

go out and do service. (Applause.) No class in the Empire had military duty fallen more heavily than upon the medical profession, and none had taken the burden up more cheerfully. Six of the teachers were out at the front, and in order to meet the extra strain the remaining teachers had gone on from term to term without vacation. (Applause.) Out of 35 eligible men all but one had enlisted, and three had gained the Military Cross. One (Dr. Barden) had given his life. All were proud to know that such help was being given to the soldiers who were fighting so well. In conclusion, the Chancellor wished the ex-students godspeed, and said that it was assured that they would uphold the honour of their land and win distinction. He prayed that they might be kept in safety amid the danger to which they would be exposed and return in all honour. (Applause.)

Register
July 12th, 1914.

STUDY IN FORESTRY.

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A South Australian Example.

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Afforestation has long been advanced as one of the State's assets, and during recent years the science has rapidly come into its own. The necessity for timber and the exigencies of warfare, with the consequent shortage of shipping, have thrown Australia largely upon her own resources, and never before has the country realized to the same extent the importance of an industry which could well be cultivated. Adelaide, through the University, has already made a step in the right direction. It is an example yet to be emulated by the other States, but present conditions should certainly foster a similar interest throughout the Commonwealth, and incidentally stimulate local activities. It is now five years since the Department of Forestry was instituted at the Adelaide University, and during that time progress has been systematic. A visitor inspecting the rooms set aside for the department could not fail to be impressed with the magnitude of the work, and should any element in such a realization be wanting, it would be supplied in the enthusiasm of Mr. H. H. Corbin, consulting forester to the Government and lecturer on forestry. He entertains no doubts concerning the value of Australian timber, and certainly the experiments conducted by Professor Chapman in his laboratory bear testimony to the beauty and utility of local woods. While the timber lands of the State are chiefly confined to private holders, the Government has already established a forest at the Meadows, in the Adelaide hills, and there students are instructed in the art of rearing trees which may be turned to practical account from a State point of view. The suggestion has often been made that a comprehensive forestry policy is needed, and that there is no reason why each town should not have a little communal forest to supply its own immediate wants.

—An Industry of the Future.—

In an interview on Wednesday with a representative of The Register, Mr. Corbin detailed several schemes on which afforestation could be made of advantage to the country. "We are endeavouring," he said, "to carry out development in the direction of planting, and also conserving all the natural forests of the State. Forests under good, sound treatment will produce anything up to 10,000 cubic feet an acre in 33 years, and should result in volumes of timber very nearly equal to the more rapidly growing pines. In the future we shall require not pounds of seed but tons to regenerate our areas, and have plantations on a sufficient scale to cope with all requirements. We are busy at present on the utilization of forest produce. We find that we can sell young pine thinnings down to two inches in diameter, which means that there is practically no waste." Commenting upon the recent establishment of a forest service, Mr. Corbin referred to the activity of the Attorney-General, who, he said, had taken a very live interest in the work. He touched upon what he described as "one of the problems to be tackled in this State" in the afforestation of the wide areas of sand dunes, and drew attention to the work which had been done in a similar direction in France. In conclusion, he emphasized an interesting aspect of the subject in "combining with the utility of the scheme the protection of our native fauna. Our forests," he added, "should also be game reserves."

Register 12.7.17.

PROBLEMS OF TRANSPORTATION.

The "Joseph Fisher" lecture in commerce at the University prior to that delivered recently by Professor Irvine, of Sydney, was given by the Hon. D. J. Gordon, M.L.C., who chose for his subject "Problems of transportation and their relation to Australian trade and commerce." By the last American mail Mr. Gordon received a letter from the "Bureau of Railway Economics," Washington, in which complimentary references were made to the subject matter of the address, and a request was made for a further supply of copies for the members of the library of the bureau. In England, where the canals have been controlled by private railway companies, efforts are being made to develop the inland water system, and water carriage is again coming into favor in America. Most countries are beginning to recognise that transportation is a vital question in the promotion of production. In view of the lessons of the war considerable attention is being given in the United States to the helping of producers by improving and cheapening methods of land and water carriage. In this connection the conclusions arrived at by Mr. Gordon in his pre-war lecture are interesting:—"Australians should unite in a patriotic effort to inaugurate an era of improved transportation, embracing increased efficiency in railway management; full use of inland waterways; and a 'good roads' movement in order to encourage the occupation of waste places of the continent, and so multiply production and add to the volume of trade and commerce. Problems of transportation not only have a close relationship to trade and commerce and the general material concerns of the country, but they affect national life in all its varied and numerous interests."

Daily Herald 12.7.14.

SCIENCE AND INDUSTRY

REPORT OF COMMONWEALTH ADVISORY COUNCIL

PERMANENT INSTITUTE URGED.

The Commonwealth Advisory Council of Science and Industry, a temporary body established in April, 1916, for the purpose of preparing the way for a proposed permanent institute of science and industry, has issued a report of its work. So little had been heard of the council since its appointment that most people had forgotten it was ever in existence. The advisory council itself has held only two meetings. Its work has been done by means of committees.

—Research Men Wanted.—

The report states that one of the first conditions essential to the success of the movement for the application of science to industry is a largely increased supply of competent research men. It is contended that existing laboratories are not ordinarily equipped with apparatus for conducting the "large scale" experiments which are often necessary as an intermediate step between the solution of a problem in the laboratory and the profitable application of the laboratory results on a commercial basis. Further, the executive committee claims to have ascertained that the accommodation available in, and the staff and equipment of, existing laboratories in Australia are insufficient for the carrying out of the fundamental work which must be done before many pressing problems can be solved. It recommends, therefore, the establishment of a permanent institute.

