CYTOLOGY

Chromosomes of the Orang-Utan (*Pongo pygmaeus*)

APART from the data on the chromosome number of chimpanzees[1,2] there are no other data available concerning the number and the morphology of the chromosomes of other anthropoids. While engaged on a programme of research on the phylogenetic relationships of primates, I had the opportunity of studying the chromosomes of two orang-utans (male and female, *R.* 33 and *R.* 34) in the Zoological Gardens of Rome.

Since it is planned to publish at a later date morphometric comparative data for most species of primates, in this communication only a description of the chromosomes is given.

The usual techniques for the study of chromosomes in tissue cultures were followed[3]. The chromosome counts are summarized in Table 1.

Table 1

$2n$ =	46	47	48	49
*R.*33	1	2	16	1
*R.*34	—	3	21	—

The diploid number of the chromosomes of *Pongo pygmaeus* can thus be considered $2n = 48$; the same as that of the chimpanzee.

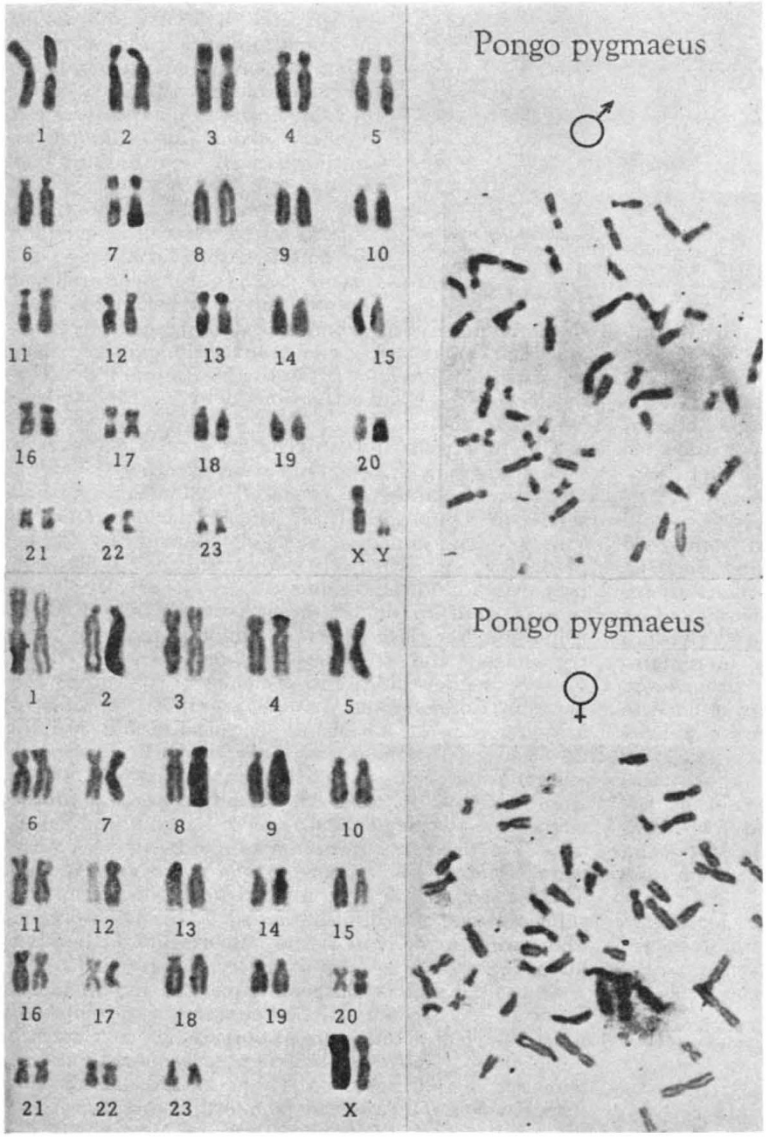

Fig. 1

Fig. 1 shows the reconstruction, in pairs, of male and female chromosomes. They are arranged in a preliminary order; a more satisfactory grouping will become possible when more data become available.

In Table 2 the autosomes are classified according to the position of the centromeres:

Table 2

Metacentric	Submetacentric	Telocentric
1, 17, 20, 21, 22	3, 4, 5, 7, 11, 12, 13, 16, 23	2, 6, 8, 9, 10, 14, 15, 18, 19

The *X*-chromosome is metacentric; the *Y*-chromosome has a large achromatic zone.

The orang-utan's karyotype shows certain similarities to the human one. Chromosomes 1, 4, 5, 6 and 7 closely resemble chromosomes 1, 4, 5, 6 and 7 of man, according to the nomenclature of the Denver human chromosomes study group. The three pairs of telocentric chromosomes of man (13, 14, 15) correspond morphologically and dimensionally with 10, 14 and 15 of the orang-utan. The pair 23, moreover, looks like chromosome 22 of man, having one of the two arms heterochromatic. As regards the sex chromosomes, the *X*-chromosome of the orang-utan shows a strong resemblance to the human one, while the *Y*-chromosome differs by having a large achromatic portion.

A more careful study by means of metric analysis[3] will be required, however, before establishing such similarities.

My thanks are due to the director of the Rome Zoological Gardens, Prof. E. Bronzini, for enabling me to study these animals.

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[See also p. 225 of this issue.]

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[2] Young, W. J., Merz, T., Ferguson-Smith, M., and Johnston, A. W., *Science*, **131**, 1672 (1960).
[3] Chiarelli, B., Nuzzo, F., and De Carli, L., *Atti A.G.I.*, **5**, 263 (1960).

Nucleolar Succinic Dehydrogenase in Mouse Mammary Carcinoma Cells

THE oxidative enzyme succinic dehydrogenase is principally localized[1] in the mitochondria and absent in the nuclei of all mammalian cells. However, the enzyme had been localized in the nuclei of bird