On addition of concentrated sulphuric acid to a chloroformic solution of this fraction, an orange coloration is observed which is changed to a red solution on adding a few drops of water and heating in a boiling water bath (Kober's test for œstrone³). The active part also gives a red coloration with Marrian's phenol-sulphonic acid reagent⁴ specific for œstrone.

This problem was suggested by H. E. Dr. S. Azmy Pasha, professor of medicine. Further work is in progress to identify and to isolate this biologically active œstrogenic material.

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¹ Butenandt and Jacobi, *Z. physiol. Chem.*, **218**, 104 (1933).

² Skarzynski, *Bull. Int. Acad. Pol., Class. Sec. Sci. Math. Nat.*, B 11, 347 (*Chem. Abstr.*, **28**, 4755; 1934).

³ Kober, S., *Biochem. Z.*, **239**, 209 (1931).

⁴ Cohen and Marrian, *Biochem. J.*, **28**, 1603 (1934).

⁵ Callow, R., *Biochem. J.*, **30**, 906 (1936).

Mauthner's Cells in the Larvæ of Anuran Amphibia

THE cells of Mauthner occur in the medulla oblongata of many teleost fishes, Dipnoi and urodele Amphibia, where they have been widely studied. On the other hand, their occurrence in the larvæ of anuran Amphibia has been disputed for many years, and to judge from the literature most attempts to find them have failed. Szepsenwol¹ claims to have found them in the larvæ of *Rana fusca* and *Bombinator packyppus*; but his account, unfortunately published without illustration, does not appear to have received general recognition.

With the aid of a new silver-staining method, an account of which is now in the press, I have recently obtained clear evidence for the regular occurrence of a single pair of Mauthner's cells in 22 mm. larvæ of *R. fusca*. With regard to the size and position of these cells, and the distribution of their dendritic processes, I am in agreement with the account given by Szepsenwol. The cells are best seen in thick (20–25 μ) transverse sections of the medulla, near the entry of the auditory nerve roots.

My observations on that part of the axon process which is usually described as 'Mauthner's fibre' differ considerably from Szepsenwol's description. The latter states that, in *R. fusca*, Mauthner's fibres are single processes. Against this, I have found that, before decussating, each fibre divides into two similar and thinner fibres. Each of these decussates separately with its fellow from the opposite side of the medulla, and becomes contralateral. The two decussations are equidistant from Mauthner's cells and occur one above the other. Posteriorly, the two contralateral fibres formed by each Mauthner's cell run beside the fasciculus longitudinalis medialis to the tail. In 22 mm. larvæ the Mauthner fibres are about twice as thick as the fibres of the fasciculus longitudinalis medialis, and have a more marked affinity for silver.

During larval life up to the 18–22 mm. stage (approximately), the growth of the Mauthner system is accompanied by the development of Rohon-Beard sensory cells, arranged as a dorsally situated column along the spinal cord. In later larval life, the growth of both these specifically larval components of the

central nervous system is arrested. The Rohon-Beard cells rapidly undergo degeneration, while the Mauthner system persists without any further considerable differentiation.

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¹ Szepsenwol, J., *C.R. Soc. Biol., Paris*, **118**, 44 (1935).

Ethical Aspects of the Development of Atomic Energy

BOTH the letter from Lionel Curtis in *Nature* of January 25 and the editorial article in the issue of December 21 appeal for "the fact-finding method of science" to be brought "into the political sphere"; but both, it seems to me, ignore the most significant fact in the world situation.

If it were true, in any immediate sense at least, that "The future of humanity depends on the three great Powers, not less than others, placing themselves strictly under the judgment and the surveillance of the rest of the world", then there would be no future for humanity. For such a dictum ignores the fact that one part of the world has, or is developing, a planned economy which involves great restriction or even abolition of the freedom of 'private enterprise', while the other part declares such freedom to be the essential core of civilization. There are intermediate positions, of course, but the two extremes, represented by the U.S.A. and the U.S.S.R., will not submit to each other's judgment in these matters.

A "strong international democracy" in such circumstances is impossible, and those who declare it to be essential merely make the side which would be in a minority, if such a democracy could be brought into existence, feel that the real intention is to impose on them an economic system they abhor. It is perhaps significant for a scientific investigator that all such declarations do, in fact, come from the side which would at present be in a majority.

I think such an international democracy will come into existence when the present polarization of social structure and ideas has ceased to exist. But that will not be in time to solve our present problems. What, then, can be done?

The essential thing is to see that the conflict which undoubtedly exists between the two parts of the world is resolved by friendly competition and not by armed force. At present it is only too obvious that each side suspects the other of attempting to achieve its domination by armed force. The great task facing us is to dispel that suspicion and create the conditions for peaceful rivalry between the two systems; to see which can, in the long run, give the common man more of the things, material and spiritual, which he desires.

What is required is a declaration by all the Powers that they will not use, make or keep a stock of atomic bombs or other weapons of mass destruction. While this is obviously insufficient by itself, it would help to allay suspicions and pave the way for general disarmament, in which the question of control of atomic energy would take its logical place along with the general control of disarmament.

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