set (nA+X). The Y chromosome is subtelocentric with a centromere index of 9.4 and a relative length of 6.5% in relation to the male haploid set (nA+Y).

A diploid chromosome number of 2n=54 has been previously described in *Microtus guentheri, M. californicus, M. irani* by Matthey[3] and in *M. nivalis* by Meyland and Graf[7], but these species have normal sex chromosomes. On the other hand, similar giant X chromosomes, of a comparable size and morphology, have been described in *Microtus agrestis* (L.) with 2n=50 by Matthey[1] and in *M. chrotorrhinus* with 2n=60 by Meylan[7]. Concerning the Y chromosome, this element is a giant acrocentric one in *M. agrestis* and *M. chrotorrhinus,* while in *M. cabrerae* it is a subtelocentric giant chromosome. These morphological differences concerning the Y chromosome might be the consequence of a pericentric inversion.

Among the autosomes, the complement of *M. cabrerae* comprises 3 pairs of bi-armed chromosomes (pairs 1, 2 and 3) which do not have an obvious counterpart in *M. chrotorrhinus,* while both species display the same fundamental number, NF=64. According to Meylan[7], *M. chrotorrhinus* and *M. agrestis* arose from a common ancestor which already had giant sex chromosomes and 1 small metacentric autosome (No. 4). In this view, *M. cabrerae* might be derived from an ancestral form with a karyotype similar to that of *M. chrotorrhinus* by 3 centric fusions (Robertsonian translocation) which would account for the 3 pairs of bi-armed chromosomes present in the chromosome set of *M. cabrerae.*

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2/8 translocation in a Japanese Burkitt's lymphoma

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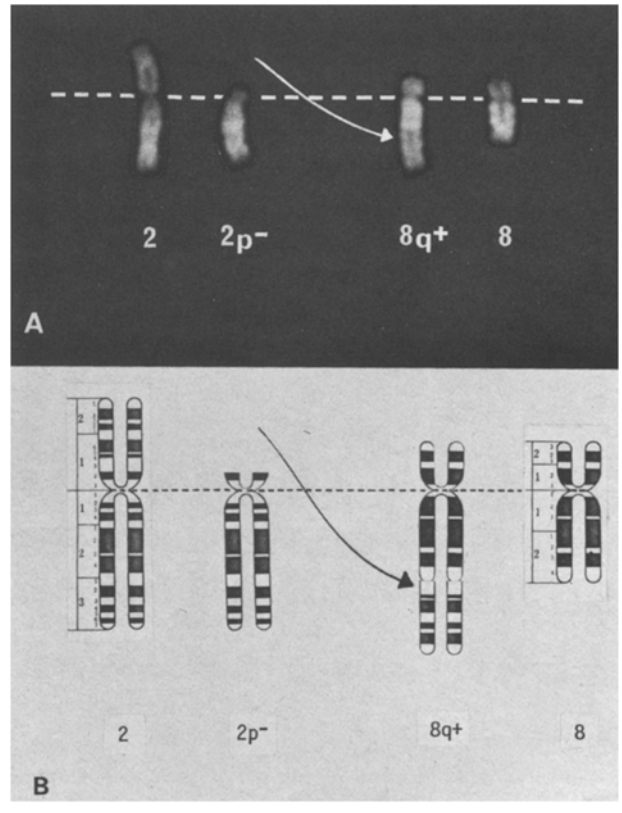
Summary. A new translocation between chromosomes 2 and 8, t(2p⁻; 8q⁺), was found in fresh lymphoma cells from a Japanese patient with Epstein-Barr virus-carrying Burkitt's lymphoma, and in a lymphoma cell line derived from this patient. There was no 14q⁺ translocation, as has been previously described in African and North American Burkitt's lymphomas.

Burkitt's lymphomas, both African and North American, are associated with a specific chromosomal abnormality involving translocation between chromosomes 8 and 14, t(8q⁻; 14q⁺)[2-5]. It has been suggested that rearrangement of 14q is related to abnormal growth of lymphocytes and may be a step toward the development of lymphoid malignancies[6]. We report here a new translocation in an Epstein-Barr virus (EBV)-carrying Burkitt's lymphoma.

As briefly reported[7], the patient was a 29-year-old Japanese male who presented massive ascites and abdominal masses. The majority of ascites lymphoma cells were positive for EBV-determined nuclear antigen (EBNA)[8]. Partial remission induced by combination chemotherapy was soon followed by relapse that progressed to leukemia. The patient died from intestinal perforation 8 months after onset. Histological sections of abdominal tumor revealed undifferentiated lymphoma with a starry sky pattern. An EBNA-positive culture line has been established from ascites lymphoma cells. Cytogenetic studies were performed on cells from this cell line as well as on fresh lymphoma cells from the patient. Slides were stained by Giemsa and quinacrine methods. A bone marrow sample aspirated in the leukemic phase contained numerous lymphoma cells. The modal chromosomal number of marrow cells was 46. Quinacrine-banding revealed a translocation between chromosomes 2 and 8 in 8 of 10 marrow cells. Most of the short arm of chromosome 2 was translocated onto the long arm



Partial karyotype from a marrow cell, showing a translocation between chromosomes 2 and 8, t(2;8)(p12;q24). *A* Quinacrine-banding and *B* diagram of the translocation.

of chromosome 8. Thus the modal karyotype was 46,XY,t(2;8)(p12;q24) as shown in the figure. Cultured cells were karyotyped on 3 separate occasions at 2, 3 and 4 months after culture initiation. The cell line maintained the pseudodiploid karyotype and all 21 quinacrine-banded metaphases showed the same 2;8 translocation. No other structural abnormalities were observed.

