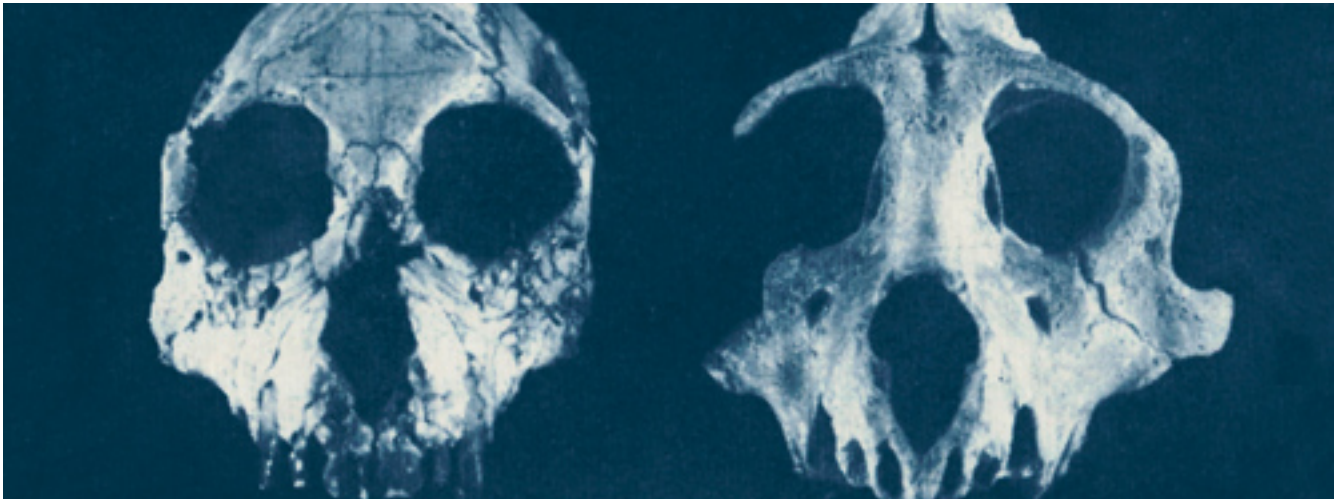




Recent Advances in the Evolution of Primates



From the 24th through the 27th of May 1982 a group of scientists met at the Casina Pio IV in the Vatican to discuss the recent advances in the knowledge of the evolution of primates. This meeting was organised by the Pontifical Academy of Sciences. The interest in organising another meeting on the subject came from the desire to conciliate data obtained from different approaches. The data originating from anthropopaleontological observations placed the ape hominid lineages split as long as 20 million years ago. This early divergence hypothesis is based on the fossil record of the *Ramapithecus*, dated from 7-16 million years, admitted as a hominid. The other sources of information come from Cytogenetics, Molecular Biology and Biochemistry, in which comparison is made of results of determinations obtained from man, apes and monkeys. To these lines of research one should add paleontoimmunology, a rather recent field of work.

The late divergence hypothesis infers from the various data thus reached that the split occurred about 5-7 million years ago. The *Ramapithecus* may thus be placed in the hominoid category, a proposition which can be accepted by the anthropopaleontologists. It seemed reasonable to the participants to accept that in this event the data obtained by molecular biology and biochemistry are not inconsistent with the known fossil record. The chromosomal data presented indicate that man and chimpanzee are closer entities than man and other primates. They suggest also that species differences are more closely related to the position of genes in the chromosomes than to the genetic composition of the chromosomes.

The Working Group agreed that many aspects of the problems under study are still unsolved. These are, as examples, the precise time of the branchings or the role of environment in the

appearance of bipedalisms. There was quite a general consensus that the theory of divergent descent to man and other primates is supported by a mass of evidence but that there is cause for differences of opinion in various matters, such as species formation and the mechanisms of evolutionary change.

I have no intention of summarizing the discussions held. The objective of this introduction is only to express my admiration for the spirit of collaboration of the participants and their willingness to contribute, without any bias, to the progress of knowledge. This spirit pervaded the long but cheerful hours of the meeting. I am very thankful to all of those who came to the Vatican leaving their working surroundings and interrupting for a week their productive life to contribute to the aims of the Pontifical Academy of Sciences. With their brilliancy and devotion to their scientific interest, they have turned our working sessions into one of the finest and most exciting meetings at which I have ever been present. The wealth of information presented in this booklet is a proof of their value and good will. However, each paper and the summary express the opinion of their authors.

I wish to express especially my sincere gratitude to Prof. Yves Coppens, without whom I would not have been able to convene the meeting, and to Prof. Perlman who prepared the summary. This summary is included as an annex to the papers presented. I would like also to extend my thanks for the continuous help they are giving to me, to Father Enrico di Rovasenda, Director of the Chancellery of the Pontifical Academy of Sciences, to Mrs. Michelle Porcelli-Studer, to Mrs. Gilda Massa and to Mr. Silvio Devoto. Without their aid the work of the Academy could not be pursued.