Course Chem 343 Lecturer Gellman

Day Monday Date 11/09/15

Notes Taken By Nolan Blythe Total # of Pages 4

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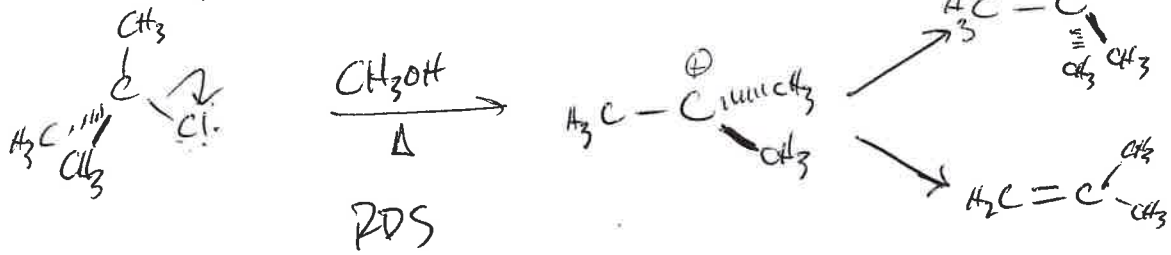
Recall: S_N1 / $E1$ reactions

Eg) 

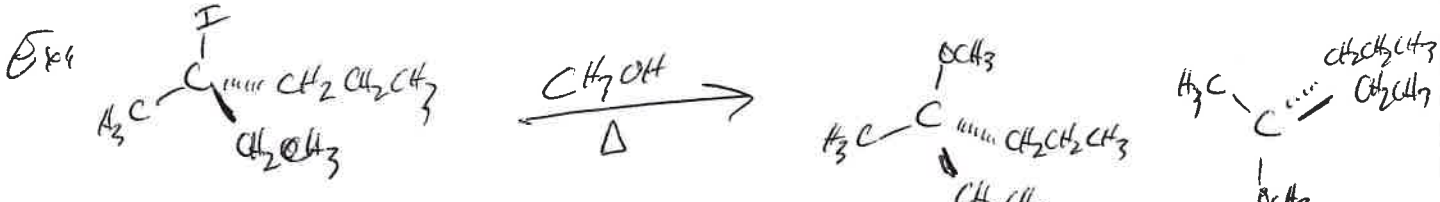
RDS

Fit reactivity trends into our understanding of other processes...

- 3° R-X more reactive than 2° R-X (1° unreactive)
- R-I > R-Br, etc.
- polar protic solvents favorable

Stereochemistry

- S_N1 - Expect (product) loss of stereochemical integrity if LG is attached to a stereogenic center

Ex) 

(R)

1 : 1

Racemic

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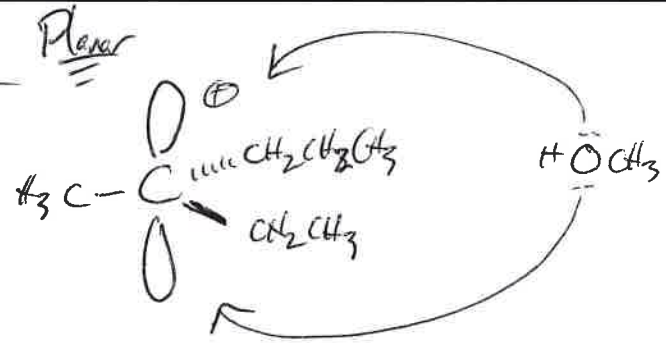
Why? Planar



Harlan Goering

Complexity observed in some "SN1 rxns" Chemist at UW-Madison

What to predict for a specific alkyl Halide under a specific set of conditions??

