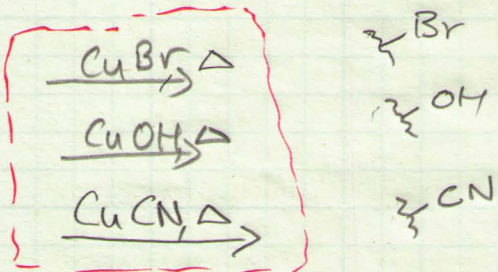
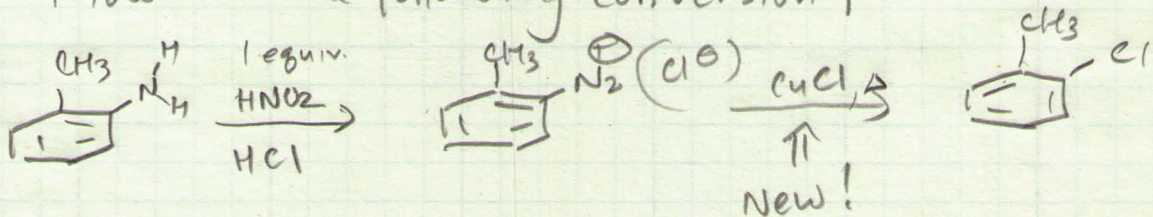


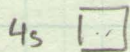
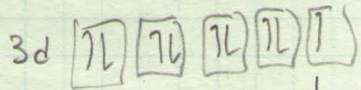
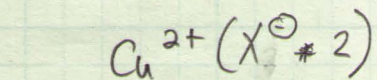
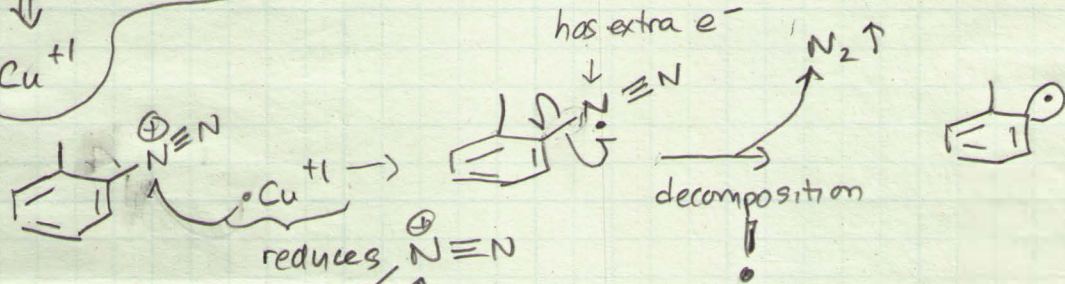
# Sandmeyer Reactions

