By means of the electron microscope, KAUFFMANN and DE[11] have demonstrated in prophase chromosomes of staminate-hair cells of *Tradescantia* successive orders of pairs of fibrilles at various levels in the structural hierarchy.

However, the difficulties presented by the study of chromosomes by electron microscopy, and their condensed appearance observed with the light microscope, make it difficult to study the coilings at their different levels. None of the micrographs is good enough to permit one to observe clearly the several strands forming the chromatid nor to study every type of coiling.

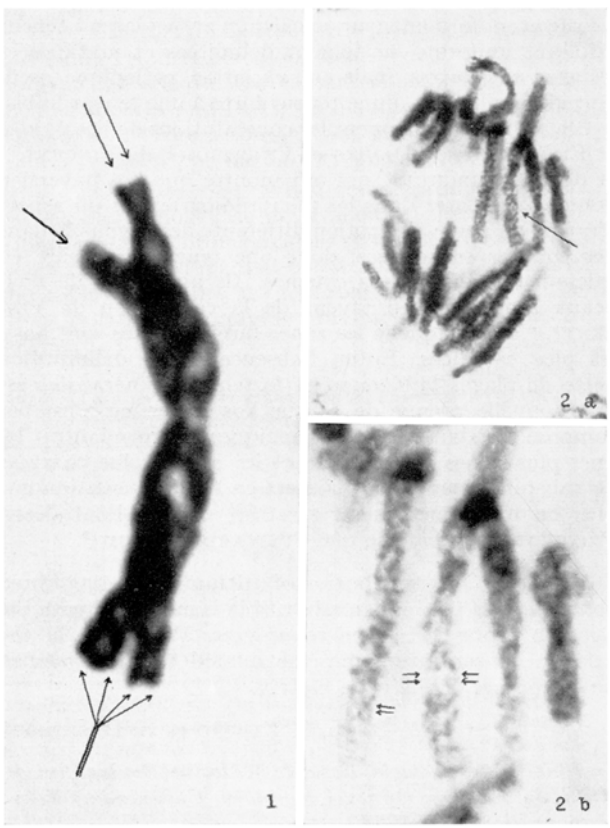

Fig. 1. Metaphasic chromosome. Each chromatid is made up of two half-chromatids.

Fig. 2. a and b. Anaphase chromosomes present a quadruple structure. Each subchromatid is formed by two half-subchromatids.

Technique: The staining technique of TJIO and LEVAN[12] was employed.

In the somatic chromosomes of *Scilla non-scripta* we have observed as follows:

(a) All chromosomes are split into four filaments clearly visible from prophase. Anaphase and telophase chromosomes present a double structure.

(b) Chromatids are plectonemically coiled and each chromatid is made up of two half-chromatids (Figure 1). These half-chromatids, coiling about each other, form another plectonemic coil within the chromatid.

(c) Frequently, it is possible to observe in anaphase and telophase chromosomes that each half-chromatid is formed by two intertwisted strands, i.e. coiling plectonemically about each other (Figure 2, a and b).

(d) Therefore, the somatic structure is observed as a series of coiling systems overlapping each other. The strand number at anaphase is four, and it is logical to assume that metaphase chromosomes will have eight with intertwisted coils at three different levels: chromatids, half-chromatids, and fourth-chromatids.

(e) No sheath or matrix can be observed.

Résumé. La structure des chromosomes somatiques apparaît comme une série de spiralisations plectonémiques successives à trois niveaux différents, celui des chromatides, des subchromatides et des demisubchromatides.

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Quadruple Transversal Structure of Centromere

LIMA DE FARIA[1–8] observed in chromosomes of *Secale cereale* at pachytene a centromeric structure made by four chromomeres, forming a longitudinal series. According to this, at pachytene 'the two chromomeres of the most interior zone are usually smaller than those of the median zone. The chromomeres of the interior zone are on the threshold of the limit of resolution, and for this reason deeply stained fibrillae may be seen instead. In other cases only one chromomere is observed at this zone. A third zone is constituted by the weakly stained fibrillae that unite the large chromomeres of the median zone with the arms. This structure has been repeatedly observed without previous treatment'[8]. TJIO and LEVAN[9] found from early mitotic prophase up to metaphase four centro-

