Lord Haldane had arranged to give an address in the afternoon, but unfortunately he has had to cancel all public engagements for reasons of health. Two important meetings will be held on Friday, September 8. In the morning there will be a joint meeting with the Psychological section for the discussion of psycho-analysis in relation to the school. The opening speakers will be Dr. C. W. Kimmins, Dr. Crichton Miller, Prof. Pear, and Dr. R. G. Gordon. In the afternoon, addresses on Imperial Citizenship will be given by the Rt. Hon. Lord Meston and the Rt. Hon. Sir Joseph Cook (High Commissioner for Australia). Bishop Welldon will also speak. On Monday, September 11, there will be a paper on international students' organisations, by Mr. Iveson S. Macadam (President of the National Union of Students), and a discussion on English as the basis of national education, at which the speakers will include Mr. G. R. Pocock (Dartmouth College), Prof. Edith Morley, and Dr. F. S. Boas. The morning of Tuesday, September 12, will be devoted to local educational work, and the papers will be on the movement towards individual work in schools, with special reference to experiments in Hull, by Miss F. Sayer; and on the Dalton Plan, by Miss C. T. Cumberbirch. In the afternoon there will be a joint discussion with the engineering section on the effect of reformed methods in teaching mathematics, to be opened by Prof. P. T. Nunn and Mr. R. C. Fawdry (Clifton College).

The Imperial Cancer Research Fund.

THE executive of the Imperial Cancer Research Fund can look with satisfaction on twenty years of steady progress towards the understanding of the nature of tumours. In the twentieth annual report, lately issued, the director, Dr. J. A. Murray, records once again a tale of sound and solid work in a field which is rather particularly liable to be overrun with hasty and slipshod frontal attacks and premature attempts to find a cure for cancer.

Of chief interest perhaps are Dr. Drew's experiments on the growth of normal and malignant tissues *in vitro*. Observations on the transplantable tumours of mice have shown that malignant tissue has no natural duration of life, the same tumour growing continuously under favourable conditions for a period far longer than the normal life of the animal in which it arises. Similarly, experiments on the continuous culture of normal tissue *in vitro* show, with a certainty which will increase with further lapse of time, that they too may achieve an analogous immortality. The fundamental functional characteristic of tumours is their independence of, and dissociation from, the rest of the body in which they grow. If normal tissues are subjected to the same dissociation by isolation in artificial cultures, they too appear to be capable of continuous life without the intervention of sexual regeneration.

Dr. Drew has now analysed this question of the influence of different tissues on one another to a further point. He finds that epithelial cells when growing in pure culture remain undifferentiated. When connective tissue cells are added to such cultures, differentiation sets in with little delay, squamous epithelium producing keratin in the familiar form of the concentric corpuscles so well known in human epitheliomata and mammary epithelium growing into branching acinous structures. The form of the cells depends, then, more on where they are than on their origin, and the facts form an interesting commentary from the experimental side on the views of Dr. G. W. Nicholson on heteromorphosis in tumours put forward in his essays in recent numbers of the Guy's Hospital Reports. Dr. Drew has discovered also the curious point that malignant cells quickly make the fluid in which they grow unsuitable for further multiplication, though normal tissue will still grow in it readily. Continuous culture of malignant cells requires more frequent transplantation than do normal tissues, exemplifying the observational fact that human tumours are less resistant than normal tissues to all sorts of harmful influences—infections, poisons such as arsenic, radiation of different kinds, and so forth. They are superior to normal tissues only in their capacity to override the rules governing normal growth differentiation and morphology.

Drs. Cramer Drew and Mottram have continued their studies of vitamin deficiencies. Defect of vitamin A produces characteristically a diminution in the blood platelets, just as absence of vitamin B leads to almost complete disappearance of lymphoid cells. Similar changes in the blood elements may be induced by X-rays and radium. No success was obtained in attempts to influence the growth of transplanted tumours by vitamin deficiencies. In continuation of the production of malignant epithelial tumours by the repeated irritation of the skin by tar and similar substances, Dr. Russell now records the generation of malignant tumours of connective tissue by its subcutaneous administration. He also records further progress in his study of the respiratory exchange of tumours.

European Fish in New Zealand Waters.

A VERY useful account of the Marine Biological Station and Fish Hatchery at Portobello in New Zealand has been prepared by the Hon. G. M. Thomson and the late Mr. Thos. Anderton, and is published as Bulletin No. 2 of the Board of Science and Art of the Dominion. There is an appreciative note about Mr. Anderton, a man of great practical ability, who began life as a mercantile marine officer and then became a marine zoologist: he organised the Portobello Station with conspicuous success. The work of this institution is remarkable for the very original experiments carried out in connexion with it, having in view the naturalisation of European fishes and other marine edible animals in New Zealand waters. These attempts are well known in a general way, but it is well to have detailed records of their methods and results.

The main object was to introduce the European herring, turbot, edible crab and lobster. The herring was taken over in the form of large numbers of fertilised ova and the turbot in the form of small immature fishes. Undismayed by unfavourable reports by various ichthyologists, a number of preliminary experiments were made in order to discover whether the rate of development of herring ova could be retarded by the employment of low