we know how the following conversion proceeds

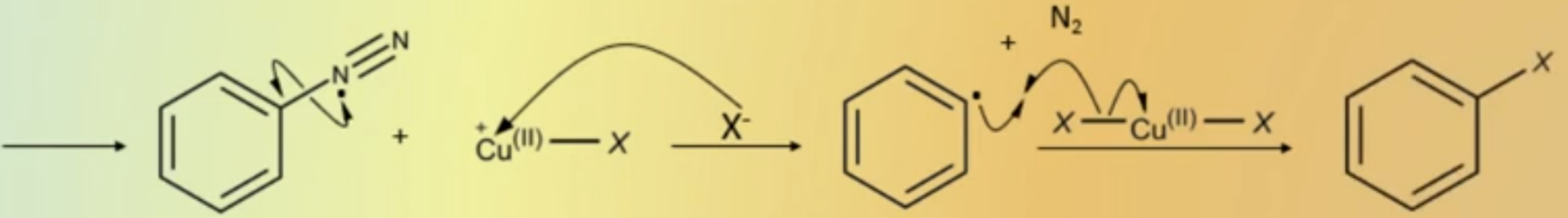
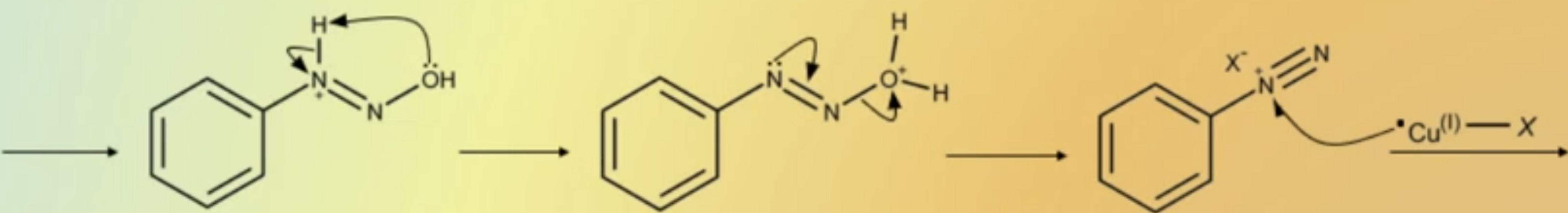
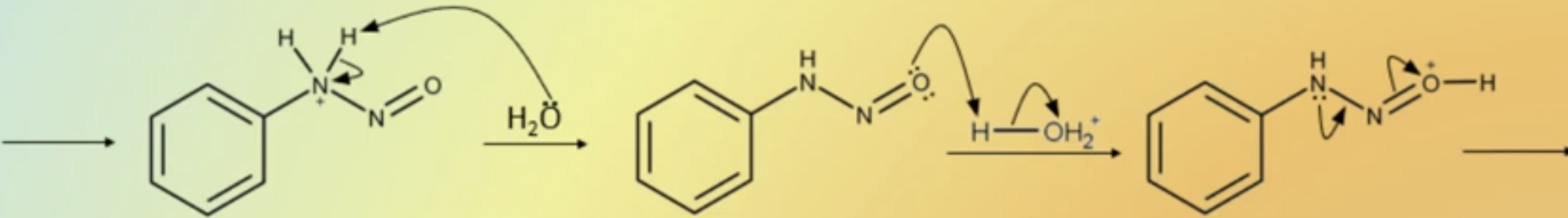
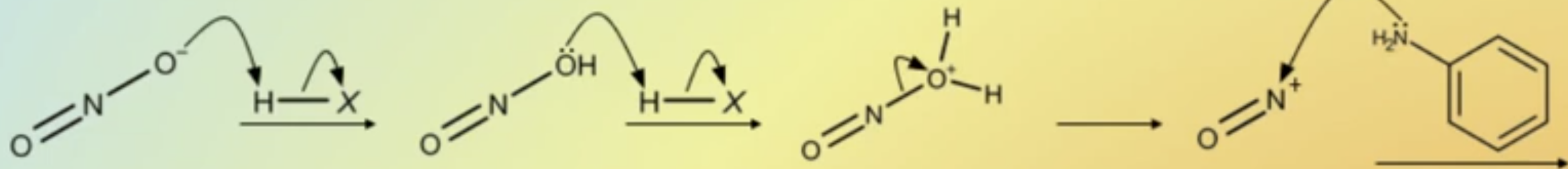


CuX role!

