

THE GLACIAL CONTROVERSY.

Mr. Howchin's Reply.

To the Editor.

Sir—I regret very much that I am once more compelled to utilize your correspondence column in reply to Dr. Basedow, on this subject of Cambrian glaciation; and the more so inasmuch as he has drawn into the controversy the name of the honoured dead. Dr. Basedow's statements are most misleading, and I am compelled to speak out on questions of fact. From the particulars supplied by Dr. Basedow in the former interviews, published in The Register, it would appear that my discovery, now under discussion, was made just prior to the decease of the late Professor Tate, and, therefore, as Dr. Basedow states, "the dying professor was too feeble to oppose the view of Mr. Howchin in a scientific paper." Now, as a matter of fact, my discovery was made in December, 1900, when I immediately wrote to Professor Tate, giving him particulars of the interesting find. Professor Tate continued his professorial duties for months after that date. He was present at a meeting of the Royal Society of South Australia on May 7, of the following year, when I exhibited photographs of the Cambrian till from the Sturt Valley. I met him frequently at that time, and discussed with him personally the subject in question, and offered to accompany him to the Sturt if he would like to examine the beds for himself—an offer he did not accept. Dr. Basedow gives the impression that Professor Tate knew all about these beds, and had come to certain scientific conclusions concerning them. I can say emphatically, on Professor Tate's own admission, he had never seen the beds. While these discussions did not in any way interfere with our personal friendship, the professor felt very sore over the matter, as my discovery was opposed to a long-cherished view he held concerning the geological age of the Mount Lofty Ranges. Professor Tate suggested that the beds in question might be the result of a crush-conglomerate—a view that was taken up by his two students, Messrs. Basedow and Iliffe, and was in this way the foundation of all the subsequent controversy on the subject.

Dr. Basedow, in The Register on Tuesday, is reported as saying—"We submitted papers before several scientific societies." They were as follows:—1. The Royal Society of South Australia; but the council of the society declined to publish the paper. Dr. Basedow says—"For reasons still unknown to me its publication was suppressed." This cannot surely be true, for the hon. secretary of the society wrote to him at the time, stating why it was declined. Dr. Basedow knows as well as I do that, to obtain an independent view of the value of the paper for publication, the council (as it often does in such cases) submitted it to Professor David, who advised that it ought not to be printed, as it represented a view not in accordance with the geological facts. 2. In the second instance Messrs. Basedow and Iliffe submitted their paper to the Australasian Association for the Advancement of Science at the Adelaide meeting, and Dr. Basedow says—"It was published." That is perfectly correct, and I may add that I am personally and solely responsible for the publication of the paper in the journal of the association. I was sole editor of the volume, and had discretionary powers with regard to the papers. I took counsel of no one, but, thinking that it might be interpreted as the result of personal bias if the paper were omitted, I included it. I cannot say that I was altogether disinterested in the matter, as I thought the best way to disprove an untenable theory was to show by the publication of the paper how little could be said in support of it. 3. The third attempt at publication was made when practically the same paper was submitted to the Geological Society of London—the highest geological courts of appeal in the world. Dr. Basedow states "it was communicated," but he does not tell us the fate of his London paper. By a fortunate coincidence my paper on the Cambrian glacial beds of South Australia, and the paper by Messrs. Basedow and Iliffe on the same subject, were read and came up for discussion at the same meeting of the Geological Society of London. Ample evidence of the glacial features were placed before the meeting in samples of the till, glaciated boulders, photographs, and lantern slides, so that the experts present could form their own opinions on the subject. The result was that in a lengthy discussion on the evidences before them not a single geologist raised a dissentient note, but quite to the contrary; and, while the society published

