from aqueous humour because it is only a two compartment system. It is also probable that drugs which are known to influence the synthesis and release of monoamines in the brain can be studied by observing changes in the aqueous humour. Furthermore, it will be very interesting to see, whether the monoamine metabolites content of the aqueous humour is changed in different pathological conditions of the eye. It has for instance been shown that there is an increase of monoamine metabolite in CSF in hydrocephalus (Andersson & Roos, 1966, 1968, b, c; Andersson, 1968, 1969). There may possibly be an elevation of the metabolites in aqueous humour in glaucoma, a condition which has many points of resemblance with hydrocephalus.

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Interaction between sodium metabisulphite and PMN

It has been reported that the antibacterial activity of phenylmercuric nitrate (PMN) is lost on autoclaving with sodium metabisulphite (Buckles, Brown & Porter, 1971). Richards & Reary (1972), however, found that autoclaved solutions of the same PMN-metabisulphite mixture possessed greater antibacterial activity than either of the individual components alone. We have made atomic absorptiometric determinations of the PMN present in these solutions and assessed the effect of pH on the antibacterial activity of PMN and PMN-metabisulphite solutions.

Atomic absorptiometric determinations of PMN were made using both the air-acetylene flame technique and the cold-vapour method (Hingle, Kirkbright & West, 1967; Hatch & Ott, 1968). Whereas PMN (0·002% w/v) and fresh PMN

(0·002% w/v)-sodium metabisulphite (0·1% w/v) mixture had the same absorbance when autoclaved, the absorbance of the autoclaved PMN-metabisulphite mixture was reduced five-fold in the air-acetylene flame relative to autoclaved PMN solutions whose absorbance was unchanged. The mercury levels were shown by the cold-vapour method to be unchanged by autoclaving with or without sodium metabisulphite. However, much stronger digestion conditions were required for the autoclaved PMN-metabisulphite mixtures than for the PMN solution or the unautoclaved PMN-metabisulphite mixture. It appears that a complex may be formed between sodium metabisulphite and PMN during autoclaving and that this complex is more refractory in the air-acetylene flame and more difficult to reduce to elemental mercury than aqueous PMN solutions.

Using the universal buffer of Davies (1959) the sterilization times for autoclaved PMN and PMN-metabisulphite solutions were determined at three pH values against *Pseudomonas aeruginosa* strain NCTC 6750 at a concentration of approximately $3 \cdot 10^5$ cells ml^{-1} in the reaction mixtures. The method has been described (Richards & McBride, 1971).

The effect of pH on the sterilization time of autoclaved PMN and PMN-metabisulphite solutions against approximately $3 \cdot 10^5$ cells ml^{-1} *P. aeruginosa* can be seen below:

	Sterilization time (min) at		
	pH 3·9	pH 6·3	pH 8·4
PMN 0·002% w/v..	90–120	>360	90–120
PMN 0·002% w/v + sodium metabisulphite 0·1% w/v	30–45	240–300	300–360

The results show that the PMN-metabisulphite combination is more active at acid pH but less active than the PMN alone at alkaline pH. This could be explained by a complex being formed by the PMN and metabisulphite which has greater activity at acid pH than at alkaline pH. The reduced antibacterial activity of mixtures of PMN and sodium metabisulphite at alkaline pH relative to solutions of PMN alone at the same pH is supported by Richards & McBride (1972), who used PMN and sodium metabisulphite in sulphacetamide formulations. The increased activity of the PMN-metabisulphite mixture at acid pH relative to solutions of PMN alone at the same pH supports the results of Richards & Reary (1972).

It can also be seen from the results that *P. aeruginosa* is better able to survive the action of PMN at pH 6·3 than at either pH 3·9 or pH 8·4. This effect has not been reported before for PMN and it may be a function of the resistance of the organism varying with pH while the activity of the PMN remains constant.

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