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A note on the refractive index of chitin.

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Chitin was prepared according to Krawkow's method¹ from crab, grasshopper and cicada carapaces. It was next dissolved in a large amount of twice normal HCl. This solution was gradually diluted with water until a flocculent precipitate appeared. This was filtered off, washed and dialized in goldbeater's skin. The dried product had a somewhat resilient, gutta-percha-like consistency.

The refractive index of this chitin was determined by Schroeder van der Kolk's immersion method as used in mineralogy.² The value proved to be the same for crab and insect chitin; $n_a = 1.525 \pm .005$.

This explains why delicate chitinous objects invariably almost completely disappear when mounted in Canada Balsam. Since this latter medium has a refractive index of 1.528-1.537 for sodium light, it is evident that good results can never be secured from preparations of unpigmented, unstained chitinous objects. Proteins are cleared ultimately in balsam, hence protein-impregnated chitin will almost completely disappear in balsam mounts.

Structural details in colorless insects can be very well observed in such liquids as StyraX balsam ($n_a = 1.630$). This resin is a logical mounting medium for chitin.

Permanent insect stains have to be chitin stains. It was found that a silver impregnation could be effected by light reduction of .1M silver nitrate solution. The chitin has to be pre-soaked in weak alkali, however, before the silver will "take". No definite iso-electric point could be determined either by silver nitrate or acid fuchsin method.³

¹ *Ztschr. f. Biol.*, 1892, xxix, 177.

² Ambrohn, H., *Anleitung z. Benutzung des Polarisations-mikroskop*, 1906.

³ Loeb, J., *Proteins and Colloidal Behaviour*, 1923.