which initiates the interphase (Figure a) and goes through the whole cell cycle synchronously[6].

Treatments. The solutions for the various treatments were obtained with tap water, and the culture conditions already described were maintained throughout the period of treatment. The roots were submerged in the treatment solution in all cases without separating them from the bulbs at the actual moment when the caffeine labelling ended. Kinetin solutions at concentrations of 1, 0.5 and 0.1 ppm and kinetin at the same concentrations plus indole acetic acid at concentrations of 0.1, 0.01 and 0.001 ppm, were also tested.

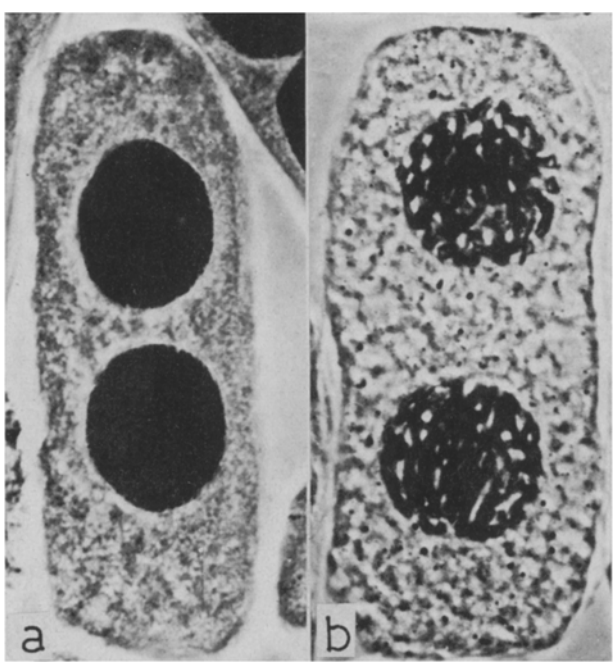
Of the 12 treatments tested (kinetin alone and kinetin plus IAA), only the 0.5 ppm concentration of kinetin plus 0.001 ppm of IAA had the effect of shortening the interphase, the first binucleate cells being observed to reach the prophase (Figure b) between the 18th and 19th h after the end of the caffeine treatment instead of the 22nd-23rd, as in the case of all control bulbs[7]. The fact that kinetin by itself has no demonstrable effect had already been observed by MILLER et al.[8].

Another experiment was carried out in which bulbs labelled with caffeine, as in the former case, were subjected to the shortener treatment with a solution of kinetin plus IAA from the 23rd h after the end of the caffeine treatment, at which hour the first biprophases were observed with a view to discovering the moment at which the first bitelophases appear. The results showed a shortening of mitosis, since in the control bulbs the bitelophase was detected at the 28th h while in the treated bulbs it made its appearance at the 25th.

In interpreting the results of his experiments with kinetin on the cell division cycle in *Allium cepa*, GUTTMAN[9] indirectly reached the conclusion that this drug shortened the interphase. On the other hand, VAN'T HOF[10] pointed out that kinetin plus IAA 'impaired' the entry of the cells upon the S period and their development in the course of this period, and that kinetin further increased the duration of the G_2 period in *Pisum* roots. Other investigators[11,12] have recorded a lengthening of the mitotic cycle in *Vicia faba* roots treated with IAA.

These contradictory results may be attributed to the different concentrations used of these growth factors, since it is well known that one and the same factor, at differnt concentrations, may produce opposite effects.

The use of a population labelled as binucleate has enabled us to demonstrate the shortening of the interphase induced by a solution of 0.5 ppm kinetin plus 0.001 ppm IAA and to measure it directly, and by the same procedure we have succeeded in detecting a shortening of mitosis itself.



Binucleate meristematic cells induced in a meristem of *Allium cepa* L. by treatment with caffeine at 0.1%. a) Binucleate cell in interphase; b) binucleate cell in prophase.

Resumen. El uso de una población binucleada sincrónia inducida por cafeína 0.1% en el meristemo de la raiz de *Allium cepa* L., nos ha permitido demostrar que una solución de kinetina 0.5 ppm mas ácido indol acético 0.001 ppm acorta tanto la interfase como la mitosis, y valorar este acortamiento por medida directa.

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CONGRESSUS

USA

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Further information by Dr. Harold R. Roberts, Chairman of the Organizing Committee, Box 630, Chapel Hill, N.C. 27514, USA.