

of the House of Commons more or less directly interested in chemical industry, together with the ex-president of the Society of Chemical Industry, who is a leading member of the coal-gas industry.

The committee's terms of reference are purposely somewhat vague and general, and it remains to be seen how they will be interpreted. In effect, however, they would seem to be limited to the creation, or suggested creation, of an organisation to be adequately representative of chemical industry; but, of course, much turns upon the functions with which this organisation should be endowed and the powers with which it should be entrusted, and it is in defining these functions and powers that the committee will either make or mar the whole scheme.

The matter is confessedly one of great difficulty and complexity, and involves far-reaching considerations. If the committee's deliberations result in the creation of what is practically a parliament of the industry in which all sections are adequately represented by persons of influence in industrial and commercial circles, and who, by virtue of their knowledge, experience, and position, are able to secure the confidence and co-operation of the Legislature and of Government departments, Dr. Addison's action will undoubtedly result in great benefit.

We trust, therefore, that the committee, which, it must be admitted, is somewhat bureaucratic in complexion, will take a broad and statesmanlike view of the question which has been submitted to it, and will not be hide-bound by purely party and departmental considerations, or by points of fiscal policy or the shibboleths of economic doctrinaires. The present times are somewhat out of joint: the future is full of changed conditions and demands a wide and bold outlook.

In an address delivered to teachers at the Regent Street Polytechnic on October 6, Prof. W. J. Pope, of Cambridge, showed how the huge chemical industry of Germany, primarily based on the coal-tar industry, and mainly built up by the genius and skill of her men of science and technologists, some of whom had spent their *wanderjahr* in this country, had been subordinated to the national effort to secure an economic supremacy in the world. He pointed out how the true meaning of that object-lesson had still to be learned by those who direct our national policy; he might have added, also by that much larger and not less influential class which, in the long run, manages and controls our commercial and industrial development, namely, the purely moneyed class, which, for the most part, owing to its partial and limited education, is practically ignorant of the real value and potentiality of science in a civilised community.

That such is the case is evident from the past history of the synthetic colour industry in this country, where it originated. So long as this industry was under the management and direction of business men of science, like Sir W. H. Perkin and Edward Chambers Nicholson, it flourished and might have been extended. When it was

fastened upon by capitalists who subordinated the chemist to the counting-house, it gradually languished and ultimately almost died out. Those who have succeeded in keeping it alive in this country have been largely of German or Austrian extraction, for the most part themselves trained as chemists, or who have had practical knowledge of the methods and policy of the great organisations in Germany to which Prof. Pope referred. There is an uneasy feeling abroad that the Department of Scientific and Industrial Research, in its well-meant efforts to administer the million pounds with which it has been entrusted, has, in regard to the resuscitation of the synthetic colour industry in England, failed to perceive the true principles by which alone the problem can be properly solved. This aspect of the matter may well receive the attention of Dr. Addison's committee.

THE STELLENBOSCH MEETING OF THE SOUTH AFRICAN ASSOCIATION.

THE South African Association for the Advancement of Science met in annual session for the fifteenth time in what will soon be the "university town" of Stellenbosch during the first week in July, under the presidency of Prof. John Orr, of the South African School of Mines and Technology, Johannesburg. The sectional meetings were held in the buildings of the institution at present known as Victoria College, but which will become the University of Stellenbosch from April 2, 1918. On the afternoon of Monday, July 2, the visitors were officially welcomed to Stellenbosch by the Mayor, and on the evening of that day, in the Conservatorium Hall, the president took the chair and delivered his address, an abridgment of which appeared in NATURE of September 27 (p. 76).

The association met from day to day in five sections, and ninety-seven papers were submitted, including the addresses of the five sectional presidents. Outlines of some of these are sketched below.

Prof. W. N. Roseveare, of Natal University College, Maritzburg, was president of Section A, and entitled his address "Mathematical Analysis in Science." He sketched the development of the Newtonian philosophy as the basis of all the mechanics of modern civilisation, from Galileo and Newton to Clerk Maxwell's electro-magnetic theory of light and the electron theory. The old theory had left some facts unexplained, but the principle of relativity developed during recent years by Einstein and Minkowski had been put forward to explain changes in the orbit of Mercury, and had reduced gravitation from a force to a quasi-geometrical property of space-time.

Prof. M. M. Rindl, professor of chemistry at Grey University College, Bloemfontein, chose as the subject of his presidential address to Section B "Phytochemical Research." In the course of the address Prof. Rindl emphasised the fact that every year many thousands of cattle die within the Union of South Africa, and many aboriginals

accused of culpable homicide are acquitted because adequate knowledge of the poisonous principles contained in indigenous plants is lacking. He urged, as a first step, co-ordination of effort amongst those actively interested in the problem. A census of the work already accomplished and of that still to be done would be comparatively simple, but none the less essential.