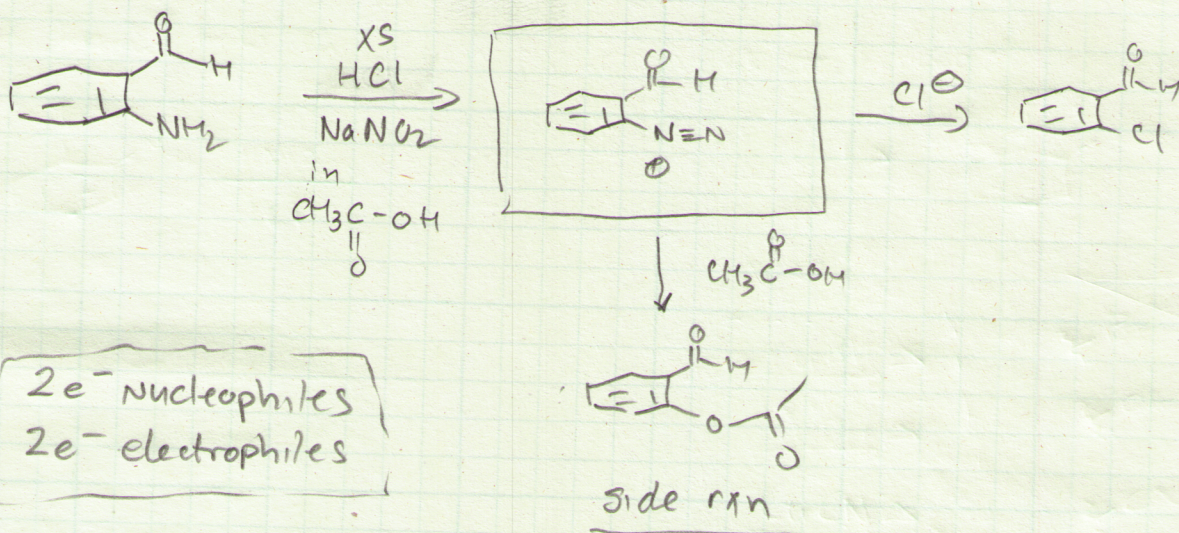
Mechanism



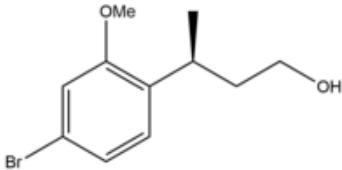
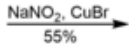
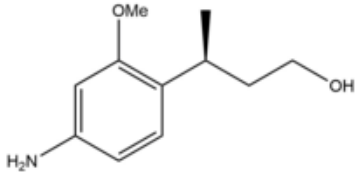
$e^-$  can form new bond  $\curvearrowright$   $\text{X}^{\ominus}$

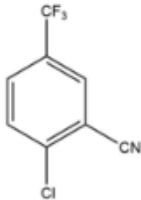
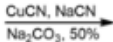
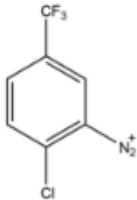
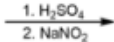
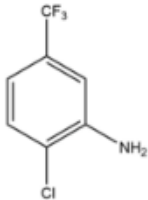


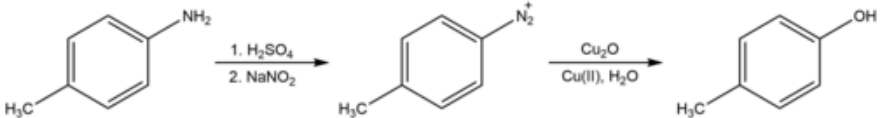
why Sandmeyer Method was sought as an alternative



