

PREFACE

Ten years ago a symposium on Cytotaxonomy was held in London (Proc. Linn. Soc. Lond. 169:110, 1958) in which a first attempt was made to bring together various disciplines to discuss advances of mammalian cytogenetics and to put them into proper context with the sciences of evolution and taxonomy. The introductory remarks by W. B. Turrill to that symposium, essentially an admonishment to be tolerant of the shortcomings of our respective disciplines, would be a most appropriate beginning to this conference as well. However, the meeting held at Hanover was conceived more along the lines of remarks made by R. B. Seymour Sewell in his presidential address to the same society: "It has been said that scientists in this search for truth are nowadays too much concerned with the accumulation of facts, and make too little use of their imagination in their attempts to explain such facts as they have accumulated." (In "The continental drift theory and the distribution of the Copepoda," *ibid.* 166:149, 1956.)

With this as a background, two years ago we held the first of a series of loosely-structured conferences on reproductive failure in the relaxing atmosphere of this small New England college community. The manuscripts of that meeting have been published (*Comparative Aspects of Reproductive Failure*, Springer-Verlag New York Inc., 1967). The exchange of ideas and information across the boundaries of our relatively rigidly defined disciplines was then a very welcome change from the nature of most of our professional meetings. It encouraged us to plan the meeting which forms the substance of this publication.

In recent years, because of improved methods, wider interest and, particularly, because of the astonishing number of divergent chromosomal changes found in man, there has been much work done in mammalian cytogenetics. Some of it contributes to an understanding of reproductive failure, some to taxonomy. Other work which was sheer fun was undertaken by workers with the ability and the interest to explore areas not trodden before. The result is a mass of rather scattered data, some of it quite raw and seemingly abstract. In looking at all this we concluded that the time had come to bring together some divergent disciplines to sort out findings and put them into their respective contexts, cytologic, taxonomic, evolutionary, or whatever. With this in mind the present contributors willingly agreed to come together, discuss their principal

findings (and points of view) with the hope of gradually giving some overall direction to the study of the mammalian genome. As the critical reviewer will spot immediately, this has been only partially successful as there are obvious major gaps. Perhaps some areas of coverage are redundant in this undertaking. This is not easily agreed to, however, by those who sat through this long week of papers and discussions, for all of us felt that, if anything, we needed to hear more rather than less of what was presented. As with the first volume, the reviewer will again deplore the absence of a printed discussion in this book. There was much lively discussion after the papers which, because of its verbal context, was uninhibited and thus, again of greatest value to the participants. Perhaps they profited even more during the long evening sessions which took place in the college dormitories where the visitors lived together. Nevertheless, the printed manuscripts will give much new information of a rapidly developing area of inquiry and may serve as a convenient place for an overview of the general area of mammalian cytotaxonomy and some related subjects.

In addition to these printed pages we heard a stimulating presentation by H. P. Klinger on sex chromatin which, because of his recent paper (*Cytogenetics* 7:39, 1968) is not presented here again. Moreover, a majority of registrants were not only entertained by but profited greatly from the two excellent evening workshops on direct bone marrow preparations by T. C. Hsu and on testicular meiosis preparations by C. E. Ford. We had also hoped that we could find an answer to the "Fusion vs. Fission" controversy during this meeting. While "fusion" (Robertsonian translocation of acrocentrics to form metacentrics—*J. Morphol.* 27:179, 1916) was generally agreed upon to occur, the converse, "fission" (one metacentric into two acrocentrics), proved a difficult subject even at a late evening round table discussion. The subject is brought up in most of the papers in this volume and clearly is a point of central concern that needs direct cytological and experimental attack.

To have had a professional mammalian taxonomist (Dr. R. G. Van Gelder) as consultant in our midst at all times was most comforting and helpful. To him and all those on our staff we extend our sincere gratitude for their efforts. Dartmouth College made all their facilities available once again in a most generous way and the trusting financial support by the companies and the National Institute of Child Health and Human Development cited at the outset is very warmly acknowledged. Without this help we could not have gathered in such a friendly atmosphere to exchange our materials and views so readily. The week ended in a splendid way. Professor A. Gropp from Germany was able to bring on loan a full-length movie on conservation, "The Last Paradises" by E. Schumacher, which will be remembered by all for its unparalleled photography, beauty and content.

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The reader will note the frequent reference to "MCN" (Mammalian Chromosomes Newsletter). This newsletter is an informal publication of great help to workers in this field and is published through the untiring efforts of T. C. Hsu and his staff. It is made available to scientists in this investigative area by him at no cost, but is not usually available in libraries.

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K. BENIRSCHKE