

No detectable removal of previously fixed radiocalcium occurs after treatment with  $\text{NaHCO}_3$  or  $\text{Na}_2\text{CO}_3$ .

No removal of U occurs when sections are treated with 0.025 N solutions of sodium chloride or sodium phosphate.

(8) Nearly all (e.g., from 95% to 98%) the U fixed to sections of whole bone can be removed by glycol-ashing or microincineration at  $700^\circ\text{C}$ . About 70% of the U fixed to previously glycol-ashed sections can be removed by further glycol-ashing.

(9) The U is removed almost entirely from sections of whole bone by decalcification with  $\text{HNO}_3$  1:1,000.

(10) A remarkable amount of U gets fixed to decalcified sections of bone, e.g., from 60% to 80% of the U which is bound to notdecalcified control sections. The distribution of U is uniform in recent and old structures in decalcified bone. The greater part of the U thus fixed can be removed by the use of  $\text{HNO}_3$  (1:1,000  $\times$  20')

Fixation of U also takes place in strips of the fibrous layer of periosteum peeled off from bone compacta. The treatment for 20' with  $\text{HNO}_3$  1:1,000 greatly reduces the *alpha* activity of these pieces.

In conclusion, U and  $\text{Ca}^{45}$  show much the same distribution patterns in sections of bone treated *in vitro* with solutions of these elements. The results obtained with the use of U under some conditions (see experiments reported at 7, 9, 10) are, however, apparently different from the results of similar experiments made with radiocalcium<sup>1</sup>. Such differences seem to indicate that the fixation of the two cations to bone ground substance *in vitro* may not obey the same rules.

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#### Résumé

L'auteur a étudié par la méthode autoradiographique la fixation *in vitro* de l'uranium à la substance fondamentale du tissu osseux. Des coupes minces d'os compact total frais ou fixé, d'os minéralisé et d'os décalcifié ont été soumises à l'action de faibles solutions d'uranium. Les résultats de cette recherche sont comparés à ceux que l'auteur avait obtenus précédemment par l'emploi du radiocalcium et du radiophosphore.

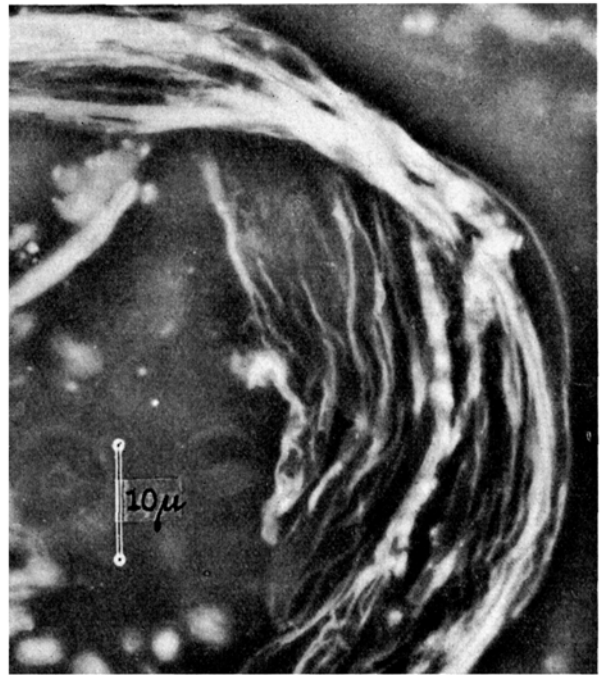
La distribution de l'U est qualitativement identique à celle du  $\text{Ca}^{45}$  et du  $\text{P}^{32}$ : c'est-à-dire qu'une quantité plus importante d'U se fixe par unité de volume de substance osseuse aux parties moins calcifiées, récemment formées. D'autre part, on a observé des différences assez considérables entre la fixation du  $\text{Ca}^{45}$  et de l'U; en particulier, ce dernier se fixe *in vitro* non seulement aux cristaux minéraux, mais aussi aux composants organiques de la matrice osseuse.

<sup>1</sup> For the fixation of  $\text{Ca}^{45}$ , cf. R. AMPRINO, Exper. 8, 380 (1952).

### Membrane Structures in Mucus

In fresh untreated specimens of mucus from the human pharynx and nasal cavity, in saliva, expectorations and gastric contents, and in secretions of the isolated duodenal pouch of a dog, extremely thin membranous structures are regularly seen by the microscope method of the author<sup>1</sup>. Some of these may cover an area of up to several millimeters. Twisted packets of mem-

brane, seemingly identical with CURSCHMANN spirals, are frequently observed in normal expectorations. Sometimes these untwist and unfold into curtain-like formations. Whether the membranes are formed by



A typical membrane formation from pharyngeal mucus.

alteration of the mucus surface or by direct secretion is uncertain. In any case, their influence on the permeability of mucus is obvious.

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#### Zusammenfassung

Im Schleim verschiedener Herkunft sind ausserordentlich dünne Membranbildungen mit der lichtmikroskopischen Kontrastmethode des Autors zu beobachten.

### Extra Reproduction of a Chromosome in Yeast

In spite of the lack of unanimity of opinion regarding the time of reproduction of chromosomes, there appears to be justification for the belief that multiple chromonemata are present at various stages of mitosis<sup>1</sup>. It is remarkable that a chromosome which is compound even at the microscopic level "splits" exactly and separates at anaphase into two and only two daughter chromosomes. It may, occasionally, split into three instead of two chromatids as reported by HUSKINS<sup>2</sup>. What appears to be a similar but rare phenomenon was observed by us in two strains of diploid yeast.

Normal mitosis of our two chromosome control brewery yeast as seen in FEULGEN preparations has already been described elsewhere<sup>3</sup>. Figure 1 illustrates an early anaphase showing two pairs of chromosomes. When one

<sup>1</sup> B. P. KAUFMANN, Bot. Rev. 14, 57 (1948).

<sup>2</sup> C. L. HUSKINS, Amer. Nat. 81, 401 (1947).

<sup>3</sup> S. DURAISWAMI and M. K. SUBRAMANIAM, Exper. 7, 422 (1951).

<sup>1</sup> A. WILSKA, Nature 171, 353 (1953).