Mr. J. Burt-Davy occupied the presidential chair in Section C, which embraces the biological sciences, and he devoted his address to setting forth the need for an organised biological survey of South Africa. An economic survey of the natural resources of the country had recently been recommended to the Government by the Central Committee on Industrial Research. He pointed out the importance of a biological survey as part of that economic survey, and suggested, as means to that end, definite co-ordination of existing biological workers, together with their equipment.

The Rev. B. P. J. Marchand presided over Section D and discussed in his address certain points relating to educational matters. He expressed gratification at the encouraging movements in the direction of solving the problems connected with (a) industrial education; (b) gathering in the large number of children who are not attending school; and (c) educating the public on the subject of child-life protection. He announced that 40,000*l.* was about to be expended on the erection of an up-to-date technical institute in Cape Town, and expressed himself in favour of the establishment of agricultural schools under the school boards, of rural schools of industry, and of school farms of an elementary type.

Of Section E the president was the Rev. Noel Roberts, who began his address by asserting that the native population of South Africa is undoubtedly one of the country's chief assets. Yet, said he, year follows year, and nothing is done to develop so valuable an asset. Only education can convert this vast amount of latent energy into productive power, and whether we send him to school or not, the native is being educated by the example of the ruling races—often, unfortunately, by the vices and evil habits of the white man—an education which sends him downhill. Mr. Roberts discussed the hindrances in the way of turning the native into a productive member of the community, and spoke highly of the lofty attitude generally adopted by the Government department which administers native affairs, the effect of which had been to arouse in the native mind a real affection for the Government which protects and cares for them.

The necessary limitations of space forbid referring in more than a few brief words to some of the eight dozen papers submitted to the various sectional meetings.

In Section A Mr. Innes, Union Astronomer, announced the discovery of a star in the constellation Centaurus, as near to us as, or possibly nearer than, α Centauri. Prof. J. T. Morrison read a paper on problems in terrestrial physics, the

immediate outcome of which was the appointment of a standing committee to promote meteorological and geophysical research in South Africa. Mr. H. Pealing, lecturer in physics at the South African College, Cape Town, discussed the effect of vegetation on the rainfall of South Africa, and incidentally mentioned that the evidence regarding the desiccation of many large tracts of South Africa is so overwhelming that few will dispute the fact. The author of the paper sought to show that the amount of summer rainfall in districts far from the coast largely depends on the character and quantity of the vegetation in the intervening country. He urged afforestation of all suitable areas and the cessation of the wholesale denudation of tree, bush, and grass land.

Dr. S. J. Shand, professor of geology at Victoria College, read a paper before Section B on the geology of Stellenbosch, in the course of which he directed attention to a powerful dislocation that had occurred along the line of Jonkers Hoek, giving rise to what may be fairly called the Jonkers Hoek fault. Dr. A. W. Rogers, director of the geological survey of the Union, produced an interesting old report, of 250 years ago, on the copper fields of Namaqualand. Mr. G. F. Britten, of the Government Chemical Laboratory, Cape Town, read a paper on *Ecklonia buccinalis* as a source of potash. The seaweed occurs in large quantities on the South African coasts, and Mr. Britten thinks it would be easy to recover its potash on a commercial scale; he urged the institution of an exhaustive marine survey in this connection. Prof. G. H. Stanley, of the South African School of Mines and Technology, Johannesburg, read before the same section a paper on the prospects and possibilities of a South African iron industry, in view of the fact that the pre-war importations of iron and steel articles into South Africa used to approximate to six and a half million pounds sterling in value annually. He pointed out that on one small range alone, near Pretoria, above four million tons of ore assaying 45 per cent. of iron or more were in view, while the wattle timber that was annually burnt to waste in Natal could furnish 40,000 tons of charcoal.

Mr. C. F. M. Swynnerton, in Section C, showed how the ancient East African forests, once probably continuous from Melsetter to Beira, had been replaced by wooded pasture land. He suggested means for reconquest by forest of the land so invaded. Prof. J. W. Bews gave a detailed account of his study of plant succession in the thorn veld around Maritzburg, and a very useful contribution was made by Mr. T. R. Sim on the geographical distribution of the Bryophyta in South Africa. Dr. T. F. Dreyer contributed to the section a paper in which he offered suggestions regarding a mechanism for the inheritance of acquired characters. Mr. J. Leighton, in view of the increased demand for paper-making materials and textiles, gave the members of the section opportunities of seeing some new materials available in connection with each of these

industries. Insect pests of various kinds and means of destroying them were dealt with in a series of papers by Mr. C. W. Mally, and Dr. P. A. van der Byl contributed a valuable monograph on a fungus which attacks the Black Ironwood tree.