everything I sent, including some 20 plates, the publication of Messrs. Basedow and Iliffe's paper was dismissed with an abstract of a few lines. 4. In the fourth attempt at publication Dr. Basedow was certainly more successful, as his paper, embodying his views of the Cambrian "conglomerate" was published in der Zeitschrift der Deutschen Geologischen Gesellschaft, 1909. Presumably this was the thesis on which Dr. Basedow received his diploma of Ph.D., and is therefore, of some interest. Geologists who live in the opposite hemisphere and know nothing of Australian geology have poor opportunities of checking the value of scientific work done under conditions altogether beyond their ken? Dr. Basedow calls to his support the opinions of other scientists, but it is remarkable that, with two exceptions, all the names he quotes are gentlemen who live on the other side of the world, whose courtesies of speech in reference to his paper, as "excellent," "able," and "incontestable," are, no doubt, polite and well-meaning, but carry no weight on the scientific points at issue. The two Australian authorities on which Dr. Basedow leans for support are Mr. Twelvetree (the Government Geologist of Tasmania), and Mr. Maitland (the Government Geologist of Western Australia). At the Adelaide meeting of the Australian Association these two gentlemen were taken up to the Blackwood cuttings by those interested in the "crush-conglomerate" theory, but were not shown the more important and typical development of the glacial beds as they occur in the Sturt Valley. How was this? To show visiting geologists certain features, adjacent to the glacial area, and omit the main outcrops, was, to say the least, unfair, and placed the visitor in a false position. Messrs. Twelvetree and Maitland did not take sides at the Adelaide meeting. Their position with respect to the subject is explained from a reference contained in a letter that I received from Mr. Twelvetree, written shortly after his return home, in which he says:—"Before leaving Adelaide I was taken out to see the section in the railway cutting near Blackwood, where there are some false pebbles and what certainly appeared to be simulated boulders. I understood that this was one of the disputed Cambrian till sections. I never interfere with the geological work carried on in other States. Hence the present controversy does not appeal to me at all, but I shall be certainly interested to see how it all pans out." Dr. Basedow failed to inform his interviewer that Professor David, at the Adelaide meeting of the Australian Association, in his official report as the General Secretary of the Glacial Research Committee of Australasia, said:—"He (Professor David) exhibited at the British Association at York, last year, and also at the International Geological Congress at Mexico, last September, a large boulder obtained in situ from the Tower Cambrian boulder beds at Petersburg, and some smaller boulders. The specimens were seen by many scores of expert glacialists at the above meetings, and not a single doubt was expressed as to the glacial origin of the grooves and striae." More than a dozen university professors and lecturers in geology, several of whom are of world-wide experience and reputation, have examined the Cambrian glacial outcrops in this State, and with a unanimous result. Professor J. W. Gregory, D.Sc., late of Melbourne, now of Glasgow, has made repeated public reference to these beds. In a recent important work on Australasia, "Stanford's Compendium of Geography and Travel," he makes the following emphatic statement when dealing with the geology of South Australia:—"The archaic rocks must, in Cambrian times, have formed a high mountain chain, from whose snow-clad summits glaciers flowed down the flanks and deposited the Cambrian glacial deposits discovered by Mr. Howchin, of Adelaide. These Cambrian glacial deposits are one of the most interesting of the geological formations in Australia. They occur at intervals for 150 miles to the north of their outcrop, south-east of Adelaide. The suggestion has been made that they are only crush-conglomerates, and they have been so much affected by subsequent earth movements that many of the boulders and pebbles have been sheared, and the displaced fragments recemented; but the shearing did not give the beds their glacial characters, and Mr. Howchin's explanation is accepted by Professor David, Mr. Pittman, and myself, after personal examination of the sections." The report of the press interview with Dr. Basedow is headed "Glacial Controversy." Permit me to say that the controversy on this subject is entirely restricted to Messrs. Basedow and Iliffe. There are no other sceptics in the field. When the weight of testimony in favour of the glacial character of the beds in question is considered, on the one hand, and the limited number of the dissentients, on the other, the unequal contest must assume the features of either the sublime or the ridiculous."

I am, Sir, &c., WALTER HOWCHIN.

THE LOWRIE SCHOLARSHIPS.

An anonymous donor has paid to the University of Adelaide £500 to provide scholarships for post-graduate research in agriculture. It is the donor's wish that these should be called Lowrie scholarships, in recognition of the valuable services rendered to agriculture by Mr. William Lowrie, formerly Professor of Agriculture at Roseworthy, and now Director of Agriculture. The University proposes to give in succession seven scholarships, each of £75 and renewable for one year, to be called the Lowrie Scholarships. Candidates must have qualified for the B.Sc. degree in either the special course in agriculture for that degree; the course for the honours degree in chemistry; or the course for the ordinary degree in either chemistry and physics, or chemistry and physiology. A candidate must have attended regularly a course in botany to be approved by the council, and the course of bacteriology required for the third year in medicine. A scholarship will

be awarded in December of each year, on the recommendation of the Faculty of Science, to the best candidate, provided he is of sufficient merit. The faculty will, in making any recommendation, take into consideration the whole undergraduate course of the candidate, and will attach special weight to evidence of capacity for original research. The faculty may recommend that a former holder shall receive another scholarship for the year following, or may make no recommendation at all. In the latter case the scholarship will lapse for a year. The holder will be styled the Lowrie scholar. Modifications may be made in the conditions of the scholarship, but the name and general object are not to be changed.

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THEOLOGICAL CHAIR AT THE UNIVERSITY.

From "Theologian":—"I have read with interest your account of the address of Professor Naylor and the motion carried at the Theological Students' Association on September 22. One cannot but thank the professor for the brilliant yet common-sense standpoint he has taken upon the subject. After pointing out that 'religion is to be the study of the future' he demands with imperative emphasis that the Adelaide University be made complete by a sadly needed Chair in Theology—theology being broadly defined as 'the science of the relations of the human and the Divine.' Since theology is used so often in a narrower sense the word 'religion' would cover the definition better. This brings us to the main contentions:—1. Professor Naylor's definition of theology or religion is an effective answer to the contention that the State is taking a hand in teaching religion, that is, assuming that the State is represented on the University Council. With such a definition one may well claim that religion should be taught both in the University and the State schools, not necessarily Christianity, or the Bible, or the catechism, but 'the science of the relation of the human and the Divine.' It is one huge department of human knowledge, and as such demands a place on the school and University curricula. 2. That, with this in view, it is not a matter merely for the Theological Students' Union, nor for the church, to shoulder the responsibility and demand a chair in religion, undertaking at the professor's suggestion, to try to raise a £30,000 endowment fund. It is for the council to consider their own professor's judgment upon them that theology or religion is the most important subject of knowledge and culture and the most neglected within their own walls. Surely, of the speculative £4,000 a year grant from the Government, a mere £800 can be set aside for that object, which the professor claims, and in doing so, is well supported within and without the University, as being the most important of all subjects. This is a matter, too, which the Education Commission might recognise was too hastily shuffled on to the council, and back to the undaunted Theological Students' Association. 3. That there is no reason why, in the event of the proposed chair not having been founded, the churches and students should not request that a merely examining faculty in theology be formed at the University, with power to confer degrees in theology. There are subjects in which this is now done at the University. Why not in such an important one as theology?"