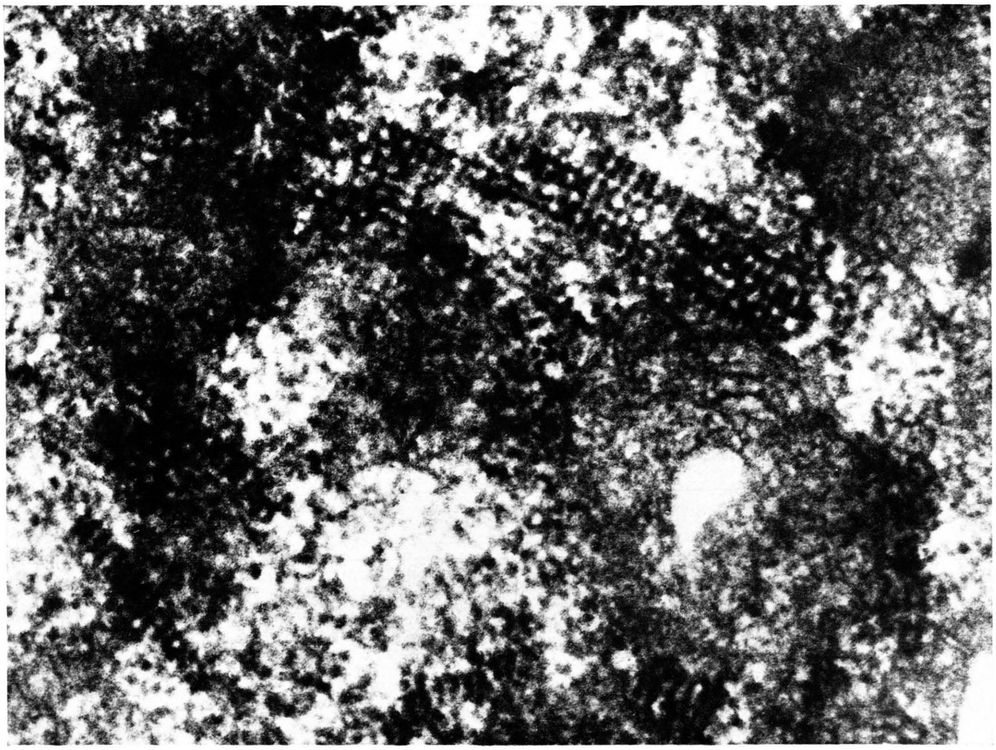

Fig. 1. Sheets of ribosome tetrameres in an oocyte of *Gerris najas* (imago). The ribosomes are well preserved after embedding in Micropal, but other structures are not. To obtain all information about the ultrastructure, it is necessary to embedd ovaries also in epon-araldite mixtures [8] and in a low viscosity epoxy resin medium [9]. — × 78,750.

Ribosome Crystals in the Oocyte of *Gerris najas* (Heteroptera)

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Ribosome Tetramers, Oogenesis, Insects, *Gerris*

Oocytes of the pond skater, *Gerris najas*, display ribosome tetramers that are arranged in the form of sheets in the vicinity of the nucleus. This is the first finding of ribosome crystals in an insect and suggests that ribosome crystallization may be a common phenomenon of cells that are inactive in protein synthesis.

Crystallization of ribosomes has been reported to occur in chick embryogenesis under certain conditions as cooling of the fertilized or cleaving egg [1–3]. Other authors found ribosome crystals in chick down feathers during their differentiation [4, 5]. Recently, similar structures have been observed in early oogenetic stages of a lizard [6]. An investigation of the differentiation of trophocytes and oocytes in *Gerris* now revealed the crystallization of ribosomes in certain stages of oogenesis also in an insect.

* Fig. 1 see Plate on page 136 b.

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Ovaries of adults of the pound-skater, *Gerris najas* DEG., were dissected and fixed with glutaraldehyde and osmium tetroxide. They were embedded in Mikropal (Ferak-Chemie, Berlin) and cut with a Reichert Om U3 ultramicrotome. Electron micrographs have been taken with a Zeiss EM 10A electron microscope after staining with uranyl and lead (Reynolds, 1963). Details of the ultrastructure will be given in another report [7].

As in other cases of ribosome crystallization, which are reported in the literature, the ribosomes form tetramers in oocytes of *Gerris* (Fig. 1 *). Numerous tetramers are packed together, thus forming sheets. Commonly two or three sheets can be seen close to the nucleus.

It is not yet clear, why the ribosomal sheets do not occur in all oocytes of a certain stage. Probably the metabolism of those cells, in which ribosome crystallization takes place, is changed, so that the ribosomes are inactivated. This is consistent with other findings, such as the occurrence of uncommon yolk bodies and empty mitochondria in those oocytes, and the impossibility to detect labeled RNA between the ribosome tetramers after pulse-chase labeling with [^{3}H]uridine (W. C. Choi and W. Nagl, unpublished). The occurrence of ribosomal sheets and crystals in cooled chicken embryos, and in oocytes of the lizard during hibernation, can be explained in a similar way.

The present findings of ribosome tetramers and sheets in oocytes of an insect suggest that crystallization may be a process of self-assembly common to inactive ribosomes.

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