in fly control, as impracticable because of reinvasion, difficulties in accomplishment and unreliability in a partially settled country.

This report is itself a summary, and a review must be wholly inadequate in presenting the riches of experiment in laboratory and field, and the extraordinarily diverse aspects of the problems discovered and attacked. Certain practical results are enumerated and lines of endeavor in control tested and judged in the light of results. A few of the significant conclusions are as follows: Each species of fly and each biotic area must be studied in detail before control measures should be undertaken. In studying the problems each suggestion arising from observations in the field was examined as to its feasibility, practicability, difficulties, cost and effectiveness, tested in the laboratory and on a small scale in the field, and then on a control basis. As a results of such studies recommendations are made for cessation of annual burning of the bush by the cattle-grazing natives, the building up of fly barriers by native bush, preferably evergreen, which are traversed slowly if at all by the fly, clearness of infested fly territory by native settlement, control of plant associations and methodical trapping of flies of certain species in certain territories till they are so reduced in numbers that human occupation can continue. Roads through fly country can be made safe by clearing, and fly concentrations can be isolated in like manner. In general the author favors policies of control by knowledge of the ecological factors most accessible to economical change and most potent in each ecologic niche in reducing the mass of the tsetse menace below the level of human disaster. Extermination is out of the question. Even then the enormousness of the task for tropical Africa is appalling.

As an example of practical ecological investigation and resulting control measures this investigation is outstanding in its magnitude, scope and accomplishments. It is a far-sighted, wide-visioned and skilfully operated attack upon one of the most tragic, complex, intricate and perplexing problems in parasitic ecology facing human civilization in a great continent.

One encouraging feature is the tribute paid to native helpers for their industry, faithfulness and inventiveness in attacking these problems.

CHARLES A. KOFOID

TELEVISION

Electron Optics in Television. By I. G. MALOFF and D. W. EPSTEIN. McGraw-Hill Book Company.

WHEREAS it might seem that electron optics in television was a rather specialized subject, of interest to communication engineers rather than to physicists, the book is of somewhat broader scope than is indicated by its title.

In the first 40 pages of introduction, the authors give a good review of current cathode ray television technique, with particular emphasis on various scanning and viewing devices. They then develop the subject of electron optics. First they consider the emission of electrons from various sources. The treatment is clear, and this portion of the book might form a useful text for teaching. The next subject to be considered is the analogy between electron optics and light. There follows a detailed treatment of electron optics, covering the trajectories of electrons in fields of various geometries. Electrostatic lenses and the defects and aberrations which these show are discussed at some length, as well as the techniques used to overcome these errors.

Then, deflection of electrons in magnetic fields and various types of magnetostatic lenses and focussing are described. This discussion of electron optics is unusually complete, and will, no doubt, be of value to all physicists dealing with electronic or molecular beams, be they in mass spectrographs, cyclotrons or Van de Graaf generators.

The second portion of the book deals with the television cathode ray tube itself. First, the electron gun is described, and the deflection of the beam, the types of luminescent screens and various ratings and classes of tubes. Finally various accessories are explained, most of which are circuits for special purposes, such as relaxation oscillators, impulse generators, multivibrators and driving circuits. The final chapter will seem to many physicists to be a rather elementary discussion of vacuum technique. The second portion of the book is more specialized and perhaps not of as great interest to physicists generally as the first. Throughout, the figures are clear, and the book will make a useful addition to a physics library.

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REPORTS

THE RESEARCH COUNCIL ON PROBLEMS OF ALCOHOL[1]

THE American Association for the Advancement of Science, through its permanent secretary, Dr. F. R. Moulton, made on October 3 the first public announcement of a new approach to the liquor problem through the launching of an associated organization known as the Research Council on Problems of Alcohol, the present membership of which includes nearly 100 distinguished scientists and educators from various sections of the country, as well as a group of citizens prominent in public and industrial life. The plan of the council,

[1] Press release from the office of the permanent secretary of the American Association for the Advancement of Science.