The present Japanese Burkitt's lymphoma displayed a hitherto undescribed $2p^-;8q^+$ translocation but not the $8q^-;14q^+$ translocation previously demonstrated in African and North American Burkitt's lymphomas[2-5]. It is of interest to note that the long arm of chromosome 8 is involved in both of these translocations. Our findings suggest that the long arm of chromosome 8 may also play an important role in the development of lymphoid neoplasia.

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Somatic chromosomes of Indian burrowing toad, *Uperodon globulosum* (Gunther) (Anura; Amphibia)[1]

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Summary. Somatic chromosome complements of the Indian burrowing toad, *Uperodon globulosum*, have been described for the first time. The 2n number is 26 (NF = 52) in both the sexes. No heteromorphism in relation to sex chromosome pair has been recorded. Deviations from 2n number (2n = 10–28) have been noticed in the cells of different specimens. The result has been compared with *U. systoma*.

Very little has been added to the cytology of Indian amphibia after the pioneering work of Seshachar[2], Natarajan[3], Sharma[4] and Manna[5]. Recently, we have undertaken a cytological survey of Indian amphibians. The present communication is a preliminary report on the somatic chromosomes of *Uperodon globulosum* (Microhylidae, Anura).

8 male and 2 female specimens (weighing about 50–70 g) were collected from local ponds and ditches after a heavy shower in the months of June and July. Males were somewhat easily identifiable by their characteristic mating call; females were either rare or else difficult to identify (the only 2 specimens studied were captured when they were approaching their mates). Chromosomes from these specimens were prepared from spleen, liver, bone marrow and intestine by a slight modification of the technique described earlier[6,7]. 1 variation being that 0.1% colchicine was injected 42 h before the specimens were sacrificed for tissue collection.

Liver and spleen were good sources of cells in metaphase. An analysis of 20 metaphase complements from each specimen revealed 26 (NF = 52) as the diploid number in both the sexes. All the chromosomes have median or submedian centromeres excepting pair number 10 which is subtelocentric (figure 1). However, occasional deviations from the diploid number (2n = 10–28) were encountered not only in different tissues of the same individual but also in different cells of the same tissue (figure 2, a and b). Chromosome pair No. 7 is characterized by the presence of a prominent secondary constriction in both the long arms (figures 1 and 2). However, in most metaphases only 1 of

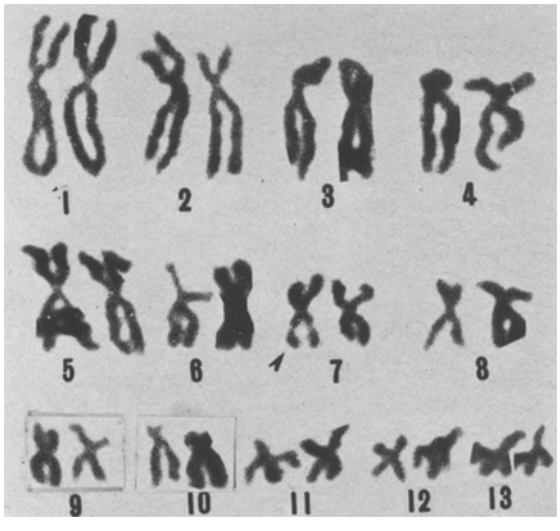

Fig. 1. Karyotype of male *Uperodon globulosum*. Arrow indicates chromosome with secondary constriction.

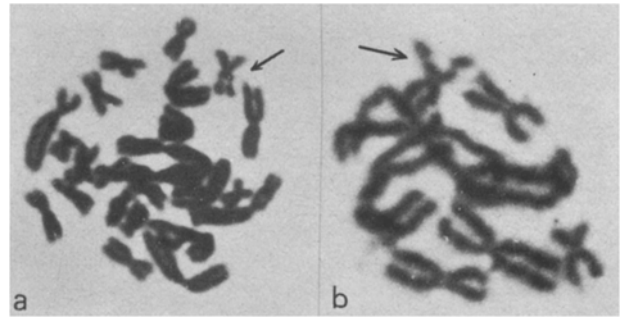

Fig. 2. Somatic metaphases from spleen (a) and liver (b) of *Uperodon globulosum* with hypodiploid chromosome complements. *a* With 24 chromosomes and *b* with 10 chromosomes. Arrow indicates chromosomes with secondary constrictions.