

awaiting investigation, and it may be that Rhases' account of Kharsini refers to mercury as a compound such as corrosive sublimate, which would correspond better with the Sābian account and with the poisonous properties of the material. I-Tsing (A.D. 671-695) seems to know corrosive sublimate, the production of which in China may have been early.

It has been possible only to mention one or two of the numerous interesting matters dealt with in the memoir, and the authors have performed a most useful and valuable service in its publication. Students of this difficult period in the history of chemistry will await with keen interest the further memoirs which Principal Stapleton promises.
J. R. P.

The Empire Mining and Metallurgical Congress.

THE first Empire Mining and Metallurgical Congress was held in 1924 at Wembley, on the occasion of the British Empire Exhibition, and the second will open at Montreal on Aug. 22. These conferences are for the discussion of scientific, technical, and economic problems connected with the mineral industry, and they have in view the development of the mineral resources within the Empire. They are arranged by an Empire Council consisting of delegates from five constituent institutions domiciled in Great Britain and five domiciled overseas.

The convening body for this second Conference is the Canadian Institute of Mining and Metallurgy. Invitations have been widely accepted from Great Britain, South Africa, Australia, and elsewhere within the Empire, while in addition many members of one or other of the institutions resident in the United States will attend. Probably, therefore, including ladies, there will be some 750 participants.

The venue of the conference in Canada is a particularly happy one, not only because this year is the diamond jubilee of the Dominion's Confederation, but also because the mineral industry in Canada has risen so rapidly to a position of great importance that it may be regarded as being on the threshold of further important developments.

The congress will begin by a session at Montreal on Aug. 22, and it will end by return to the same capital city on Sept. 28. Intermediate sessions will be held at Toronto and Winnipeg in succession, the major portion of the conference then proceeding westward to Vancouver to visit Edmonton on the return, at both of which places there will be further sessions, while the remaining participants will turn eastward from Winnipeg to hold a session at Sydney in Nova Scotia. There will be, accordingly, full opportunity to visit all of Canada's important mineral fields from the Atlantic to the Pacific.

With the greatest sympathy, interest, and assistance from the Dominion and Provincial Governments, as well as from the Canadian mineral industry itself, the presentation of Canada's mineral resources to the visitors will undoubtedly be as complete as the best possible auspices can ensure.

The wider question of the Empire's mineral resources will be the feature of the discussions at the opening session at Montreal, when papers dealing with it will be presented, particularly from the Institution of Mining and Metallurgy, London. So important, indeed, does that Institution consider the question to be that it has forwarded to the Conference the following resolution: "Resolved: That the Council of the Institution of Mining and Metallurgy being of opinion that the questions raised in the Paper submitted to the Institution by Sir Thomas Holland on a 'Proposed Review of the Mineral Resources of the Empire' are of vital importance to the British Empire as a whole, and to the Dominions, Dependencies, and Colonies, as units, think it desirable that they should receive serious consideration and discussion by competent authorities within the Empire."

Apart from this outstanding question, the Conference has been presented with an abundance of valuable papers from the other institutions and from prominent individuals, on the closer problems of the industry, scientific, technical, and economic, wherefrom all participants, whether from the homeland or from overseas, are assured of a lively and sustained interest in the proceedings. That interest, the delightful tour, and not least the friendliness promised both in Canada and on the way there, constitute a sum of entertainment which explains the large number who have seen their way clear to attend.

It is understood that the next of these Conferences will take place in South Africa in 1930.

Mycorrhiza.

DR. M. C. RAYNER concludes her series of papers on mycorrhiza in the May issue of the *New Phytologist*. The final chapter is devoted to a consideration of the significance of these structures, and the nutrition of mycorrhiza plants. The author holds a brief for the view that the relationship between fungus and host plant is a reciprocal one beneficial to both symbionts, and implies an exchange of food material with a credit balance on the side of the vascular plant.

Evidence is adduced from experimental work on the relationship in forest trees, orchids, and heaths. In the case of conifers, the fungi concerned show marked stimulation in contact with the roots, due no doubt to the small quantity of exudates, particularly phosphatids, present. The infected root, on the other hand, seems to absorb inorganic salts as well as, or in raw humus soils, better than, the uninfected roots. It is pointed out that the struggle for existence often centres about competition for suitable compounds of nitrogen, and the mycorrhiza habit enables the plant

to draw efficiently on sources of nitrogen in the soil otherwise unavailable for its use.

On the other hand, there is no evidence that any of the known root fungi of trees can assimilate free nitrogen. While conifers can utilise ammonium compounds, more complex organic nitrogenous compounds are more readily utilised by the root fungi, and on acid humus soils, where such compounds constitute the chief source of nitrogen, plants with mycorrhiza are well equipped in competition with other forms. Orchid mycorrhizal fungi differ from those of conifers in retaining the power of autonomous existence. Seedling development is, however, conditional on infection. In the case of chlorophyllous forms, whether or not the mature plant can thrive in the absence of infection is an open question, but with non-chlorophyllous species, complete dependence on fungal symbionts is a condition of existence, as the food material of the plant must come from the humus in the soil.

The structural features of heath mycorrhiza