

Institution of Engineers, Australia

On Monday, Aug. 2, a party of members of the Institution of Engineers, Australia, including representatives from Sydney, Newcastle, Melbourne and Tasmanian divisions, visited Canberra for the purpose of planting trees in the memorial avenue. To Mrs. G. A. Julius, wife of the immediate past president, belongs the honor of the commencement of the ceremony, which deed was emulated by each member and lady visitor present. In all, a total of 39 out of the intended 96 were planted. Owing to the unavoidable absence of Mr. J. H. Butters, chairman of the Federal Capital Commission, Mr. W. E. Potts acted as deputy. Later in the day visitors were motored to the numerous places of interest including parliament house, Cotter river dam, Mt. Stromlo, and the local church.

Sydney Division

At the meeting held in Sydney on August 12, Mr. James Fraser, C.M.G., chief railway commissioner for N.S.W., read a paper entitled "The Railway System, Past, Present and Projected, of the City of Sydney and its Suburbs." The paper was by way of introduction to a series of papers to be presented at subsequent meetings at which will describe in detail the city railway works, the electrification of the suburban system, and the harbor bridge.

The following papers are to be read before the Institution of Engineers, Australia, Sydney, on the dates stated:—

September 9: Permanent Ways and Structures in Connection with Electrification, by R. L. Ranken, engineer in chief for existing lines.

September 30: Signalling and Interlocking, Sydney and Suburban Railways, by C. B. Byles, signal engineer.

October 14: Electric Rolling Stock Equipments, by E. E. Lucy, chief mechanical engineer.

November 11: Power Supply and Distribution, by H. W. Myers, chief electrical engineer.

December 9: The City Railway, by Dr. J. J. C. Bradfield, chief engineer, Sydney harbor bridge and city railway.

Melbourne Juniors and Students

A meeting of the Juniors' and Students' section of the Melbourne division was held on August 12, and took the form of a discussion night. Mr. D. O'Brien opened a discussion on the waving and corrugation of macadam and bituminous roads. He pointed out that waving is generally understood to mean the formation of transverse ridges and depressions with pitch varying between 18 in. and 48 in., while the term corrugation is generally applied when the pitch of the ridges varies between 6 in. and 15 in.

The problem has only arisen in the last 15 years, and so far no finality has been reached as to the major cause. One contributing cause is unevenness of material and irregular grading. Harmonic action, roller action, the influence of temperature, weak foundations, the stopping and starting of heavy vehicles, etc., are also factors. As significant facts Mr. O'Brien pointed out that corrugation is typical of asphalts and gravels, that it occurs also in steel railway and tramway rails, and that it does not occur on earth roads or on roads surfaced with spongy rubber.

Several speakers joined in the discussion, making reference to the different theories that have been put forward to account for corrugation. One dealt with the practical aspect, describing the construction methods and special precautions that have been found to minimise the trouble. Another propounded an ingenious theory to show that the natural period of vibration of an automobile on its tyres when travelling at about 30 m.p.h. would fit in with the observed pitch of the waving on roads. A third suggested that the relationship between the tensile strength and elasticity of the binding material of the road should be investigated. There is no corrugation of earth roads where there is no tensile strength, of rubber where the elasticity outweighs the tensile strength, or of concrete roads where the tensile strength outweighs the elasticity. But in bituminous macadam roads, which have a somewhat elastic bond of low tensile strength, corrugation is bad, and in steel rails which have high elasticity and high tensile strength it is bad. A fourth speaker suggested that careful investigation of the causes of corrugation in rails might disclose something applicable to roads. In closing the discussion, Mr. O'Brien pointed out that the best means known at present for overcoming the difficulty is to lay the road with a perfectly even surface where there is nothing that will set up harmonic vibrations in the wheels of vehicles passing along, and to use metal of angular form that will bond together strongly and counteract movement of particles. He recommended that in laying a road the rolling should be carried out longitudinally, crosswise and diagonally, and that the bitumen should be sprinkled in diagonal tracks across the surface.

