Since penicillin is well known for its bactericidal effect, we injected it into mice treated with bacteria either in culture or in saline suspension. Penicillin proved to be effective in reducing chromosome breaks, especially when applied before or after the bacterial treatment and somewhat less effective when applied simultaneously (Table 2). Further, as the frequency of pre- and post-treated series was very close to that of only the penicillin injected series, it seemed that the effect was not due to the bacterial toxin but due to the penicillin itself. The chromosome breaking effect of penicillin has also been documented earlier (Levan & Tjio 1951, Manna & Bardhan 1973). The present study suggested that penicillin has bactericidal and detoxicating effect besides the chromosome breaking property.

Table 2. Effect of penicillin on log culture of *S. faecalis* and saline supsension treated mice determined from 300 metaphases of 4 (2 male and 2 female) individuals in each set up

Log culture of *S. faecalis* series	% of aberrations at 1 hr	*S. faecalis* saline suspension series	% of aberrations at 6 hr
Log culture only	11.00	Saline suspension only	9.00
Penicillin only	4.33	Penicillin only	4.00
Penicllin injected before log culture treatment	4.67	Penicillin injection before saline suspension	4.33
Penicillin injected after log culture treatment	4.00	Penicillin injected after saline suspension	3.33
Simultaneous injection of pencillin and log culture	5.67	Simultaneous injection of penicillin and saline suspension	6.33

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6. Mol, A.W.M.: **Notes on the chromosomes of some West European Ephemeroptera**

Since karyological features of only three ephemeropteran families are known (cf. Kiauta & Mol, 1977), it seems opportune to report on the chromosomes of three species, belonging to families cytologically unknown. The chromosomes of a fourth species, *Ephemera danica*, are figured also. Though Wolf (1946) gave a brief description of the karyotype of this species, a figure has never been published.

All observations are based on squash preparations of gonad tissue of ultimate stage larvae; lacto-acetic-orcein was used for *Caenis horaria*, Feulgen-stained preparations for the other species.

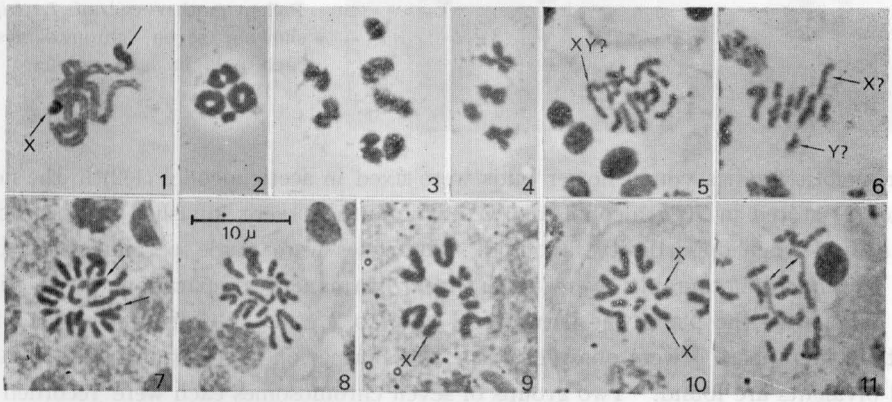
Caenis horaria (Linnaeus, 1758) (Caenidae); Utrecht, the Netherlands (May 23–25, 1977). 2n(♂)=6+XO. At early prophase the X-chromosome and one end of a pair of autosomes

show positive heteropycnosis. This phenomenon is best observed at pachytene (Fig. 1). The difference within the autosome gradually disappears at diplotene so that at diakinesis all bivalents have about the same appearance (Fig. 2). At anaphase I the X-chromosome behaves prereductionally (Fig. 3). Figure 4 (metaphase II) shows the metacentric nature of the autosomes, whereas the sex-chromosome seems to be acrocentric.

Ecdyonurus dispar (Curtis, 1834) (Heptageniidae); Diekirch, Luxembourg (July 2, 1977). 2n(♂)=18+XY, 2n(♀)=18+XX. At late diakinesis ten elements can be found in the male, one of which is asymmetrical (Fig. 5). At metaphase I however, all figures show eleven elements (Fig. 6), nine of which represent clear bivalents, two do not. These two are probably the sex-chromosomes which segregate precociously at the start of metaphase I. One sex-element is considerably longer than the other chromosomes and perhaps homologous with the V-shaped elements in the female karyotype (Fig. 7). For this reason one might consider these large sub-metacentric chromosomes to be the X-chromosomes, but as no male mitotic karyotypes have been found this cannot be stated with certainty.