Mention must not be omitted of Prof. H. B. Fantham's excellent account of the intestinal and blood organisms which the war operations in Salonika and Gallipoli had afforded special opportunities for studying.

Section D was largely taken up with educational questions. Agricultural education in South Africa was dealt with by Dr. A. I. Perold, recently principal of the Government Agricultural School at Elsenburg and now professor of oenology at Victoria College, while by way of comparison Dr. C. F. Juritz read a paper on agricultural education in Australia. Entomological education in the United States was the subject of a paper by Dr. E. S. Cogan. Mr. W. J. Horne discussed the movement towards a national system of technical education, and the Rev. Prof. J. I. Marais completed the symposium with a paper on some forgotten factors in education. Section D, too, discussed the dearth of paper-making materials, an account being given by Dr. Juritz of the grasses of the eastern coast belt of the sub-continent available for paper-making: these grasses were mainly species of *Andropogon*, *Erianthus*, and *Anthistria*.

The results of mental tests applied to Zulu students at a mission station in Natal were discussed by Mr. S. G. Rich before Section E. The author urged continuance of the investigation with the view of settling the question whether the native mind ceases growth at puberty. Dr. C. T. Loram at a later stage contributed a paper dealing with the same question, which he answered in the negative, ascribing appearances to the contrary to the courses of study and methods of teaching adopted in native schools. He reiterated suggestions made at the Maritzburg meeting a year ago by the Rev. J. R. L. Kingon that part at least of the course of study should be conducted in the Kaffir vernacular. The Rev. W. A. Norton read some important papers before Section E: in one of these he urged the need and value of an academic study of native philology and ethnology, and in another he emphasised the advantages of stenography as an aid to the phonetic analysis and comparison of the Bantu languages. A very interesting paper on native ideas of cosmology was contributed by the Rev. S. S. Dornan, and equally interesting was one read by Mr. J. McLaren, who illustrated the wisdom and the wit of the Bantu people by numerous quotations of their proverbial sayings.

Prof. Orr, at the conclusion of his presidential address on the opening evening of the session, presented the South Africa medal and an award of 50*l.* to Prof. J. D. F. Gilchrist, professor of zoology at the South African College, in recognition of his researches in marine biology. There were two evening discourses of the usual popu-

lar type during the week, one by Prof. Gilchrist on the marine animals of South Africa, and the other by Mr. H. E. Wood, of the Union Observatory, on "Some Unsolved Problems of Astronomy."

Next year's meeting will be held at Johannesburg, with Dr. C. F. Juritz as president.

THE PHYSIQUE OF RECRUITS.

IN the summer of 1916 the Board of Scientific Studies was established under the ægis of the Royal Society to serve as a means of placing knowledge in the possession of scientific and technical societies at the disposal of Government departments. At the first general meeting of this board in July, 1916, the urgency of a physical survey of the nation, to discover whether or not there existed definite evidence of physical deterioration, was discussed. Emphasis was laid by various speakers on the fact that an Interdepartmental Committee had reported in 1904 that such a survey was necessary. Nothing, however, had been done. The mobilisation of a national Army had provided an opportunity, as well as a need, for such a survey.

The Board of Scientific Studies requested the Royal Anthropological Institute to report on the desirability and possibility of such a survey. The institute having reported that such a survey was both desirable and possible, the board formed an Anthropological Survey Sub-Committee to consider the manner in which such an investigation could best be carried out. This sub-committee has not yet reported to the Board of Scientific Studies, but we understand that it is seeking for the means of carrying out such a survey through the Government departments which have directly to do with the health and physique of the nation: the Recruiting Authority—now the Ministry of National Service—the Local Government Board, and the Board of Education. Representatives of these departments have joined the Anthropological Survey Sub-Committee, and it is hoped that a practical scheme may be formulated at an early date.

Meanwhile American anthropologists have stolen a march on their British colleagues. When the United States entered the war the National Research Council was at once created to serve the same purpose as our Board of Scientific Studies. Its Anthropological Committee, formed to advise in the selection, standardisation, and examination of recruits, has already issued its report and recommendations. It proposes that six of the sixteen great concentration camps should be selected for an anthropological survey—two in the Eastern, two in the Middle, and two in the Western States—and that special men, who had been trained to use exactly the same anthropometrical methods at the National Museum at Washington, should be dispatched to carry out a survey of the men in the selected camps. The points for investigation have been reduced to a minimum, namely, standing and sitting heights, three dimensions of the head, two