immediately drawn into it, those of the *same* sign are repelled, and that the rotation is due to the mutual repulsion between the swarm of latter ions and the charge on the point.

It is interesting to note that a wet point (we used ordinary matches for points) will rotate in the normal direction at first, then, as it dries, decrease its speed, come to rest, and finally begin to rotate in the opposite direction.

Rectangular blocks of paraffin mounted non-symmetrically on the arms of the mill (two straight brass arms were used mounted on the head of an ordinary speedometer connected to one pole of a large Holtz machine, the other pole being connected to a plane wire netting suspended in a horizontal plane above the rotating arms and parallel to them) behaved in a similar manner to the dry matches, *i.e.* rotated in the direction toward which the greater part of the block protruded. In the dark in the latter case, extensive brushes could be seen on the arms near the paraffin, and there is no doubt that the action of the block is to form a non-symmetrical brush, which drives the arms much the same as the brush from a metallic point drives it. The brush, of course, is formed on the side of the block which protrudes least from the arm in the plane of rotation.

In the case of the matches the cause of the rotation is not so clear. Only a faint glow can be observed on the end of the match. It seems likely, however, that the action of the dry match is to disturb the faint (silent) discharge from the arms of the mill, retarding it on the side toward which the match protrudes, so that the major portion of the brush forms on the side of the arm opposite to the match and so drives the arm in the direction toward which the match extends. This point is still under investigation.

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### Yolk Formation in some Arthropods.

THERE has recently been controversy between Harvey on one hand and Gatenby and Vishwa Nath on the other, as to the relationship of Golgi apparatus and mitochondria to yolk formation.

I have been myself engaged on this particular problem for the last year or so. A brief account of a portion of my work in collaboration with Dr. Vishwa Nath was published in NATURE of Nov. 6, 1926. I have since then worked out three more arthropod forms, namely, *Musca domestica*, Forficula and Porcellio. The relationship of yolk formation to the cell inclusions may be described as follows.

In Musca the nucleolus divides at a very early stage and the various nucleoli begin to fragment. These fragments soon escape into the cytoplasm but do not undergo any further fragmentation. Simultaneously with the escaping of these extrusions, a fuchsinophil yolk arises in masses all over the cytoplasm. In Scolopendra (Nath and Husain) a similar though not identical relation has been noticed between this yolk and the extrusions. In Forficula the fragmentation of the nucleolar extrusions has been followed in most eggs. In Porcellio, the nucleolus does not fragment at all, and it is interesting to note that there is no proteid yolk in this form.

In all three cases both the Golgi apparatus and mitochondria have been observed. The latter are always granular and never filamentous. They are seen to divide but never swell up into yolk of any kind. The Golgi apparatus is seen as a juxta-nuclear mass in the younger eggs of all forms. It is always in the form of dots and dashes and never discoid. It does not arise *de novo* in the cytoplasm but is formed by the multiplication of the pre-existing Golgi elements. In Forficula and Porcellio, free fat arises directly by a metamorphosis of the Golgi apparatus. In Musca the latter never swells up, and in correlation with that it is interesting to note that there is no fatty yolk in this form.

A detailed account will be published later.

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### Soft X-ray Spectra.

ALTHOUGH much general information of soft X-ray spectra can be obtained by photoelectric methods, there is an urgent need for its direct spectroscopic confirmation. Dauvillier (*Jour. de Phys. et le Rad.*, **8**, 1; 1927) has recently photographed some lines of boron, carbon, oxygen, and thorium between 25 Å.U. and 125 Å.U. by refined methods of crystal spectrometry. Spectra in this region can also be obtained from a concave glass grating if it be mounted at a sufficiently large angle of incidence.

Using the anticathode of an X-ray tube as a source of radiation, I have, by this method, obtained photographs of some fifteen lines between 40 Å.U. and 200 Å.U. Their interpretation requires some care, since, in general, the same lines appear whatever the nature of the anticathode. The $K$ line of carbon (44 Å.U.) is present on all plates, though in varying intensity, due presumably to the destruction of residual vapours in the tube. The $L$ lines of carbon and the $K$ and $L$ lines of oxygen and nitrogen fall outside the region covered by these experiments; as possible causes of the observed spectra there remain strontium, barium, and platinum deposited from the filament on the cold anticathode. Perhaps the most prominent of the lines which have so far been fitted into the scheme of X-ray levels is the $M_{I,II}$ doublet of strontium ($\lambda = 159$, 160·1 Å.U.). A few lines appearing faintly on the photographs seem to be due to the anticathode itself—lines associated with the $M$ levels in the case of zinc, copper, and iron.

A curious feature of the spectrum of aluminium is the presence of a kind of band, with a sharp limit at 166·6 Å.U., shading off towards longer wave-lengths. It appears to be not without structure, though this cannot be definitely asserted until further experiments have been performed.

It is worth mentioning that spectra in this region can also be obtained from a grating of speculum metal, though with considerable difficulty; and that Schumann plates are at least fifty times as sensitive as X-ray plates, even though they are treated with a fluorescent oil.

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### Consideration of Six Cases in Zoological Nomenclature.

THE Secretary of the International Commission on Zoological Nomenclature has the honour to invite attention of the zoological profession to the fact that application for 'suspension of the rules' has been made in the six following cases:

I. *Odontaspis* Agassiz to be retained with *Carcharias taurus* Rafinesque as type.

II. *Eulamia* Gill to be retained for *Carcharias* Mueller and Henle (not Rafinesque, 1810).

III. *Carcharodon* Mueller and Henle, 1838, to be retained.