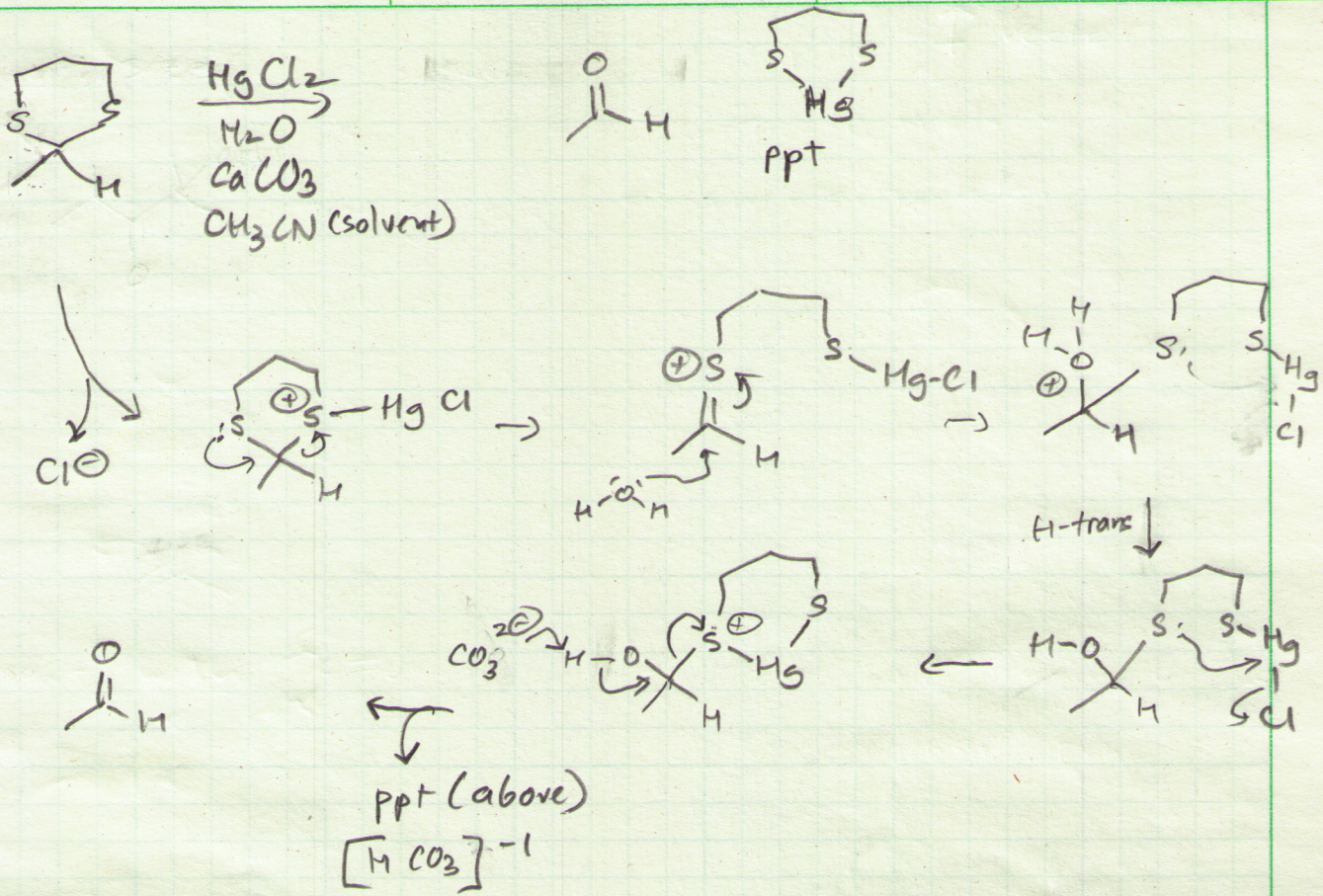
Sandmeyer forces a single  $e^-$  transfer (SET) mechanism



