profession, to safeguard the community against the nefarious practices of impostors and to prevent the infliction of cruelty to animals under the guise of treatment by persons ignorant of the very elements of science. It was a regrettable fact that against these unscrupulous persons, their practitioners had to compete in the majority of the States. The establishment of research laboratories in connection with veterinary services was constantly urged. The relative health conditions of flocks and herds were themselves sufficient evidence of the valuable work performed by the various services of the different States, but important as was the work of veterinary service in suppressing diseases that arose within the State, of still greater importance was its duty to prevent the introduction of diseases from without. Much good would accrue from the formation of veterinary associations throughout Australia, not only to promote the interests of the profession, but to give a direct impetus to scientific advancement.

but notwithstanding the extreme views of Dr. Willis L. Moore, Chief of the United States Weather Bureau, and those of a few experts of more modified belief against such conditions, that weight of opinion was on the other side of the scale. Reference was made to Mr. W. Gill, the South Australian Conservator of Forests, who had instanced the Gawler River rising in hills of soft and easily disintegrating rock, as doing damage by erosion and the silting up of its course. The committee concluded with the following recommendations:—"That all forests on the upper zones of ranges holding the sources of rivers of importance be conserved in future; that whenever land holding the sources of minor streams is sold, or let shall be under the express condition that forests round the sources of streams shall be conserved for a distance to be hereafter decided upon by regulation, having in view the topography of the ground in question; that when land is being alienated in valleys of an alluvial nature, through which rivers with strong streams run, all trees and vegetation must be conserved on their banks for a width of a chain from the water's edge."

Weather Problems.

Professor David, in his inaugural address to-night, which referred especially to Australian weather and Antarctica, expressed the opinion that Scott had reached the South Pole. He urged that steps should be taken to establish at least a few observing-stations in the heart of the Australian meteorological desert which lies between Mullagine in Western Australia and the MacDonnell Ranges. Next there was the question of investigating the upper atmosphere by means of kites and small balloons carrying detachable self-registering instruments. Further, a proposal had been made by Mr. Hunt that a competent officer be appointed to visit all the Australian Universities in turn, spending about one term at each of the six Universities of the Commonwealth. This scheme for providing a peripatetic professor of meteorology, who could be supplied at a minimum cost to the Universities, had already been warmly approved by the Universities. Next there was the important question dealing with ocean currents round Australia, and legislators would some day be impressed with the necessity for a complete current survey of the coast. Then, too, the question would have to be seriously considered whether a permanent wireless meteorological station should not be established at Macquarie Island, or some other suitable sub-Antarctic island, as already advocated. This would be a stepping-stone towards eventually establishing a meteorological station in Antarctica. He alluded also to the importance of a Polar observatory station and of weather forecasts.

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SCIENTISTS IN CONGRESS.

INTERESTING ADDRESSES.

THE AUSTRALIAN BOY AND GIRL.

A CANDID CRITICISM.

Melbourne, January 8.

The Science delegates spent this afternoon in attending a reception by the Lord Mayor at the Town Hall, the interior of which had been prettily decorated. The president (Professor David), in responding, said when there arrived in August next year the brightest intellects in the whole British Empire the personal contact that would then be brought about would react in a splendid way towards the advancement of Australian science and the making of Australian history on a higher plane than had ever been the case before. Pure science was not concerned at all with the economic gain of a discovery. The true scientist devoted his body and soul to the spread of knowledge, and did so for the mere joy of pursuit. That was what this association stood for.