

Elliptical Pupils

Q.—*Why are the pupils of some animals oval instead of round ?*

A.—In photography it is usual to reduce the aperture of the lens when it is required either to improve definition or to increase depth of focus. Usually the reduction of the aperture requires a longer exposure to be given because the image formed by the lens has suffered a loss of brightness. If photographs were being taken of objects the contour of which lay in a horizontal, or nearly in a horizontal, plane, then if increased definition or depth were required the usual method would be to use a smaller circular aperture and to increase the exposure as for normal subjects. There is, however, in this case an alternative method available—namely, to use an elliptical aperture with its long axis horizontal. Thus, suppose this to measure 8 mm. long by 2 mm. high, then the definition and depth for horizontal or nearly horizontal lines would correspond to those of a 2-mm. diameter circular aperture, but the light-transmitting power would correspond to that of a 4-mm. diameter circular aperture, since this has the same area as the ellipse. If photographs were wanted of objects with vertical contours, then the correct procedure would be to use an elliptical aperture with its long axis vertical. Similar reasoning applies to the eye, and those animals, like cats, to whom the outlines of tree trunks and the openings in fencing, etc., are important could with advantage have irises with elliptical apertures, the long axis being vertical. On the other hand, those animals, like cows, sheep, or goats, to whom the lie of the land is important could with advantage have the long axis of the ellipse horizontal.

Toxic Effects of Amphetamine

Q.—*What toxic effects may arise from prolonged use of dexamphetamine sulphate ? I am particularly interested to know whether there is any risk of blood or hepatic changes, chronic dyspepsia, carcinogenesis, and such-like serious effects.*

A.—The actions and toxic effects of dexamphetamine sulphate are similar to those of amphetamine sulphate, but the *D*-isomer is claimed to be effective in smaller dosage. Both substances have been safely used for lengthy periods in narcolepsy or obesity in doses up to 60 mg. daily. The development of psychoses has been reported, as for example in the man of 49 who had taken 250 mg. daily for five years. Reports have also appeared of damage to bone marrow : panhaemocytopenia occurred in a girl of 21, and acute aplastic anaemia in a man of 26 who took 290 mg. during 19 days. Habituation may also occur, though this is probably not very common. Withdrawal symptoms observed included hallucinations, restlessness, and insomnia. These symptoms, together with anorexia, may be expected to follow prolonged administration in most patients. Many of those receiving amphetamine possess personality defects and may be especially prone to exhibit these side-effects. Tachycardia and hypertension have also been reported, but I am not aware of any evidence of carcinogenesis or liver damage from prolonged use of dexamphetamine.

Benign Prostatic Enlargement

Q.—*What is the cause of benign enlargement of the prostate ?*

A.—The exact cause of benign enlargement of the prostate is not known, but it is probably related to hormonal imbalance. This is suggested by the fact that the enlargement begins to manifest itself most commonly at a period when testicular activity begins to decline. Other indications of the close association of testicular hormones with prostatic disease are provided by clinical evidence of the control of prostatic carcinoma by oestrogens and by castration, and the fact that while prostatic disease is quite common in dogs it does not occur in those which have been castrated.

It seems not improbable, therefore, that prostatic disease in man will eventually be treated, or at least prevented, by hormonal therapy, instead of by surgery, but at the present time the results of both androgenic and oestrogenic treatment are disappointing. We seem to be near the mark, but not quite there.

Khellin in Bronchospasm

Q.—*Is oral khellin effective in the treatment of bronchospasm ? Are there any dangerous toxic effects which contraindicate its use ? Is it safe for children ?*

A.—One of the pharmacological actions of khellin is a marked bronchodilator effect on guinea-pig bronchi.¹ Its clinical effect on humans is variable, but it can relieve bronchospasm, and its effect and that of adrenaline are, to a certain extent, additive. It is much more effective when given parenterally ; the onset of its action is delayed and may be prolonged over 24 hours after a single intramuscular injection. The incidence of side-effects after oral use is only slightly lessened by using enteric-coated tablets, and in a recent trial² nausea, anorexia, and vomiting occurred in a high proportion of patients : nausea occurred in 65%—to a prohibitive degree in 32%, and sufficient to necessitate a suboptimal dose in 22%. The difficulty of maintaining an adequate dosage by the oral route limits the value of the drug, and for this reason it is inadvisable to give it to children.

REFERENCES

- 1 Anrep, G. V., Barsoum, G. S., and Kenawy, M. R. (1949). *J. Pharm. Pharmacol.*, 1, 164.
- 2 Kennedy, M. C. S., and Stock, J. P. P. (1952). *Thorax*, 7, 43.

NOTES AND COMMENTS

Troublesome Cough in a Child.—Dr. M. C. WATKINSON (Blackburn) writes: With regard to your question and answer on this subject ("Any Questions?" February 14, p. 413), troublesome night cough in children is one of the commonest problems I encounter in the baby clinics here, and I have worked out a rather homely method of treatment which rarely fails to be effective and which may help the doctor who made inquiry about the condition. First, I advise the mother to give drinks of lemon and honey (home prepared) to the child throughout the day and a spoonful of honey to be sucked slowly just as the child is going to bed. The bedroom window should be closed at least an hour before bedtime and kept closed during the night. Also, if possible, the room should be warmed by a small electric fire for 45 minutes or so before putting the child to sleep. The menthol rubbing ointments applied to chest and throat after the warm bath are helpful too. With my own children I find that this combination of therapies is usually sufficient, but if we hear the cough start during the night we switch on the electric heater for about half an hour, and as the room warms up again the cough ceases. Where, despite these measures, cough persists and is troublesome, I prescribe syrup of codeine phosphate according to Young's formula and using 2 drachms (7 ml.) as the adult dose. I did this at first with great trepidation after reading the Refresher Course article on "Acute Bronchitis" (*British Medical Journal*, 1951, 1, 827). I find, however, that, as the author of the article stated, codeine is quite well tolerated by even small children. Certainly I should use it in preference to chloramphenicol.

Correction.—Mr. H. K. McCOMB writes: With regard to your report in the medico-legal column (February 21, p. 461) concerning an action for negligence against "the surgical registrar" of Mayday Hospital, I would point out that there is more than one surgical registrar at that hospital.

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