Some clear-cut predictions -

- 1° alkyl halide ⇒ No SN1 or E1
  Usually expect SN2; E2 if strong base (esp. "bulky" base)
- 3° alkyl Halide ⇒ No SN2
  Strong base → E2
  Polar protic solvent → SN1/E1
- 2° alkyl Halides
  anticipate multiple pathways but selectivity under certain conditions

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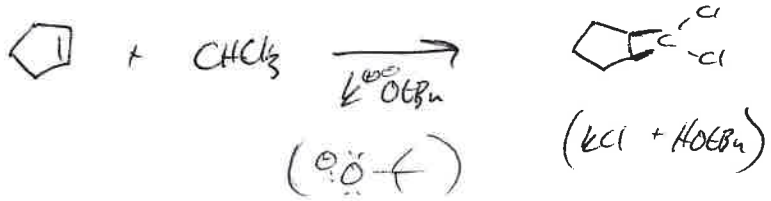
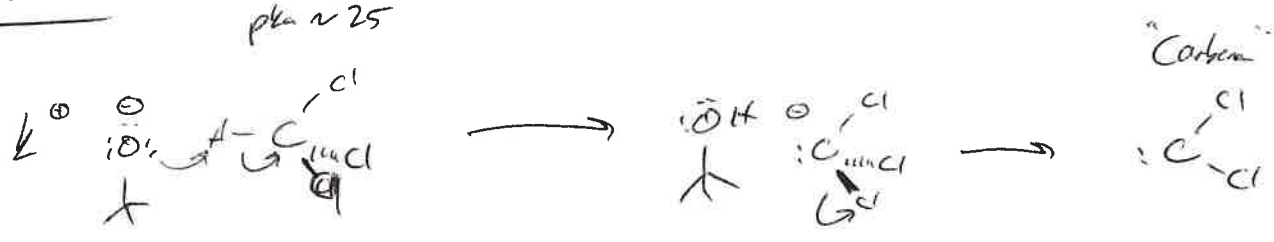
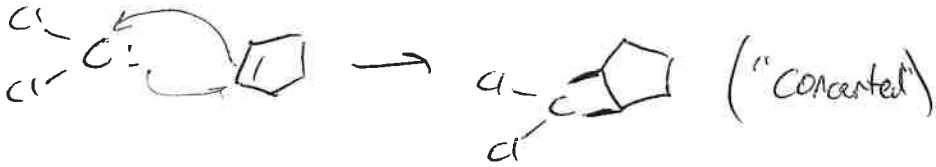
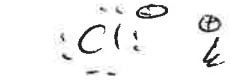
Carbene:



Mech



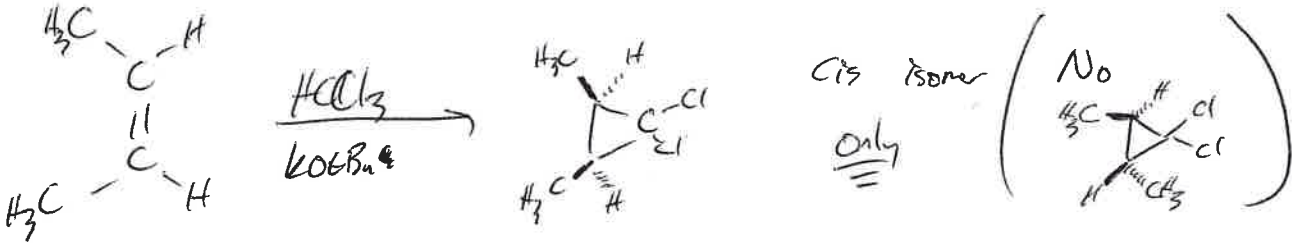




uncharged but very electron deficient

Closer look @ carbene 

Evidence for concerted rxn w/ alkene (stereochemical):



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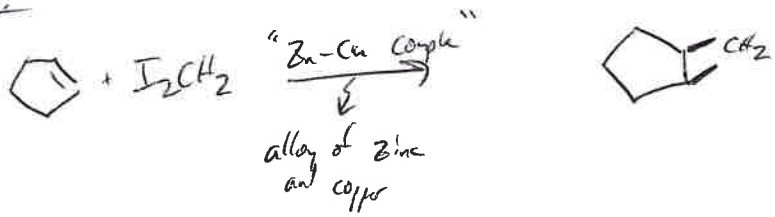
∴ Stated ~~Stereochemistry~~ stereospecificity Interpreted to mean that both new C-C bonds for @ same time

Practical Considerations..... Simplest carbene $:CH_2$ - too reactive

∴ "Tame" reactive species via an "organometallic" reagent

Simmons - Smith Reagent (Zn)

Overall:



Mech:

SS Reagent!

$CH_2I_2 + Zn^0 \longrightarrow I-CH_2-Zn-I \longrightarrow$ Reacts as if it were a mellow "$:CH_2$"