should attract a grant from H.M. Treasury. It is indicated that the National Central Library proposes to institute, in consultation with the National Institute of Adult Education and the other bodies concerned, an inquiry into the present provision of books for adult education classes, with the view of considering how far the type and the extent of the services require modification.

THE FILM AND THE SOCIAL SCIENCES

ALTHOUGH film processes are being increasingly used for research in the physical and biological sciences, little attention is paid to the cinema as a medium for investigating, teaching and propagating new knowledge in the social sciences (*Science and Film*, **3**, No. 2; June 1954). This may perhaps arise from an old-fashioned but not entirely played-out attitude of disdain for the place to be given, within the hierarchy of knowledge, to the study of human relations and human behaviour. An over-narrow view of the film-medium itself may also at times colour our outlook on its applications to science. The camera has, of course, special qualities for the observation of time and of mechanical movement, and the roles it can fulfil in the 'exact' sciences are obvious. But its usefulness does not end there.

The camera as an instrument of research in the social sciences has so far been little developed. Even for investigating manipulative processes, of such demonstrable value to the study of workshop skills and of industrial conditions generally, its use still remains the exception rather than the rule. For more subtle and less tractable problems of human behaviour, its use has been even less explored. Two recent examples of the use of the camera in psychological inquiry—of maternal separation and of the reactions of children to the cinema—illustrate well some of the possibilities. A rather similar, though brief, use of the motion-picture camera occurred in "Children Learning by Experience", itself a remarkable 'anthology' of children's behaviour as an aid in the training of teachers. Less normal phenomena form the subject of a pioneer Canadian series of filmed case-histories for the use of psychopathologists. Here the camera records permanently, unobtrusively and 'objectively'. To take another branch of the social sciences, no subject offers perhaps so wide a scope for the film record as does anthropology. Among many instances, Dr. Mountford's "Tjurunga" and his other films of the Australian stone-age men reflect the interest, not only scientific but also sometimes æsthetic, of such visual reports. Indeed, the trained cinematographer might well be considered an indispensable member of all field-teams engaged in anthropological or ethnological studies.

The dramatic qualities of the film medium are also available to the social scientist for explaining his purposes and methods to the general public. The cinema can illumine, too, the social relations of science; and this is perhaps one of the most important of its functions. There is need for films which will explain to the man in the street what science is, how scientists think and work, and the limits and freedoms affecting their activities. To this task the cinema as an art can bring special qualities of imagination and human warmth.

RESEARCH COUNCIL OF ALBERTA

REPORT FOR 1953

THE thirty-fourth annual report of the Research Council of Alberta, to which are appended lists of committees, staff and publications, covers the calendar year 1953* and emphasizes a shift in emphasis in coal research towards the exploration of the chemical potentialities of coal. Besides this a palæobotanical study was made of the flora and biological origin of Alberta coal measures, as well as investigations into the chemical and colloidal structure of coals. The vertical electric tube furnace for the determination of volatile matter in coal, built in 1929, was redesigned and a 14-in. rotating, self-clearing grate and ancillary control and recording equipment, installed in 1952, was used to complete an evaluation of the combustion characteristics of typical Alberta coals; a study of water retention by coal was also completed. Investigation of the trace metals in oil-sands oil and other Alberta oils suggests that occurrence of vanadium and nickel may serve as a precise correlative for crude oils and that cretaceous oils in general have a common origin. Attention is being directed to the origin of the trace-metal carriers, the porphyrins, and studies are proceeding on the properties of the heavy oils of Alberta and the viscosity of dispersions of wet oil containing mineral matter. The survey of the quality of Alberta gasoline continued, further tests were made on the storage of aviation gasoline, and work also continued on the partial oxidation of butane, in which a new reaction system was designed and built, and on the production of carbon black in a tubular furnace.

Field work by the Geological Section included detailed studies of selected areas for uranium in north-eastern Alberta, along the north shore of Lake Athabasca, and in the north-central portion of the Pre-Cambrian outcrop area in Alberta and especially north of Fidler Point and Leggo Lake, as well as a Pleistocene study in east-central Alberta. A fundamental mineralogical investigation of montmorillonite, the chief constituent of bentonite, in which forty samples of montmorillonite were subjected to X-ray and differential thermal analysis, indicates that every montmorillonite is a complex and intimate mixture. Further work under the Highway Research Project indicates that the dispersing and other properties of lignosol are important factors, as well as the viscosity effects, in preventing the migration of soil moisture to the frost line, and that sodium hexametaphosphate is equally effective in preventing frost action. Soil surveys were concentrated largely in the Peace River area, and a reconnaissance survey of the Grande Prairie sheet completed the field work on some 750,000 acres. Irrigation research was commenced on the solonetzic soils of the projected Red Deer irrigation area to determine the response to irrigation of various methods of treatment.

In the Industrial Projects Section research and testing for industry are of increasing importance. The ten-year biological cycle now appears to have reached the collapse predicted, and various publications on these extensive investigations are now being prepared. Two other investigations in animal science related to the effect of 'management factors' on the

* Thirty-fourth Annual Report of the Research Council of Alberta, 1953. Pp. 41. (Edmonton: Queen's Printer, 1954.)