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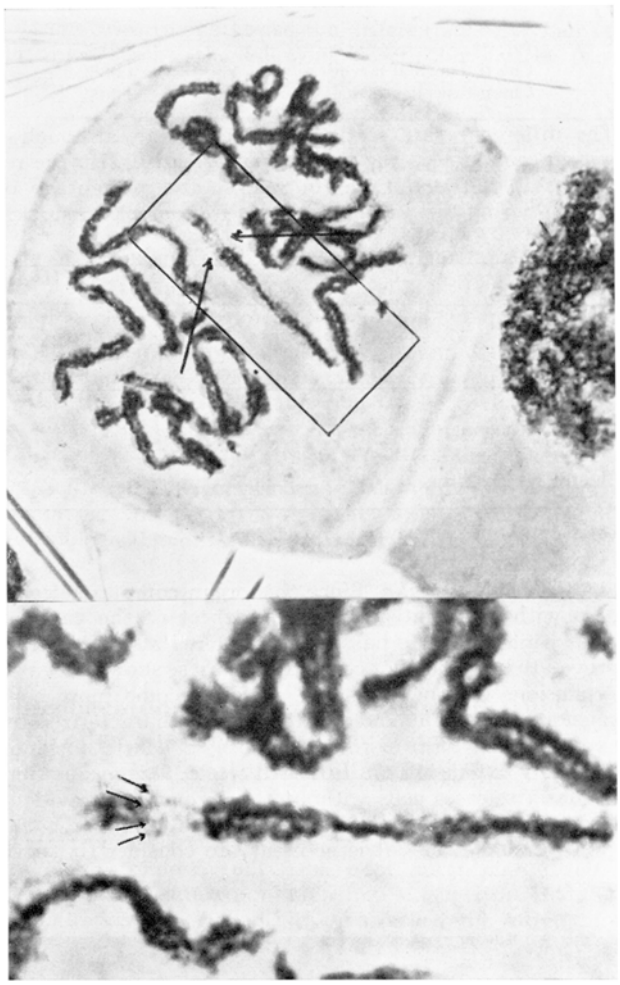
meric chromomeres generally forming a square or parallelogram in the centromeric gap. GIMÉNEZ-MARTÍN[10] has described in somatic chromosomes of *Scilla liliohiacintus* a centromeric structure made by two parallel sets of chromomeres and fibrillar zones, one for each chromatid. Each set was formed by six chromomeres and the corresponding interchromomeric fibrillar zones.



Centromere tetrapartite into four filaments.

Material and Methods. Root-tips of *Scilla non-scripta*, without any pretreatment, and the TJIO and LEVAN[11] staining technique were employed.

Results and Discussion. In the centromeric gap of the somatic metaphase chromosomes of *Scilla non-scripta*, it has been observed that the centromere present a quadruple transversal structure constituted by four filaments. These filaments form two pairs, corresponding to one pair for each chromatid. Furthermore, four sets of chromomeres are apparent, one on every filament. Four is, too, the chromomere number on each filament and all chromomeres have similar size. The said filaments are parallel, but two by two are separated by a shorter distance than the space that separates both pairs of filaments. The proximity existing between the filaments of each pair is clearly visible in certain parts of the centromeric gap.

Many authors have considered that the centromere remains undivided up to the late metaphase, and for this reason it is the unique fixed point that is able to facilitate the chromatid despiralization.

According to LIMA DE FARIA[8] the centromere is divided at least from the early prophase; but at the same time TJIO and LEVAN point out that at telophase and anaphase only two centromeric chromomeres are seen, their division not yet having been accomplished.

The present observations indicate that the centromere is tetrapartite at metaphase into four filaments and therefore it is logical to assume that each daughter chromosome has its centromere already divided. These observations agree with the quadruple chromatidic structure observed also in metaphase chromosomes of this material.

Zusammenfassung. In der Metaphase der Mitose von *Scilla non-scripta* (*Endymion non-scriptus*) besteht das Centromer aus vier Elementen, und dementsprechend hat jede Chromatide ihr Centromer geteilt.

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Genotypical Differences Between Stocks of *Drosophila melanogaster* Revealed from Culturing *in vitro*

In a previous note, the preliminary results have been published which were obtained by culturing *in vitro* two organs of *D. melanogaster*: the lymph gland and the cephalic ganglia (CASTIGLIONI and REZZONICO[1]). The main results showed the possibility of a long survival of a number of cells which proved to be alive for their stainability and because some mitotic stages could be detected. It was thought that survival (till the 75th day for the ganglia and till the 35th for the lymph glands) could be used to test whether the reaction to culture conditions is different between stocks which can be assumed to be genetically different. The detection of differences is obviously interpretable as an indication of the phenotype at the cellular level.

The scheme of the work has been designed in the following way: (1) Cultures have been set up by placing the organ and a drop of medium, prepared according to KURODA[2], on a coverslip. A depression slide was superimposed, with the depression downwards. Cells are thus allowed to adhere to the coverslip, on which they tend to form a unicellular layer. The cultures were transferred at the end of each week into fresh medium. (2) At the end

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