Mr. A. Wallace then gave a short talk on the registration of engineers. He said that the term "engineer" is at present somewhat vague. Registration is necessary primarily for the safeguarding of engineering works and the public, and secondly in order to give deserved prestige to the professional engineer. In applying for

registration engineers merely ask that the trained man be tested and hall marked. The engineer should have a status to defend in the same manner as a wireman or plumber has to uphold his license. The main point is the protection of the public, both as regards technical matters and financial considerations.

At a meeting of the division held on August 17, Mr. D. Little read a paper on the heating of water electrically for domestic use. The first portion of the paper described a continuous water heating installation in the author's own home, giving particulars of the capital and running costs and of tests to determine the efficiency. The question of electrical water heating was then treated in a general way, comparisons being made of its cost with the costs of other means of heating, and the advantages of electricity in this service were pointed out. The load of the continuous type of heater was discussed and the question of tariffs was referred to. The paper was illustrated by a number of lantern slides.

Tasmanian Juniors

The first meeting of the recently formed juniors' and students' section of the Tasmanian division of the Institution of Engineers was held on August 12. Two papers were read and discussed: Some Experiences with Reciprocating Engines, by Mr. G. H. Evans, and Traction Problems, by Mr. F. Brain, junr. Mr. A. P. Flockart, the president of the section, was in the chair. The juniors and students are comparatively few in numbers, but it is proposed to run the section tentatively until the end of the year to see if sufficient support is forthcoming to maintain it. Mr. G. F. Onslow, of the hydroelectric department, is honorary secretary.

N.Z. SOCIETY OF CIVIL ENGINEERS

The annual meeting of the Auckland branch was held on July 30. The annual report stated that four meetings were held during the year, one in Cambridge and the rest in Auckland. While in the Cambridge district, the members were shown over the Arapuni and Horahora hydroelectric works. At the meetings held in Auckland visits were paid to various works of engineering interest.

The following officers were elected:—Chairman, Mr. F. E. Powell; hon. secretary and treasurer, Mr. G. T. Murray; city members of executive, Messrs. F. E. de Guerrier, F. A. Brown, L. B. Campbell; country members of executive, Mr. E. F. Adams (Thames), Mr. H. Roche (Cambridge), and Mr. J. F. McArthur (Pukekohe).

QUEENSLAND INSTITUTE OF SURVEYORS

At the annual meeting held in Brisbane last month, Mr. A. B. McComb was re-elected as president together with the following officers:—Vice-president, Mr. J. E. S. Stevenson; hon. secretary, Mr. J. B. Grant; hon. treasurer, Mr. F. J. Hussler; hon. business manager, Mr. A. W. Manning; council, Messrs. C. B. Lethem, A. L. Kennedy, S. Newman, T. Hein, W. F. J. Hamilton and J. H. Jensen; corresponding council, Messrs. A. R. Parkinson, H. S. Blakeney, R. M. Browne, C. H. Baird, L. R. Shield, D. C. Hollingsworth. In his report the president referred to the excellent work done by the council and the secretary, Mr. S. G. Palmer. At the request of the Victorian Institute of Surveyors a memorandum had been prepared setting out the necessity for a complete geodetic survey of Australia; it was hoped that the combined action of the institute would induce the federal government to commence this highly important and neglected work. The securing of an increase of 45 per cent on fees paid to contract surveyors by the government was left in the hands of the council. Consideration was given to the proposal that the government be requested to appoint a part-time instructor in town planning at the technical college for the benefit of surveying students.

HOURS IN THE IRON INDUSTRY

Chief Judge Dethridge, of the Commonwealth arbitration court, refused the application of the Amalgamated Engineering Union to apply the 44-hour week to engineering mechanics in the iron and steel industry. The chief ground of the application was that the law of New South Wales provided for a 44-hour week, that the majority of the men employed there were working 44 hours a week, and that, necessarily, 44 hours were the standard working hours of that state. Clause 3A of the award provides that, in the case of members who are employed by any of respondents in any industry in which the recognised standard hours for the general body of employees are 44 a week, such employees shall be entitled to 44 hours a week. The judge refused to accept the union's point of view that the iron and steel industry was confined to New South Wales. Although the production of pig iron was confined to New South Wales, evidence did not indicate that this could be regarded as a separate industry. Although the New South Wales employees in the iron and steel industry constitute a majority, he held that they could not claim to be "the general body of employees" within the meaning of the proviso as far as the industry is common to more than one state.