required β -diacetylenic acid (IV) as glistening plates, melting point 42–43°. Unfortunately, the high temperature needed for decarboxylation caused considerable resinification, and the yield of acid (IV) was correspondingly low; investigations to obviate this difficulty are now in progress.

A preliminary catalytic partial hydrogenation of the acid (IV) furnished a yellow oil which was identified as linoleic acid (V) by formation of its solid tetra-bromide, melting point 112–113°, and by complete hydrogenation to stearic acid.

This work is being expanded and will be fully reported elsewhere. We are indebted to Sir Ian Heilbron and Prof. E. R. H. Jones for their interest in this work, which was carried out during the tenure of an I.C.I. Fellowship (R. A. R.) and a senior award of the Department of Scientific and Industrial Research (F. S.). Thanks are due to the Chemical Society for a research grant.

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Preparation of Ethynylcarbinols from the Bisulphite Compounds of Aldehydes and Ketones

WHEREAS a variety of methods for the preparation of ethynylcarbinols from both saturated and unsaturated carbonyl compounds have been described¹, we have traced only one reference² in the literature to the preparation of diethynyl glycols, from dicarbonyl compounds and acetylene. While this work was in progress, Milas *et al.*³ reported the preparation of the diethynyl glycols from diacetyl and acetonyl-acetone.

While aliphatic dialdehydes in particular are not easily accessible materials of low stability, their bisulphite compounds can frequently be obtained in a pure crystalline condition, and we find their purity readily determined by weighing the washed and dried precipitate formed by treatment with an excess of a standard solution of 2:4-dinitrophenylhydrazine sulphate.

We have now found that reasonable yields of ethynylcarbinols can be obtained from the bisulphite compounds of aldehydes and ketones by reaction with sodium acetylide in liquid ammonia. By this means the following pure ethynylcarbinols have been prepared in the yields stated: dimethylethynylcarbinol in 45 per cent yield, *n*-butylethynylcarbinol (32 per cent), phenylethynylcarbinol (45 per cent) and styrylethynylcarbinol (12 per cent), from the crystalline sodium bisulphite compounds of acetone, *n*-butaldehyde, benzaldehyde and cinnamaldehyde respectively. Styrylethynylcarbinol has previously been obtained in only 2 per cent yield³ by reaction of cinnamaldehyde with sodium acetylide in liquid ammonia, and the method thus represents an improvement in this case.

Full details will be reported elsewhere; the application of the method to dicarbonyl compounds is under investigation.

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Effect of Light on the Reaction between Periodates and α -Glycols

SINCE the original discovery by Malaprade of the cleavage of α -glycols by periodic acid and its salts, the reaction has been widely and increasingly used in the solution of structural problems connected with the carbohydrates. The course of the main Malaprade reaction with α -glycols and various compounds of similar type is well known, and the consumption of periodate is usually stoichiometric; but the literature contains many references to examples of so-called 'over-oxidation', or 'over-utilization', of periodate.

The cause of this may well vary from case to case; for example, I have shown¹ that whereas β -methyl glucoside and β -methyl cellobioside are oxidized stoichiometrically at pH < 5, very substantial over-oxidation occurs when the solutions are made alkaline. A factor of more general importance, which does not seem to have been noted hitherto, is the effect of light upon the course of the reaction.

Jackson and Hudson² and Davidson³ observed that the amount of periodic acid or sodium metaperiodate consumed in the oxidation of cellulose did not cease at the 'theoretical' value of one mole per C₆ unit, and figures as high as 1.22 for cotton and 1.86 for filter paper were reported. Davidson noted, too, the formation of considerable quantities of formic acid, formaldehyde and carbon dioxide, and it was evident that side reactions were occurring with both oxidants.

However, when I repeated Davidson's oxidation of cotton with sodium metaperiodate, I found that the reaction virtually ceased when one mole of oxidant had been consumed (about twenty days at 20°), and even at the end of forty-one days the consumption was only 1.06 moles. A possible explanation of this discrepancy seemed to be that various chance circumstances had resulted in the almost complete shielding of the reaction mixture from light.

It has now been observed that with 1.6 moles of sodium metaperiodate per C₆ unit, the oxidation of cotton at room temperature, and in the complete absence of light, virtually ceased when one mole of periodate had been consumed (about seventeen days in a particular experiment). When the reaction mixture was contained in a clear glass bottle accessible to bright daylight, oxidation was much more rapid and continued until all the available periodate had been consumed (1 mole after six days and 1.6 after eighteen days). With a much larger excess of periodate (3.7 moles NaIO₄ per C₆ unit) the consumption reached one mole in four days and 3.7 in twenty-five days when bright daylight was accessible to the reaction mixture.