Ephemerella ignita (Poda, 1761) (Ephemerellidae); Malmédy, Belgium (July 4, 1977). 2n(♀)=14+XX (2n(♂)=14+XY probably). The female karyotype shows two large V-shaped chromosomes and fourteen smaller ones, more or less rod-shaped (Fig. 8). Although none of the male karyotypes found was worth figuring they still give rise to the view that the large V-shaped elements could be the X-chromosomes and that a Y-chromosome might occur in the male, about medium-sized when compared with the autosomes.

Ephemera danica Mueller, 1764 (Ephemeridae); Reisdorf, Luxembourg (June 30, 1977). 2n(♂)=10+XO, 2n(♀)=10+XX. The karyotypes agree with the description of Wolf (1946) except for the minor fact that Wolf claims the sex-chromosome to be J-shaped whereas



Figs. 1–4. Spermatocyte stages of *Caenis horaria*. (1) Pachytene (note positive heteropycnotic part of autosome, indicated by unmarked arrow), (2) Diakinesis, (3) Anaphase I, (4) Metaphase II. Figs. 5–7. *Ecdyonurus dispar*, (5) Late male meiotic diakinesis, (6) Male meiotic metaphase I, (7) Female mitotic metaphase (note pair of larger sub-metacentric chromosomes, indicated by arrows). Fig. 8. Female mitotic metaphase of *Ephemerella ignita*. Figs. 9–11. Miotic metaphases of *Ephemera danica*, (9) Male, (10) Female, (11) Female, early metaphase (note negative heteropycnotic parts of autosomes, indicated by arrows).

in our material these elements are always more or less straight (Figs. 9–10). Wolf does not mention that one limb of one of the pairs of large V-shaped chromosomes shows negative heteropycnosis before reaching maximum mitotic contraction (Fig. 11).

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7. Choudhary, S.S. & Choudhary, P.: **Meiotic studies in *Lobelia trigona*, Roxb**

Meiotic studies in *Lobelia trigona*, Roxb; a member of family Lobeliaceae have been conducted by the authors and the haploid chromosome numbers (n=7) are recorded for the first time. There is no earlier report of any cytological studies of this species (Bowder 1945, Darlington & Wylie 1955, Fedorov 1974).

Before an attempt to establish inter-relationship between species is made, the cytological situation in the individual species of the family has to be analysed. For this purpose, the materials were collected from paddy fields in this region. The plant is a small suberect herb with ascending branches, ranging from 8 to 30 cm. in height. Bilipped corolla with connate anthers is the characteristic feature of the genus. The species is, however, characterized by the anthers which are barbate near the apex. The voucher species is deposited in the herbarium of Bhagalpur University (SKV 111).

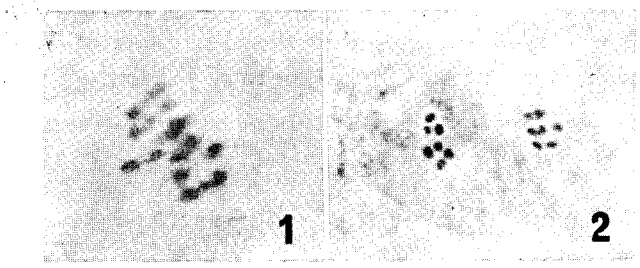

Fig. 1. A pollen mother cell of *L. trigona* showing seven bivalents in metaphase I. × 3000. Fig. 2. Pollen mother cell of *L. trigona* showing seven chromosomes at each pole in late anaphase I. × 1800.

For meiotic studies young flower buds were fixed in acetic alcohol (1:2) in the field and subsequently stored in 70% alcohol at 0°C. The anthers were squashed in acetic carmine (1.5%) as and when opportunity favoured. The slides were made permanent in butanol series. The microphotographs were taken from permanent preparation. The time of meiotic division in the plant was between 11 a.m. to 2 p.m. Regular formation of seven bivalents in metaphase I were observed (Fig. 1). Formation of 4–5 ring bivalents and the rest rod bivalents are found. Two groups of seven chromosomes each were recorded in late anaphase I (Fig. 2), showing thereby normal separation of the chromosomes. The subsequent stages are regular leading to the formation of normal pollen grains. Other members of the family shows 7 and 9 as the haploid number (Fedorov 1974). Further studies about relationship with other taxa of the family are in progress and detailed cyto-taxonomical studies on the family Lobeliaceae will be published elsewhere.