centage of hemoglobin, and increased respiratory activity. Therefore, it would seem a perfectly logical procedure to compensate for a decreased efficiency of cellular oxidation reduction systems as a result of anesthetic agents by an increased oxygen tension through a supplemental oxygen supply. This, of course, is most important in the immediate post-operative period although it is still of value whenever the cellular oxidation reduction systems are under strain as in anesthesias, anemias, shock, etc. This would seem to provide an excellent basis for the wider application of the use of a post-operative supplemental oxygen supply.

"If one speculates on this scheme, some otherwise imperfectly understood phenomena become more susceptible of understanding. For example, it is well known that anesthetic agents such as ether, etc., give rise to a pronounced hyperglycemia which is not fundamentally an autonomic nervous system effect as it is uninfluenced by adrenalectomy, atropine, or ergotamine. . . . The genesis of this hyperglycemia is, therefore, not clear, but if one considers that these anesthetic agents inhibit the dehydrogenases with a consequent decreased tissue utilization of triose and its parent, glucose, which accumulates in the blood particularly if the enzymes responsible for the conversion of glycogen to glucose are not inhibited, then a ready explanation is available. Another interesting phenomenon is that of the use of morphine in cyanosis and dyspnea. It is well known that morphine is very beneficial in cases with cyanosis and dyspnea as a result of cardiac decompensation, but on the other hand was positively harmful when these symptoms were due to pulmonary lesions such as bronchitis, emphysema, asthma, etc. The explanation given has been entirely founded on the depression of the respiratory center, but if this were the whole story an accumulated CO₂ should stimulate even a depressed center. Therefore, if one turns to this scheme it shows at once that morphine, being an alkaloid, depresses the dehydrogenases, the cellular use of oxygen is inhibited, less carbon dioxide is formed, and eventually less chemical stimulation of the respiratory center takes place from accumulated carbon dioxide. Therefore, in severe inhibition of the dehydrogenases the respiratory center is only stimulated by the action of oxygen deficiency on the specific nerve endings in the aorta. This, of course, gives a shallow gasping respiration which is not efficient enough under such conditions, and that respiration sometimes abruptly fails is not surprising. Not infrequently, in other cases of a lack of carbon dioxide build up where the classical explanation has been the insufficiency of oxygen intake, an inhibition of the dehydrogenases probably plays a very important role."

J. C. M. C.


"Because of the peculiar structural relationship of optical antipodes, the pharmacological comparison of antipodal pairs has attracted the attention of many investigators. Such a comparison gives an indication of the importance of asymmetric processes in the pharmacological action and may thus throw some light on the mechanism of action not only of the compounds tested but of the whole pharmacological group to which they belong. Despite the great amount of thought which has been devoted to the explanation of the mechanism of narcosis, only a few pairs of antipodal narcotics have been compared and the reports of some of these experiments are not thor-
oughly convincing. . . The first optically active narcotics which we have investigated are the sec.-butyl alcohols. . . The published experiments on the isomeric sec.-butyl alcohols are inconclusive and conflicting. Our experiments differ from those previously reported in that we have given the drugs to mammals by injection. . . The optically isomeric sec.-butyl alcohols being equal in anesthetic activity, there is no indication that any asymmetric process is of importance in the mechanism of this particular narcotic phenomenon. As will be shown in the second paper of this series, this conclusion cannot be extended to the narcosis produced by drugs of other chemical groups."

J. C. M. C.


"In 1894 Hanriot found that chloral reacts with L-arabinose, as it does with glucose, to form two isomeric products. By analogy with the glucocloraloses, these were called a- and B-arabinocloralose. The structures of the chloraloses, or even the relationship of the a- to the B-form, are still not known with certainty. . . By reaction of chloral with d- and with L-arabinose, four isomeric arabinocloraloses (two pairs of antipodes) have been obtained. The four compounds have been tested as anesthetics in mice. a-L-Arabinocloralose is much more active than its antipode. B-d-Arabinocloralose is somewhat more active than its antipode. . . The results of the experiments reported in these two papers are perhaps pertinent to the question of the field of applicability of any general theory of narcosis. It is true that there are minor differences in the effects produced by the arabinocloraloses and by the butyl alcohols. But all bring about the extensive depression of sensory and motor function which is ordinarily recognized as 'general anesthesia,' an effect regarded as typically 'narcotic.' The fact that asymmetry appears to be important in the action of the chloraloses but not in the action of the alcohols suggests, although it does not prove, that an animal may be anesthetized in more than one way, and that the search for one all-inclusive theory of narcosis may be futile. It is conceivable that in the cell, the normal function of which depends on many chains of complex physical and chemical events, the interference with these processes at any one of many points might lead to reversible depression of irritability."

J. C. M. C.


"Although nearly a century has passed since the introduction of ether as a general anesthetic it occupies still a position of preeminence among the volatile anesthetics. After the introduction of ethylene into general anesthesia by Luckhardt in 1923, the development of a hybrid molecule between the two narcotic agents occurred to Leake. This concept of Leake was realized in the synthesis of divinyl ether by Raigh and Major which compound has advantageously augmented the armamentarium of the anesthetist. In 1929 Henderson and Lucas developed the use of cyclopropane as a general anesthetic, which now possesses a meritorious record in general anesthesia. It occurred to the authors that it would be of interest from a chemotherapeutic standpoint to prepare a hybrid molecule between ether and cyclopropane. Besides, it was hoped that such a substance might add an-