—Scientific Training.—

In the opinion of the executive committee, one of the most important functions of the proposed permanent institute will be to encourage higher scientific training, and thus increase the output of skilled specialists available for the development of the primary and secondary industries of Australia. It is hoped to achieve this result by both direct and indirect means; directly, by the employment of salaried investigators to assist in specific researches, as well as by financial grants to institutions for improved equipment; indirectly, by proving to the public the value of industrial scientific research, thus increasing the demand for trained specialists and improving their status and the emoluments open to them. Underlying the whole question of the scientific development of Australian industries is the training of artisans, and the executive committee considers that any efforts made for the application of science to industry will be, to some extent, frustrated unless there is an adequate number of scientifically trained workers. It says that the movement for the application of science to industry is a measure arising out of the war, and that it is of urgency that steps should now be taken to meet the conditions that will prevail when peace is declared. The committee is of the opinion that the first step towards the improvement of technical education and the training of artisans is an interstate conference of experts. The Government has informed the committee that it does not think it desirable that the action suggested should be taken at present.

—Agricultural and Pastoral.—

A considerable part of the report is devoted to the results of the investigational work carried out. As regards the agricultural and pastoral industries, special attention has been given to the control and eradication of pests and diseases of stock and crops. The loss caused directly and indirectly by the attacks of pests, parasites, and organisms causing disease is said to amount in Australia to millions of pounds yearly. The most important of these are the cattle tick, the worm which produces nodules in beef, the sheep blowfly, and the tubercle bacillus. Special committees have reported upon the tick pest and nodule disease, and have formulated lines of action with a view to their control.

The opinion is expressed that although the work of federation would be costly, and take a number of years, properly organised campaigns, conducted with the active assistance of the industries concerned, would ultimately be successful. It is pointed out, however, that before an efficient campaign against any of these pests can be organised it is necessary that the life histories of the pests and the methods by which the parasites are transmitted from one host to another should be fully understood, and the committee considers that investigations of this kind should form an important part of the functions of the proposed permanent institute. In connection with

the control and eradication of weed pests special attention has been given to the prickly pear. A report, with recommendations for a scheme for the control and eradication of the pest, has been presented by the committee to the Federal Government. Various other weed pests have engaged the attention of the committee. For example, in the case of St. John's wort enquiries are being made with a view to introducing some insect which feeds exclusively on that weed in England, of which country St. John's wort is a native.

—Cotton and Flax.—

The executive committee has received numerous suggestions as to the desirability of cultivating in Australia crops which produce raw materials at present imported or whose products are imported. Special attention has been given to cotton and flax, in the case of the former with a view to the introduction of a mechanical cotton-picker, and in the case of flax with a view to the adoption of some chemical method of retting the fibre. A large amount of information has been collected, and plans are being formulated with a view to large scale experiments. Several other matters connected with the agricultural and primary industries have engaged the attention of the committee. Chief of these are the questions of a soil survey of Australia, the branding of cattle, the introduction of the sparrow pest into Western Australia along the transcontinental railway route, and the breeding of new varieties of cereals and fodder plants suitable for dry areas.

—Forest Products.—

In connection with forest products special attention has been given to the production of wood pulp, destructive distillation (for methyl alcohol, acetic acid, tar, and inflammable gases) and the utilisation of waste timber. Two investigations have been initiated with a view to increasing the supplies of tannin, viz., the tanning properties of mangroves in Queensland and of red gum in Western Australia. Other investigations into vegetable products include the production of dyes and of camphor and the utilisation of grass trees. As regards fisheries, a special committee is investigating the marine biological economics of tropical Australia, with special reference to pearling, beche de mer, trochus, and sponges. In connection with the mining and metallurgical industries the most important researches are those concerned with the manufacture of ferro-alloys and the occurrence of gold in quartz, the object of the latter investigation being to determine the principles which have led to the localisation of payable gold, and thus, among other things, cheapen the cost of deep prospecting.

In the manufacturing industries special attention has been given to the improvement in tanning methods, paper-making, the utilisation of posidonia fibre (of which there are immense deposits in Spencer and St. Vincent Gulfs, South Australia), pottery and clays, the manufacture of solid-drawn cylinders for holding compressed gases, the design and manufacture of alcohol engines, the sterilisation of milk and the fermenting power of yeast. In regard to the last-named the results already obtained afford hope that they may have an important bearing on the solution of the day-baking trouble by reducing the time of the dough in the trough.

One of the important functions of the proposed permanent institute, continues the report, is the establishment of a bureau of information.

—Secondary Industries.—

The Victorian committee expresses the opinion that the Federal Institute of Science and Industry could give assistance to the secondary industries in the following ways, viz.:-

(1) By conducting any necessary research. (2) By means of a bureau of information. (3) By organising the means by which physical tests of materials could be rapidly and cheaply obtained. (4) By standardisation of specifications. (5) By active propaganda carried on by an officer in each State who would act under the State committee. Such an officer would be an organiser, bringing under the notice of the manufacturers the activities of the institute. He would ascertain their difficulties, and refer them to the proper place for solution. He could secure co-operation among the smaller shops in any one industry, explain and urge scientific management, and in many similar ways increase effi-