

real virtue in immediate ambulation after operation. The subject of early ambulation was fully discussed in a leading article (*British Medical Journal*, 1948, 2, 1026).

Mixtures of Antibiotics

Q.—*What mixtures of antibiotics can be given at the same time? Are any pharmacologically incompatible, and do the antibacterial actions of some neutralize those of others?*

A.—There is no incompatibility between antibiotics in a pharmaceutical sense, but if by "pharmacologically" is meant an interference by one with the action of another this undoubtedly can occur. Such effects can readily be demonstrated *in vitro* and in some conditions experimentally *in vivo* when an antibiotic the action of which is mainly bacteriostatic or growth-inhibitory (aureomycin, chloramphenicol, or terramycin) is added to one which is bactericidal or directly lethal to bacteria (penicillin or streptomycin). Antibiotics of the latter class act only on multiplying bacteria, and if multiplication is prevented by the presence of a bacteriostatic substance their lethal effect is naturally delayed. This interference is closely conditioned by antibiotic concentration, bacterial sensitivity, and dose-time relationships, and it is uncertain how often it operates in the clinical field. A clear example of interference seems to be afforded by the experience of Lepper and Dowling,¹ who treated 43 patients with pneumococcal meningitis with large doses of penicillin only, of whom only 13 died (30%); of 14 patients also given aureomycin, 11 died (79%).

REFERENCE

- ¹ *Arch. intern. Med.*, 1951, 88, 489.

Cats at Night

Q.—*How do cats see in the dark?*

A.—No animal, not even a cat, can see in the dark, because if visual rays are completely absent the retinae cannot receive adequate stimulation. At the same time it must be admitted that many animals may be able to see under conditions which would not permit a human observer to do so. A number of different factors may act in combination in producing this difference. Of all the light which falls on the front of the eye from external objects probably little more than one-tenth finds its way in through the human iris even when this is widely dilated. This is because the F value (the ratio of focal length to aperture) in man seldom exceeds two. In cats, on the contrary, it may equal one, and, since the brightness of the image on the retina is inversely proportional to the square of the F value, it follows that in a cat this may be four times as bright as in a man. Having passed in at the pupil, a certain proportion of the light is absorbed by the crystalline lens and by the vitreous humour. In those animals which have small eyes with short paths through crystalline and vitreous these losses are less than they are in a human eye. Thus in this respect a cat is better off than a man and a mouse better off than either. It is possible that rays at the extreme ends of the spectrum, that is in the red and in the violet, may be made use of by small animals for visual purposes, whereas to a man they are practically useless because of their low intensity. In this connexion it may be of interest to recall the fact that patients who have had to suffer the loss of a crystalline lens are compensated to some extent by being able to see by means of violet and even by ultra-violet rays, which they were never able to do while the eye was intact. Having reached the human retina, most of the light is absorbed, in part by the photosensitive pigments, such as visual purple, on which sight depends, and in part by the pigment in the outermost layer of the retina. In many animals this layer constitutes a reflecting screen, or tapetum, by means of which the light is returned through the retina a second time. It is thought that this increases sensitivity to light at the expense of fine definition. Theoretically there are two other ways in which the retina could be made more sensitive still, by concentration of the photosensitive pigments, and by linking more receptor cells to each of the optic nerve fibres. Now, suppose that all these modi-

fications are to be found in the eyes of a particular category of animal, to what extent should we expect its eyes to show an improvement in performance? Only a very rough guess is possible—namely, that the animal in question may require no more than one-tenth of light than is required by a man for the same visual performance under twilight conditions. It should be emphasized that this advantage is not obtained without the introduction of disabilities. Usually it is visual acuity which is sacrificed. Thus the employment of a larger F value means that the more peripheral zones of the lens-system are brought into use, and these have more marked aberrations than the central zones, thus reducing visual acuity. The situation may perhaps be summed up as follows: In the design of the human eye resolving power has been given prior consideration, but in the design of other eyes other factors appear to have been more important. In the case of cats this seems to have been the ability to see in very poor light.

Efficacy of Abortifacient Drugs

Q.—*How effective are the drugs commonly used in criminal attempts to secure abortion, in particular extract of ergot?*

A.—Drugs such as strong aperients, lead, quinine, oxytocin and ergot preparations are almost completely ineffective as abortifacients in normal women, although they might disturb a pregnancy in a woman who has an unusual susceptibility to abortion. The ineffectiveness of such preparations by themselves is well illustrated by the fact that they are now rarely, if ever, even tried when therapeutic abortion is indicated. Moreover, it was not uncommon in the past to see pregnancy continue unaffected in women who had taken so much in the way of drugs that they themselves suffered from lead, quinine, or ergot poisoning. Again, quinine is given with impunity in malaria-infested countries, and ergot preparations can be safely used for migraine up to the last few weeks of pregnancy.

The oxytocics mentioned become more effective if they are used as supplements to local interference in the uterus—for example, rupture of the membranes, dilatation of the cervix, or intrauterine injections.

Safety of the Safe Period

Q.—*What are the chances of conception occurring as a result of intercourse during the "safe period" in a young married woman with a regular menstrual cycle?*

A.—In such circumstances conception is very unlikely, but it is always possible. The chances cannot be stated statistically, and they may well vary according to the exact day in the "safe period" on which coitus takes place.

NOTES AND COMMENTS

Corrections.—Dr. J. R. HINDMARSH writes to say that in the article by him and Dr. D. Emslie-Smith (March 14, p. 593) the second paragraph should read: "Uncomplicated leukaemia presenting as acute polyarthritis has been described by many authors, and its rarity *outside* childhood . . ." not "in childhood."

The *Textbook of Medical Treatment* edited by Dunlop, Davidson, and McNeer referred to in our review columns in the issue of March 21 (p. 661) was incorrectly entitled *Textbook of Medical Practice*.

"Any Questions?" Book: Second Series.—This is now available, price 7s. 6d. (postage 6d. extra), from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

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