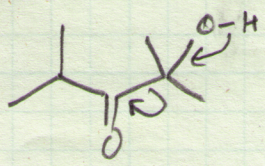




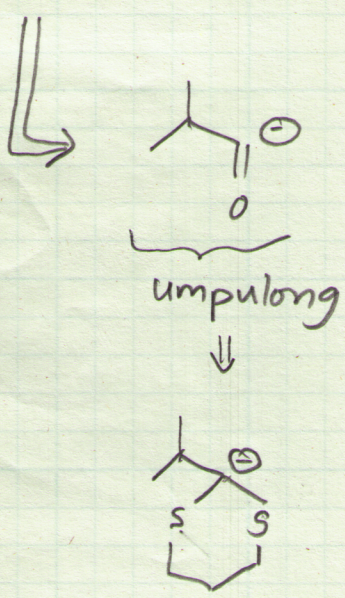




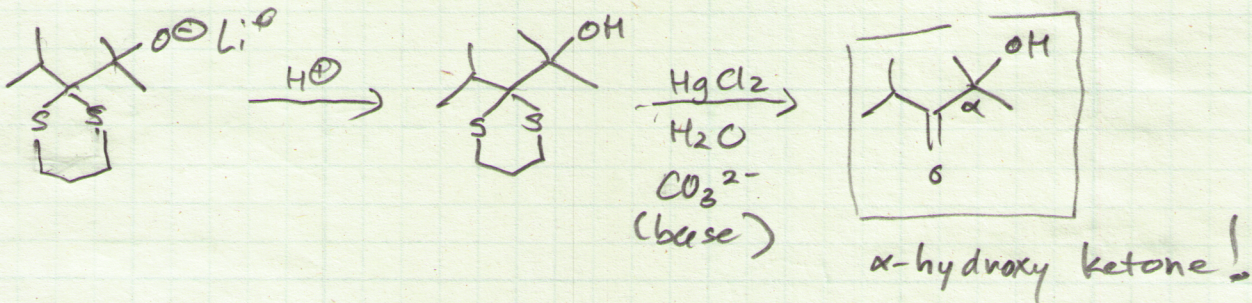
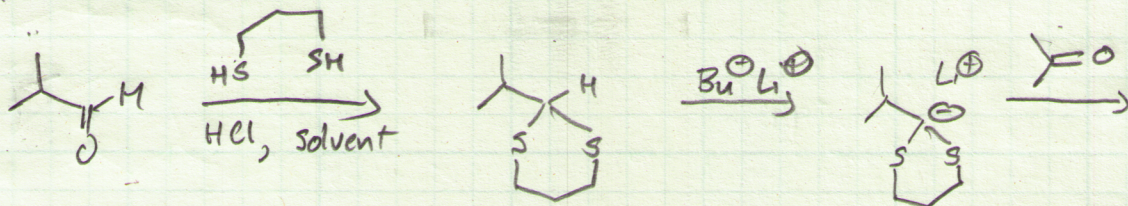
Synthesize from an aldehyde + a ketone



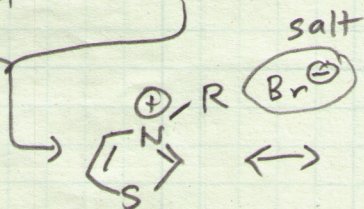
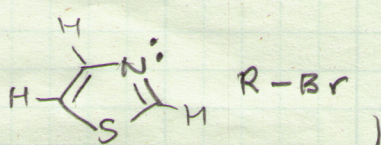
use some type of CC1(S)SCC1 intermediate



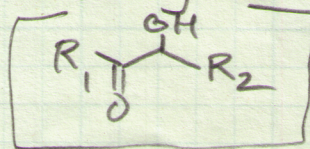
Once these are figured out the forward rxn is straightforward.



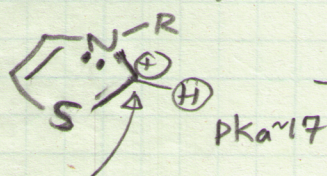
Using THIAZOLIUM SALTS TO MAKE  $\alpha$ -hydroxy ketones!



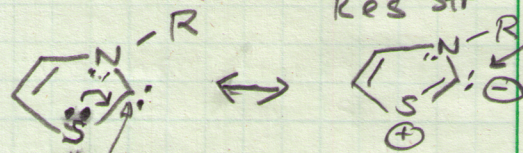
Resonance structures: Draw them.



