

It will be seen that both for closed and open shields the intensity of cosmic radiation is highest during the 6-hour interval during which the nova is also at its highest altitude, but the intensity is lowest when the nova is at its lowest altitude only for the open shield observations. It is difficult to explain why for the 'closed shield' observations the intensity during the 'nova lowest' interval should be next in magnitude to that for the 'nova highest' interval. The observations have been taken at a time when the nova and the sun have been well separated in hour angle. That the observed effect is not due to a solar term can be seen from the following figures :

Closed Shield		Open Shield	
Interval	Intensity	Interval	Intensity
9h—15h	1.486	9h—15h	2.473
21h—3h	1.489	21h—3h	2.472

A detailed examination of the whole series of measurements is in hand, and the results will be published later.

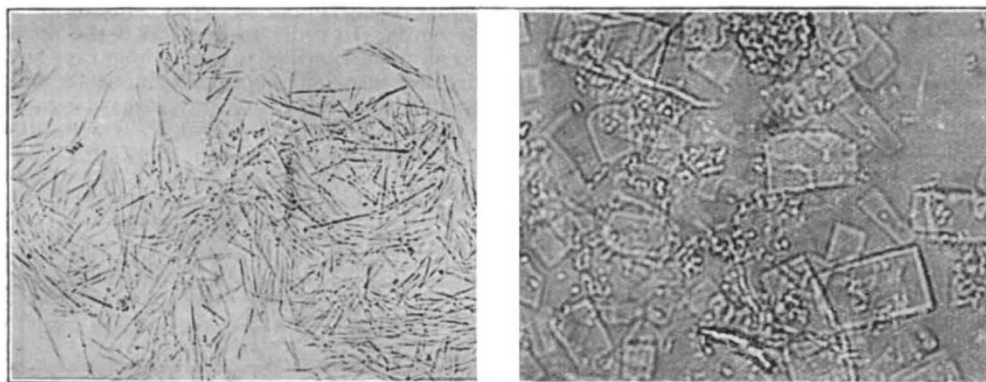
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Crystallisation of Seralbumins

IN NATURE of February 23, 1935 (vol. 135, p. 307), Dr. Muriel E. Adair and Dr. G. L. Taylor describe crystallised human seralbumin obtained by them.

It will interest readers of NATURE to learn that in the Biological Physical-Chemical Laboratory of which I had charge in the "Instituto Bacteriológico" of the National Department of Hygiene (Director, Dr. A. Sordelli) a student of mine, Dr. Moisés Grinstein, made a systematic study of the crystallisation of seralbumin from different species of animals. His work was presented at a meeting on August 16, 1934, of "Las Sesiones Químicas Argentinas" but the records have not yet been published.



(a) (b)
FIG. 1. Crystal of (a) human seralbumin, (b) guinea pig seralbumin.

Dr. Grinstein tried to obtain crystals of seralbumin from men, horses, asses, mules, guinea pigs, rabbits, llamas, pigs, oxen, dogs and birds, and he obtained positive results with horses, asses, mules, guinea pigs and men.

I enclose photomicrographs of the crystals obtained (Fig. 1).

The technique used was that advised by Sørensen for crystallising horse seralbumin: the globulins are precipitated from the serum or plasma by semi-saturation with sulphate of ammonium. After filtering through paper a transparent liquid is obtained. This liquid is acidified by 0.5N sulphuric acid until a permanent turbidity is obtained, shaking continually; this happens when the reaction corresponds to a pH 4.6–4.8. After about twenty-four hours the precipitate is completely crystallised.

RAUL WERNICKE.

Buenos Aires.
April 19.

IN addition to the two photomicrographs here reproduced, Prof. Wernicke sent others of horse and mule albumins, but as the crystal form of horse albumin is well known, these photomicrographs are not reproduced. Dr. Adair and Dr. Taylor may be absolved from negligence in being unaware of Dr. Grinstein's work, as it has not yet been published. In the summary of their letter, which appeared in NATURE of February 23, p. 310, it should have been stated that the crystals obtained by them were from normal human sera and not from the sera of dropsical patients.

ED., "NATURE".

Occurrence of Unstable Choline Esters in Invertebrates

LOEWI, DALE, FELDBERG and their co-workers have emphasised the importance and physiological activity of acetylcholine in vertebrates¹. The possibility of extending to invertebrates the cholinergic mechanisms described in mammals has, so far, not been tested experimentally. The first point investigated at Naples was the existence of unstable choline esters in tissue extracts of marine invertebrates.

Using Chang and Gaddum's technique², I have been able to find, in trichloroacetic extracts of various tissues of *Octopus vulgaris*, a substance which possesses all the properties of unstable choline esters. Its action on the leech muscle, on the frog's rectus and the longitudinal muscle of *Holothuria stellata* is sensitised by eserine; its inhibitory action on the frog's heart and its vasodilator action in the eserinated cat is abolished

by atropine. Like acetylcholine, the substance is destroyed in 10 minutes at room temperature by treatment with 2N caustic soda; it is also rapidly hydrolysed by an esterase present in the fresh blood of *Octopus*.

The activity of the same extract in different tests is about the same if expressed in acetylcholine