method was devised as the result of many thousands of tests described in numerous papers on the influence of silicon, phosphorus, sulphur and manganese on cast iron, on shrinkage, strength and impact of cast iron, "Keep's Cooling Curves," aluminum, etc.

His most important publication is his book "Cast Iron" (John Wiley and Sons, 1902). He was also author of a large number of scientific papers, most of which are printed in the transactions of the different organizations to which he belonged. At the time of his death he had just finished a paper "Static and Dynamic Tests with Transverse Test Bars," which gives a description of his later experiments and which will be published. Mr. Keep patented many of his devices, one of the most important of which is a system of matchplates for foundry use. His testing machines are well known, also his apparatus for "Mechanical Analysis." He was a member of the American Society of Mechanical Engineers, (vice-pres. 1903–5), American Institute of Mining Engineers, Iron and Steel Institute of Great Britain, International Association for Testing Materials, American Foundrymens Association, Franklin Institute, Detroit Engineering Society (past pres.), fellow of the American Association for the Advancement of Science, honorary member of the Rensselaer Society of Engineers and of the Foundrymen's Association of Philadelphia.

SCIENTIFIC EVENTS

SCIENCE AND INDUSTRY IN TASMANIA

Mr. W. H. Twelvetrees, government geologist in Tasmania, reports to the British Science Guild that the Tasmanian State Committee of Science and Industry has started the discussion of several subjects which can be usefully considered at the present juncture. Small working committees have been formed to deal with the questions of fuel, alcohol, improvement of seeds, tuberculosis in stock, utilization of kelp and Irish blight.

The committee has drawn up a scheme in regard to the study of problems connected with the realization of forest products. The scientific subjects for investigation are particularized as:

1. The production of wood pulp, cellulose, etc., by the disintegration of the main body of the timber.
2. The production of volatile and essential oils by the distillation of the leaves and twigs.
3. The production of a potash fertilizer from the ash obtained from the burning of the leaves and twigs.
4. The production of dyes, tannins, etc., from the various parts of the wood and possibly from the leaves.
5. The production of various distillation products from the waste timber and the conversion of same into higher priced materials for which markets could be found in different parts of the world.
6. The production of building materials from the sawdust and wood after breaking down into pulp; probably after chemical treatment for the removal of various soluble organic materials in the wood, such as lignin, hemicellulose, etc.

The state committee, without neglecting other subjects, has decided to specialize for the present on the forest industry generally. Its investigations are expected to indicate where and how the large timber areas in Tasmania can be improved, and profitable industries initiated. The committee has urged the Commonwealth Advisory Council to call delegates of the various state committees together so as to coordinate the work of carrying out a general scheme, but the council being only a provisional institution is of opinion that general research on forest products had better wait till a forest products laboratory is established under the permanent institute. In the meantime, specific research will be supported by grants-in-aid.

The production of electrolytic zinc by means of current supplied by the state hydro-electric installation is proceeding satisfactorily at Risdon, near Hobart. The chairman of the company announces that the establishment of this industry in Tasmania has been owing to a desire to prove the application of the electrolytic process to Australian ores and concentrates for the production of munition zinc,

hitherto produced within the empire in only small quantities, thus helping to make the empire self-contained as regards most important items for defence and commerce. The small plant which has been started has been putting out regularly 600 pounds of zinc per day for the last eight or nine months: and now a new 10-ton plant has been installed, permitting a production of 15 tons daily. The ultimate size of the plant at Risdon for the production of zinc is expected to have ten times the capacity of the present unit. It is also hoped to turn attention by and by to other industries made possible by the government hydro-electric undertaking. The success of the enterprise at Risdon will, it is confidently anticipated, favorably affect the zinc industry of the empire.

MANGANIFEROUS ORE IN OREGON

DEPOSITS of manganese and manganiferous ores in many parts of the United States have been examined during the last two years by geologists of the United States Geological Survey, Department of the Interior. This is essential work, because the limitation of shipping facilities has reduced the imports of manganese ore from other sources than the West Indies and Central America in 1918 nearly one third below those of 1917 and there is a prospect that they will be still further reduced in 1919. The importation of the iron-manganese alloy ferromanganese has decreased in much greater proportion and probably will soon be stopped altogether. To offset these decreases in the supply of manganese the Geological Survey has assisted in stimulating the domestic and the near-by foreign production by examining the manganese deposits in this country and in the West Indies with the view of determining the availability of the ore. The producers of domestic manganese ore have responded actively to the call made on them and have increased their production from 27,000 tons in 1916 to 116,000 tons in 1917. It now appears that the production of ore in 1918 will be 185,000 tons.

Manganese is used in various ways. Metallic manganese in the form of ferromanganese is alloyed with steel to make manganese steel and manganese dioxide is used in the manufacture of dry batteries, in glassmaking and in the chemical industries. Manganese, however, is used principally in making all Bessemer and open-hearth steels, in which it is incorporated in the form of iron-manganese alloys, which will serve as deoxidizers and purifiers of the molten metal. More than 95 per cent. of all the manganese consumed in this country is used for this purpose.

An examination of several manganiferous deposits in Oregon, including a reconnaissance of 150 square miles near Lake Creek, Oregon, was made in July, 1918, by J. T. Pardee, a geologist of the United States Geological Survey, Department of the Interior, in company with Henry M. Parks, Director of the Oregon Bureau of Mines and Geology. Mr. Parks has kindly placed at the disposal of Mr. Pardee the results of his previous work in this area, and Messrs. Parks and Pardee are jointly responsible for the estimates and conclusions here given.

So far as known the manganiferous deposits of the Lake Creek district are confined within an area of about 150 square miles in the east-central part of Jackson county, Oregon. The area is rather sparsely settled, and farming is the principal industry. The nearest large town is Medford, which is 15 miles directly southwest of the deposits but nearly twice that distance by the available roads. Eagle Point, a town on the Pacific & Eastern Railway, is the most convenient shipping point. The surface of the region is hilly and in places mountainous, but only moderately rugged. The local relief ranges from a few hundred feet to 2,000 feet or more, and the general elevation is between 2,000 and 2,500 feet. Streams are numerous, though most of the smaller ones become dry in summer. The climate is mild and the year is made up of a wet and dry season, corresponding to winter and summer. Most of the rather heavy winter precipitation falls as rain. The greater part of the surface that lies below 2,500 feet is covered with a mixed growth of madrona, manzanilla, and chapparal bushes and rather