Here's a key Res str.



empty p-orbital  
3 surrounding  
valence e<sup>-</sup>:  $\oplus$

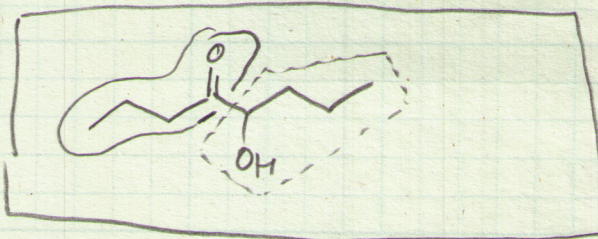
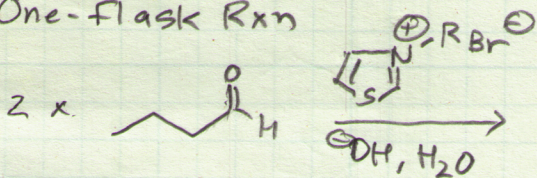


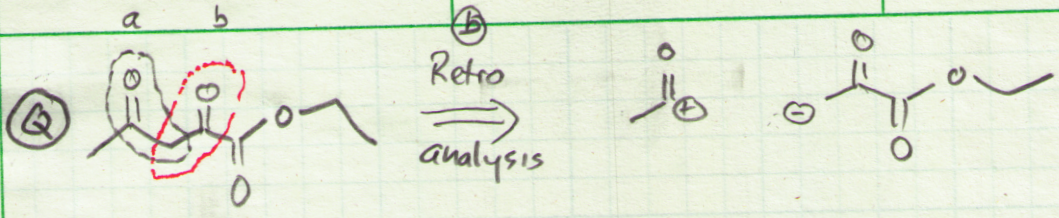
empty p-orbital  
but now has  
4 valence e<sup>-</sup>: neutral

fill p  
4 val e<sup>-</sup>:  $\ominus$

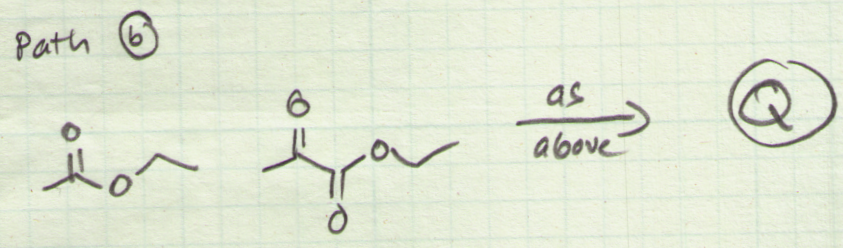
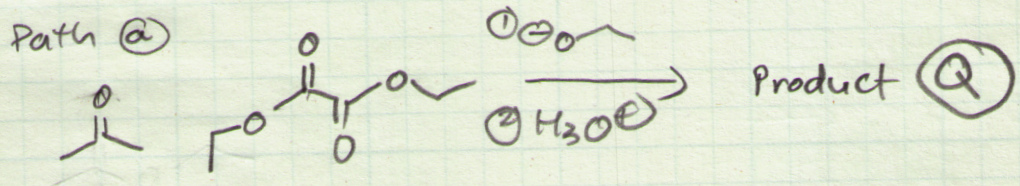
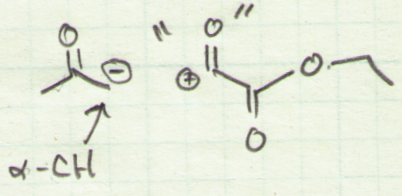
Res str

