the feelings of general practitioners toward a salaried service. The public of to-day may be surprisingly ready to accept a less individual but perhaps more efficient service. The younger generation, below the age of 45, seems to regard the doctor as an official working in a large permanent organization rather than as an individual giving a personal service.

As the service we give becomes more comprehensive, more technical, and more expensive, we cannot hope to administer it without some small supervision and co-ordination, if the resources available are to be properly and fairly used. These are unpleasant realities which we must face, and we should not be afraid of great changes in our professional life when society itself has changed so much; nor should we be too fearful of losing our freedom because this so-called freedom is largely an illusion in a failing system which is fast becoming a nightmare.—I am, etc..

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Hypothermia in Resuscitation of the Newborn

SIR,—Your provocative leading article (October 12, p. 880) on hypothermia in resuscitation of the newborn contained many misquotations. The special capacity of the infant to withstand hypoxia at birth was said to be lost within 24 hours. The article quoted actually said that the survival time of newborn *rats* exposed to nitrogen "begins to decrease within 24 hours of birth."¹ The ability of different species to withstand asphyxia at birth and the rate at which this ability is lost vary greatly.

It was also said that "glucose (or fructose)" could be used together with sodium bicarbonate to prolong life during hypoxia. The article cited described experiments on foetal *lambs* with glucose and sodium carbonate during asphyxia.² There is evidence that newborn lambs are unable to use fructose.³

The impression was also given that a rise in arterial PCO_2 was a desirable manifestation of asphyxia at birth because it "helps to maintain blood pressure, and also a greater flow of blood in the carotid and coronary arteries." We know of no experiments to support these contentions in foetal or newborn animals, but asphyxia causes extreme vasoconstriction in the pulmonary vascular bed,⁴ to which a high arterial PCO_2 is an important contributory factor. Any suggestion, in the present state of knowledge, that "vigorous pulmonary ventilation must be avoided" during asphyxia is irresponsible. There is no conclusive evidence from work on animals or human infants that oxygen given by the gastro-intestinal tract is of benefit, even in hypothermia.

Your editorial gives a misleading picture of the situation. No distinction was made between established scientific

fact and mere hypothesis. It is widely, and with good reason, held that new therapeutic measures should be tried on animals before being used on human infants. Although the work of Dr. Westin and his colleagues⁵ suggests that hypothermia may be of value in resuscitating newborn infants, there is as yet no experimental basis for this belief. Hypothermia has long been known to prolong the survival of newborn animals during asphyxia,⁶ but no experiments have yet been done to show that it is effective in resuscitating asphyxiated animals or that it is preferable to the use of artificial ventilation.—We are, etc.,

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* * The sentences dealing with the special capacity of the neonatal organism to withstand hypoxia at birth may have given the impression that the statement that this faculty "is lost within 24 hours" applies to either the infant or the kitten, to which reference is made in the preceding sentence. As Dawes and his colleagues point out, their work (which is quoted in the sentence) was on the survival time of newborn rats. In their work on foetal lambs they had used glucose and sodium carbonate during asphyxia. Fructose was mentioned in parenthesis in the leading article because it had been used, together with sodium bicarbonate, in the treatment of the respiratory distress syndrome in the newborn human infant. We regret that these passages were misleading.

But when Dawes and his colleagues take issue with the leading article over the statement that vigorous pulmonary ventilation may be dangerous they are misreading it. The statement that it was necessary to avoid vigorous pulmonary ventilation was made when outlining the effects of retained carbon dioxide on the cardiovascular system and the body's metabolism during asphyxia, especially at hypothermic levels. Sudden lowering of carbon dioxide by too vigorous artificial ventilation may indeed be dangerous in this situation, particularly when hypothermia has been induced, which was the situation described. Vigorous artificial ventilation certainly has a secure place in the management of neonatal asphyxia at normal temperature

The leading article pointed out that Westin and his colleagues had found intragastric oxygen effective when

associated with hypothermia, without additional oxygen having been given by artificial ventilation.

The view expressed by Dawes and colleagues that "new therapeutic measures should be tried on animals before being used on human infants" is one that has always been strongly supported by this journal. But if they mean these remarks to be a stricture on the work by Westin and co-workers they are unfounded. As reading of the monograph cited in our leading article will make clear, extensive animal work over several years had preceded the application of these methods of resuscitation to human infants. The purpose of the leading article was to describe and comment on the results obtained by the Swedish group, who by the end of last year had applied their methods in the resuscitation of nearly 100 infants. It is worth stressing once again that they used them *after the usual methods of resuscitation had failed*. Westin and his colleagues frankly admit their ignorance of the reasons for their success both in the animal and in the infant. But this should be no reason for not paying attention to the results which they have reported.—Ed., *B.M.J.*

Carcinogenic Action of Pronethalol

SIR.—Papers (pp. 1226, 1230, 1250) in this issue record interesting results obtained in clinical trials of a new drug, pronethalol ("alderlin"), in various cardiovascular disorders. Despite the evident clinical interest in the material, it is not intended to promote sales of the drug for the large variety of conditions in which it might be beneficial, but to confine its use as far as possible to life-threatening conditions. This is because investigations of its toxicity have revealed that, in certain circumstances, it is a moderately potent carcinogen.

Administration of the substance at high doses (up to 200 mg./kg.) to rats for periods of up to two years, and to dogs for periods up to one year, gave rise to no tissue changes of significance. When similar experiments were performed in mice, the experimental animals developed malignant tumours. These were most commonly of the thymus. The earliest tumours of this organ appeared within three months of commencing administration of the drug. The total number developing was related to the dose given. Other tumours also appeared as the experiment progressed. These were generalized lymphosarcomata and unusual reticulum-cell sarcomas of liver, spleen, and genital tract. Tumours of other systems were not seen more frequently in dose animals than in controls.

It therefore appears that pronethalol is a potent carcinogen to the mouse, but not to the rat and, possibly, not to the dog, although experiments in the latter species have not been continued sufficiently long for certainty. Nevertheless, the demonstration of potent carcinogenic action in a mammalian species is regarded