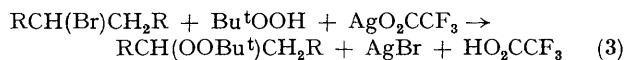




sponding previously unknown peroxides in yields of 24, 59, and 61% respectively. The new compounds were characterised by  $^1\text{H}$  and  $^{13}\text{C}$  n.m.r. spectroscopy and had satisfactory C and H analyses.

The remarkable effectiveness of the new procedure can be seen by comparing the yields it provides with those achieved by reducing the same peroxymercurials with sodium borohydride. By the latter technique cyclopentyl and cyclohexyl t-butyl peroxides were obtained in 2 and 13% yield, respectively, while it proved impossible to isolate any of the s-butyl or 3-hexyl compounds (spectroscopic analysis confirmed that these peroxides were only very minor components of the crude products). A further measure of the success of the new method is provided by comparing it with the recently reported<sup>7</sup> silver-salt-assisted t-butyl perhydrolysis of alkyl bromides, equation (3).



In our hands the silver salt method provided s-butyl, 3-hexyl, cyclopentyl, and cyclohexyl t-butyl peroxides in yields of only 24, 36, 31, and 6%, respectively.

We believe that the reduction of peroxymercurials (1) by tributyltin hydride again proceeds *via*  $\beta$ -peroxyalkyl radicals [*cf.* equation (1)], and in keeping with this view the only byproducts detected in the reactions were the corresponding epoxides. The higher yields of peroxides compared with those from reduction by borohydride must, then, arise from an enhancement of the rate of hydrogen abstraction. Tributyltin hydride is undoubtedly a better hydrogen donor than borohydride, but past evidence<sup>8</sup> would suggest that a common organomercury hydride may be involved in the demercuriations. Concentration effects favouring the bimolecular process are probably a factor in the success of the new procedure.

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