One-flask Rxn

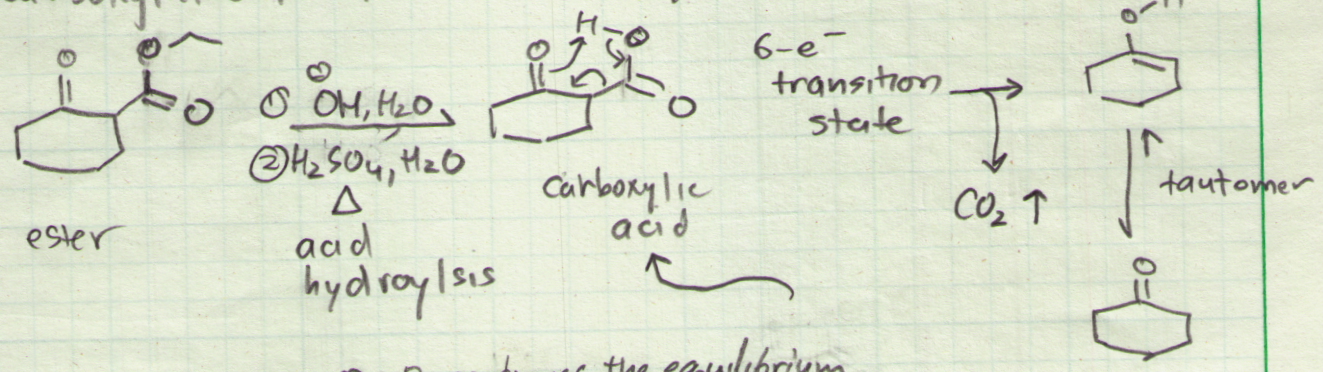




Retro analysis  $\text{a} \downarrow$

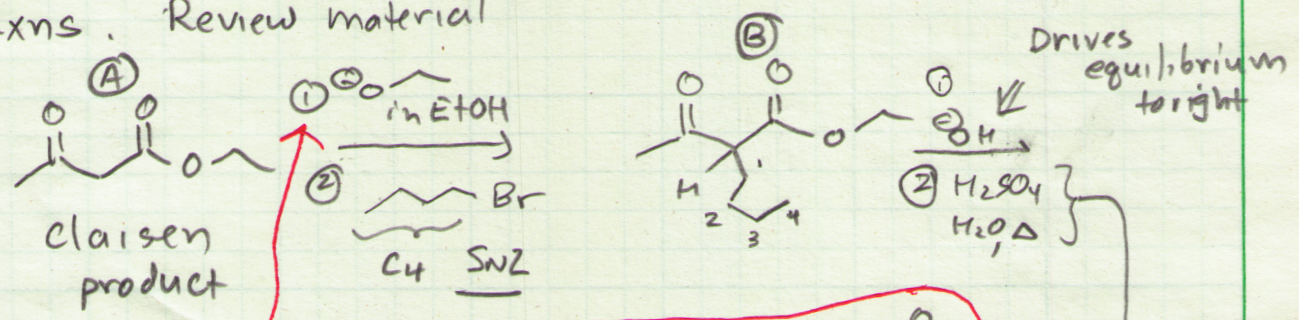


### Decarboxylation of $\alpha$ -carboxylic acids

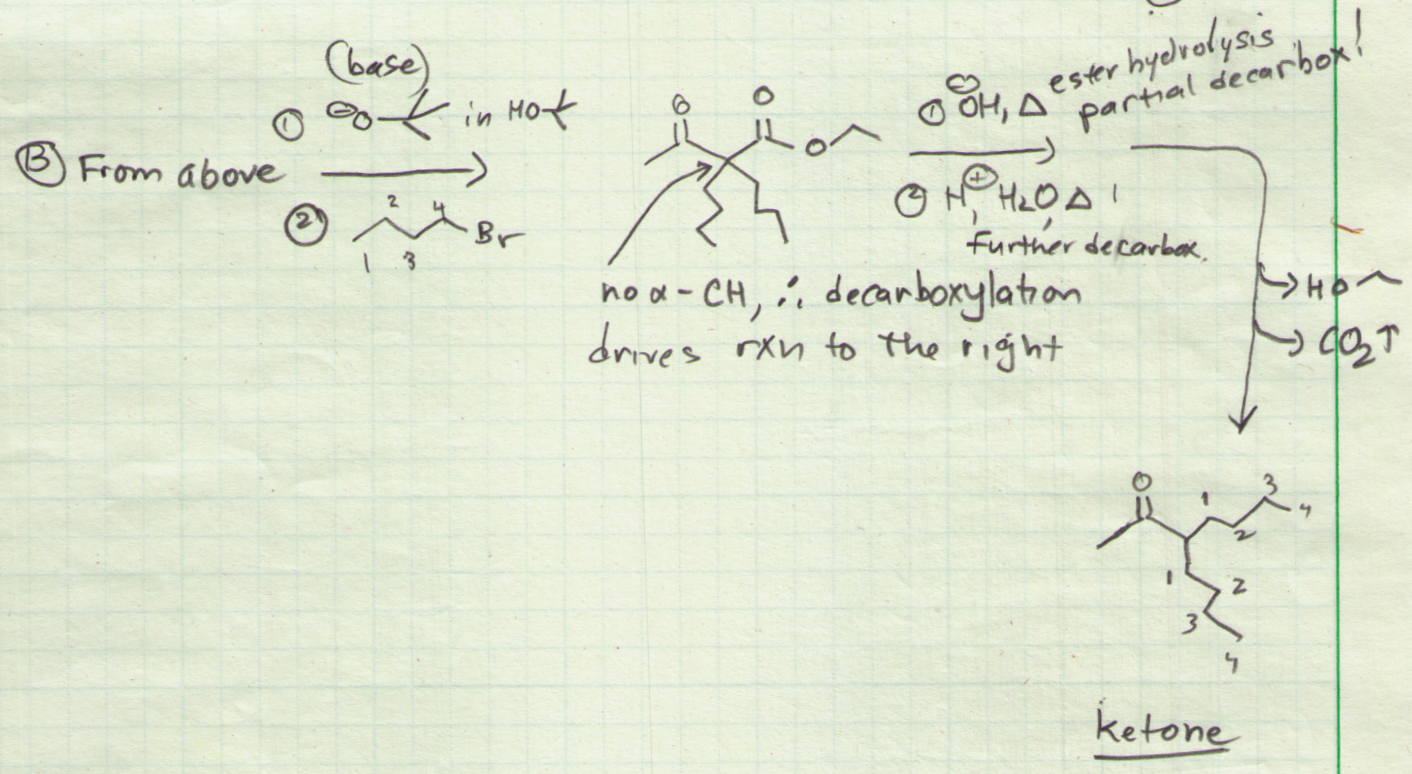
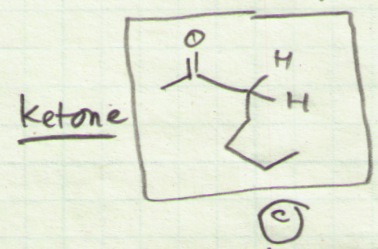


step ①: Base drives the equilibrium  
 step ②: Decarboxylation after acid hydrolysis!

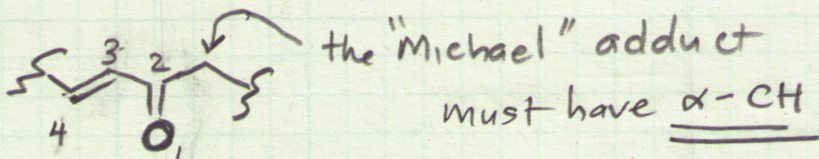
Claisen Products w/  $\alpha$ -H can undergo further  $S_N2$  Rxns. Review material



"Mentally," we know step 1 makes  $\text{CH}_3\text{C}(=\text{O})\text{CH}^-\text{C}(=\text{O})\text{CH}_2\text{CH}_3$



Robinson Annulation, i.e., The anion of a Claisen Product does a conjugate (1,4-Michael Addition) to an  $\alpha, \beta$ -unsaturated carbonyl



Review

Six-membered annulation ("small rings")

