firm. The first and most general requirement is that management should constantly re-examine what the firm is supposed to be doing, with the conscious aim of adapting operating methods and the structure of managerial relationships to their present task. If the task of the firm can be carried out by a number of people, each with a set of responsibilities and correspondingly limited liabilities, each occupying a well-established place in a pyramid of authority, such a system is economical and effective and has the great advantage of imposing less wear and tear, stress and uncertainty on individuals. But when the firm is tackling new tasks, commercial or technical, this system of differentiated routine functions is not satisfactory. Delimitations must be made fluid, and responsibilities must be elastically shared. Every effort must be made to encourage the sense of the business as a whole, with objectives and goals common to all its members, rather than a complex of separate 'jobs'. The stronger this sense, the more recourse there should be to 'lateral' consultation, which should be recognized and facilitated and not regarded as a mere semi-legitimate supplement to the 'vertical' channels of command.

Putting these prescriptions into effect is partly a matter of organization and partly of establishing a code of good manners expressing—whatever the level of formality or informality—a spirit of co-operation and appreciation rather than the desire to score or to assert prestige. The firm should regard the continuous, deliberate re-casting of its structure, the establishment of 'organic' relationships, and the maintenance of a social climate in which these can flourish, as no less important a part of the innovating process than the building of laboratories and the recruitment of scientists and technologists.

CANCER RESEARCH IN THE U.S.S.R.

Pathogenesis and Immunology of Tumours

Edited by G. V. Vygodchikov. Translated from the Russian by R. Crawford. Pp. viii + 258. (London and New York: Pergamon Press, 1959.) 80s. net.

THIS volume consists of a collection of papers in honour of Prof. L. A. Zilber's sixtieth birthday and is in no sense a text-book. Indeed it reads more like the annual report of the British Empire Cancer Campaign except that it does not cover so wide a field. It is unfortunate that the publishers did not give the date of its publication in the U.S.S.R., but the bibliography makes it virtually certain that most of the articles were written in 1953. Part one deals with the pathogenesis of tumours, parts two and three with immunological studies and there is a short section on investigations with electron microscopy.

A virus aetiology is widely favoured in the U.S.S.R. and one of the most interesting articles is that of Timofeevskii and Benevolenskaia on tissue culture studies. It is claimed that the mammary tumour milk agent can be propagated in cultures of mouse tissues as well as those of other species. The authors favour the idea that malignant transformation *in*

vitro is due to viral activity. The milk agent itself did not produce malignant change in their hands but is said to stimulate growth. They produce some evidence that methyl cholanthrene and the milk agent act synergically to produce malignant change. The article is critically written, and readers must bear in mind that it is seven years old. A very scholarly review on the viruses of fowl leukoses by V. A. Parnes is curiously included in the next section.

Zilber and his school are best known for their serological work. A technique much used by them is to sensitize guinea pigs against a tumour, to de-sensitize with normal tissue or other pertinent antigen and then to challenge with the homologous antigen. Points of interest concern the ability to absorb rabbit papilloma virus with rabbit red cells, leaving a preparation free of virus but containing other tissue components. V. A. Artamonova has exploited this to demonstrate antigenic differences between papillomata and the resulting carcinomata. The same author claims to have isolated proteins from carcinomata that will neutralize the papilloma virus. There is a short and interesting article on the antigenic properties of human amyloid by V. A. Parnes. There are articles dealing with the antigenic properties of human tumours, and tumours from mice, rats and birds. Generally they show the presence of antigenic components present in neoplastic tissues that are absent from normal tissues; different types of neoplasm share some components but have some peculiar to themselves. In their article on the specific antigens of malignant tumours in man Gorodilova and Shershulskaja claim that specific antigens may sometimes be demonstrated on the red cells of patients with cancer of the lung, stomach, mammary gland and ovary.

Unless inbred strains can be used, claims to demonstrate tumour specific antigens tend to be suspect. One naturally wonders how far Lysenko might be responsible for the Russians being slower than some Western investigators to realize this. Probably he had no such influence. It appears that they simply failed to realize the impact of genetic research until they read T. S. Hauschka's review in *Cancer Research*, in 1952. It is quoted several times in this book and D. M. Levina directs attention to the desirability of further work with inbred strains. When I heard Prof. Silber speak in Amsterdam last June he emphasized the need to distinguish between transplantation antigens and tumour specific antigens. He has abandoned his anaphylactic technique in favour of gel diffusion methods. Work with inbred strains in Britain and the United States is now beginning to reveal tumour-specific antigens, so a great deal of the Russian work with other types of material may prove to be substantially correct. P. A. GORER

EDUCATION IN SOCIOLOGY

The Social Purposes of Education

By K. G. Collier. (International Library of Sociology and Social Reconstruction.) Pp. xv + 236. (London: Routledge and Kegan Paul, Ltd.; New York: Humanities Press, 1959.) 21s. net.

IT is not easy to decide at what level to consider this book. The title and the series in which it appears lead one to hope for a sustained and distinctive contribution to our thinking about the social