It is difficult to present many generalizations that would apply to all the papers of this book but because they all deal with the exciting field of differentiation each brings new observations or relations that are intriguing. The book comes at a good time for pointing up the problems and complexity of chemical embryology, but I think its authors would agree that it is more speculative than factual. One has heard many of the speculations before, but never so well constructed or supported. C. H. Waddington, in one of the general discussion sessions, noted "it is remarkable that at this symposium we have many wonderful experimental systems and beautiful observations, but an almost total absence of a clear intellectual framework of what it is all about."

If one expects to find in this book the explanation of how cell differentiation is achieved and controlled one is destined to disappointment. But if one seeks a good review of some excellent experimental systems and recognition of the gaps in our knowledge then he will delight in these pages. The book is a good springboard for future work, and as the Chairman, Sir Alexander Haddow, commented in his closing remarks "If we worship facts, the true genius is probably to be ahead of the facts."

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MONGOLISM. G. E. W. Wolstenholme and R. Porter (eds.). Little, Brown, Boston. 95 pp. 1967.

Beginning with the description by Down in 1886 of the syndrome that bears his name, among others (trisomy-21, mongolism, congenital acromicria, etc.), an increasing number of papers and volumes have appear defining and extending the observations on patients with this disorder. The recent discoveries relating chromosomal abnormalities to this condition and a variety of others have accelerated the rate of publication on Down's syndrome many fold. The chromosomal disorders of man have provided new data for a wide range of genetical investigations, including important possibilities for establishing autosomal linkages, mutational frequencies, and relations between defects of the genetic material and altered development. The clinical significance has been equally great; chromosomal investigations now form an important part of the study of patients with a variety of both recognized and suspected defects, as well as providing a better basis for genetic prognosis.

Since the rate of discovery has been rapid, and Down's syndrome of great importance here, owing in large part to its relatively high frequency and favorable survivorship among the states due to chromosomal aberrations, timely reflection and summary of established information and examination of potential areas for further study deserve efforts commensurate to the vigorous research being conducted.

This volume, a record of the Study Group on Mongolism, meeting in May 1966 in London under the sponsorship of the Ciba Foundation, represents an excellent account of current research interests and future possibilities seasoned with those historical notes and observations that are valued by many investigators but unfortunately rarely communicated through the usual channels. Chaired by Lord Brain, the meeting brought together 21 scientists in a most appropriate commemorative to Dr. John Langdon Haydon Down.

The papers, a total of seven, explore Down's syndrome at population, clinical, and cellular levels, and include: epidemiology (Matsunaga), possible gene effects on nondisjunction evidenced by consanguinity studies (Forssman and Åkesson), dermatoglyphics (G. F. Smith and Penrose), tissue culture DNA synthesis of cells from trisomics and disomics, microspectrophotometry and autoradiography (Mittwoch, Fraccaro, and colleagues), and enzyme kinetics — dose effects (Mellman and coworkers). A record of the discussion following each paper is included. The volume is prefaced by Lord Brain's succinct and interesting account of Down, his family and his studies, his life so given to the care and understanding of the retarded. A short section of general discussion at the end of the

meeting presents further comment as well as observations by Waardenburg, Benda, and others on historical points.

The range of topics, while representing the principal interests current among many investigators concerned with human trisomics, is broad for a one-day meeting. The emphasis is generally upon possibilities for further studies. Penrose discussed dermatoglyphic pattern intercorrelations, combined with other clinical observations, as a means of distinguishing two similar types of Down's syndrome — one, trisomy-21; the other, attributable to trisomy-22. Discussion of autoradiographic findings again reflects uncertainty as to which pair of G-group autosomes are trisomic. Matsunaga's descriptive report on Down's syndrome among Japanese shows results similar to those from European studies. It is of interest, however, that recent suggestions of environmental factors in the etiology of Down's syndrome are not presented, although the continuing problems of relating chromosomal imbalance to clinical and laboratory findings may suggest an associated effect of environment on both phenotype and the chromosomal material (cf., p. 83). A variety of approaches are presented and discussed relating the excess chromosomal material to the phenotype — a subject of highest significance — but with hypothesis remaining for development and testing.

While the volume is short, the style of presentation and discussion are uniformly good. There is pleasure in reading this account as the 100-year-history of Down's syndrome emerges with a perspective possible only when many investigators with long-standing and intensive study and discovery in a field present their material.

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