



SCHEME 2. Reagents: i, 1.1–1.5 equiv. $\text{BH}_3 \cdot \text{THF}$, 2–4 h, 25 °C; ii, pyridinium chlorochromate, CH_2Cl_2 , 2–3 h, 25 °C; iii, $(\text{MeO})_3\text{CH}$, MeOH, Amberlyst-15, 3–12 h, 25 °C; iv, HBr, MeOH, CH_2Cl_2 ; v, 2-trimethylsilyl-1,3-dithian-2-yl-lithium in THF, –78 to 0 °C during 1 day; vi, 1.1 equiv. of SnCl_4 or TiCl_4 , –78 °C, 1 h, then aqueous NH_4Cl ; vii, $[(\text{MeO})_2\text{P}(\text{:O})\text{CHCOMe}]_n\text{Na}$ in 1,2-dimethoxyethane, 0 °C.

To solutions of the aldehydes (**1b–e**) in THF were added 1.1–5 equiv. of TBAF in THF. After 10–30 min, aqueous work-up and column chromatography afforded the spiro-alcohols (**3b–e**) as shown. Presumably, the acidic methylene protons α to the carbonyl group were responsible for the competing protonation in the case of (**1e**).

‡ In fact, Lewis acid treatment followed by quenching with aqueous NH_4Cl proved to be the best means for acetal hydrolysis (>85%) without competing reaction at the silyldithian unit.

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TABLE. Isolated yields of spiro-alcohols (**3**)^a from trimethylsilylalkanes (**1**)^a.

	Yield of (3) ^b
a , $n = 1$	< 5% ^c
b , $n = 2$	56%
c , $n = 3$	60–76%
d , $n = 4$	57–61%
e , $n = 5$	10–20% ^d

^a The structures of all starting materials and products were supported by their ¹H n.m.r., i.r., and g.l.c.–mass spectral data. ^b The yields of individual reactions have not been optimized. ^c The products of the reaction of (**1a**) were not identified, but the data are inconsistent with the presence of significant quantities of the spiro-alcohol (**3a**). ^d The spiro-alcohol (**3e**) is accompanied by ca. 10% of (**2e**) and uncharacterized material (oligomers?).

Exposure of (**1d**) and (**1e**) to the Lewis acids SnCl_4 and $\text{BF}_3 \cdot \text{Et}_2\text{O}$ at –78 °C left these aldehydes unchanged; at higher temperatures, complex product mixtures which did not contain (**3d** or **e**) or their silyl ethers were obtained. Moreover, exposure of the precursor acetals (**4c–e**) to SnCl_4 , TiCl_4 , BBr_3 , $\text{BF}_3 \cdot \text{Et}_2\text{O}$, or MgBr_2 under a wide variety of conditions failed to promote cyclization.‡ Thus, the behaviour of the 2-trimethylsilyl-1,3-dithian system is quite unlike that of allylsilane systems, which react easily with Lewis acid-activated carbonyl compounds⁶ or, still better, activated acetals.⁷

Finally, TBAF treatment (1.5 equiv., 30 min, 25 °C) of the enone (**5**) afforded the intramolecular Michael adduct (**6**), a masked 1,4-dicarbonyl compound, in 64% yield.

This work is supported by the U.S. Public Health Service and the National Science Foundation.

(Received, 3rd December 1980; Com. 1287.)