Treten Entartungs- und Korrelationsaufspaltungen nebeneinander auf, so zeigt das IR-Spektrum demnach Aufspaltung und zusätzliche Banden im Bereich der $\nu_{as}NO_3$ und Bandenverdopplung nichtentarteter Schwingungen. Diese Ergebnisse weisen darauf hin, daß mit der bisher nur in Kristallen beobachteten Korrelationsaufspaltung auch in konzentrierten wäßrigen Lösungen gerechnet werden muß.

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Sorption of Organic Molecules by Acetylated Graphitic Acid

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Graphitic Acid can react with diazomethane [1] or acetic anhydride [2] locating methyl or acetyl groups on the interlayer surfaces. This fact is reflected in the increment of the basal spacing and in the orientation of the sorbed molecules.

The interlayer orientation of organic molecules in methylated graphitic acid has been studied by ARAGÓN and MACEWAN [3], ARAGÓN and CASTRO [4]. The study of the acetylate

Table. *Basal spacing in* Å

Complexing sustance	Acetylated graph. acid	Graphitic acid
None	10.90	7.08
Methanol	11.78	8.04
Ethanol	12.35	8.63
Propanol	13.59	{16.50 / 9.06
Isopropanol	12.18	{14.72 / 8.84
Butanol	13.59	{17.66 / 8.97
Dimethyl ketone	12.18	9.00
Ethyl butyl ketone	13.80	9.02
Butyl propyl ketone	14.24	8.70
Acetic acid	14.72	8.58

Methylated graphitic acid gives 8.84 Å.

graphitic acid presents a special interest due to the fact that the acetyl groups have a greater length than the methyl groups and to the more emphasized relief which they give to the surface. If we give to the graphitic acid skeleton a theoretical basal spacing of 4.8 Å [5], we can admit the existence of acetyl groups perpendicular to the layers, based on the interatomic distances and on van der Waals radii, quoted by PAULING [6]. In this way the acetyl groups originate a series of holes between the layers which can be occupied by small organic molecules. If those molecules are greater than the holes, they will separate the layers, but their orientation will be different from that adopted in the case of graphitic acid.

We prepared graphitic acid by the HUMMERS and OFFEMAN method [7]. It was acetylated with acetic anhydride. The spacing given by various complexing sustances are shown in the Table.

Considering these data we think that: 1. The acetyl groups have altered the topography of the graphitic acid. — 2. The sorbed molecules are located in the holes between the acetyl groups which influence greatly their orientation.

Reports on the above mentioned work will appear in Anal. Fis. Quim. Madrid.

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Landing Reaction of Musca Domestica Induced by Visual Stimuli

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When a fly is kept suspended by its thorax (with the head fixed to the thorax) in the manner proposed by REICHARDT and FERMI [1], it will normally fly continuously and keep its legs in a characteristic position. It is described and illustrated in [2]. Essentially perhaps we may understand it on aerodynamic grounds.

When an object is moved briskly toward such a flying fly from the front, a change in the posture of the legs can be observed: the first two pairs are stretched toward the approaching object. This we will call the landing reaction of the fly, in accordance with the terminology of GOODMAN. It was already shown by GOODMAN, who performed experiments in which various objects truly approached or receded from the animal, that the specific stimulus for the reaction is a visual one.

In our own experiments we used a rotating disk facing the animal, on which a black (arithmetic) spiral on a white background was painted. Such a disk to a human observer gives an impression very much like a pattern expanding or contracting, depending on the sense of the rotation. We could thus isolate, out of the visual stimulus provided by an approaching (or receding) object, the component which is due purely to the enlargement (or the contraction) of the figure perceived. In fact possible effects of perspective, or effects of the variation of total luminous flux are completely eliminated in our experiment. Also, the fly was separated from the disk by a pane of artificial organic glass to eliminate the possible effects of air movement.

It was shown conclusively that:

a) the landing reaction occurred *only* when the disk was rotated in the sense which produces an expansion of the image, never with contrary rotation.

b) there is a threshold to the landing reaction, in terms of the angular velocity of the expansion of the pattern as seen by the fly, i. e. the difference of the angles under which the image is seen by the fly after unitary increments of time. In fact, if the distance between the fly and the disk was increased, the velocity of the rotation or the width of the spiral had to be increased to obtain the reaction. Similarly, narrower spirals met the threshold only if the velocity of the rotation was increased or the distance was decreased, etc.

A dependence of the landing reaction on the level of illumination was also observed, in the sense that a decrease of the total luminous flux facilitated the landing reaction.

It is very plausible that the perception of enlargement of an image makes use of the mechanism established by HASSENSTEIN, REICHARDT and others [3, 4] for the perception of movement in insects. Therefore, it will be interesting to see whether the landing reaction of the fly depends on various parameters, such as the contrast of the pattern, the angular velocity of expansion, the illumination, etc., quantitatively in the same way as described by REICHARDT and FERMI [1] for the optomotor reaction of the same animal.

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