Course 343 Lecturer Sam Gellman

Day Wednesday Date 8/19/13

Notes Taken By Carl McBurney Total # of Pages 4

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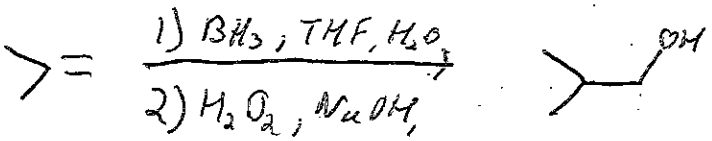
Recall: Rxns of alkenes...

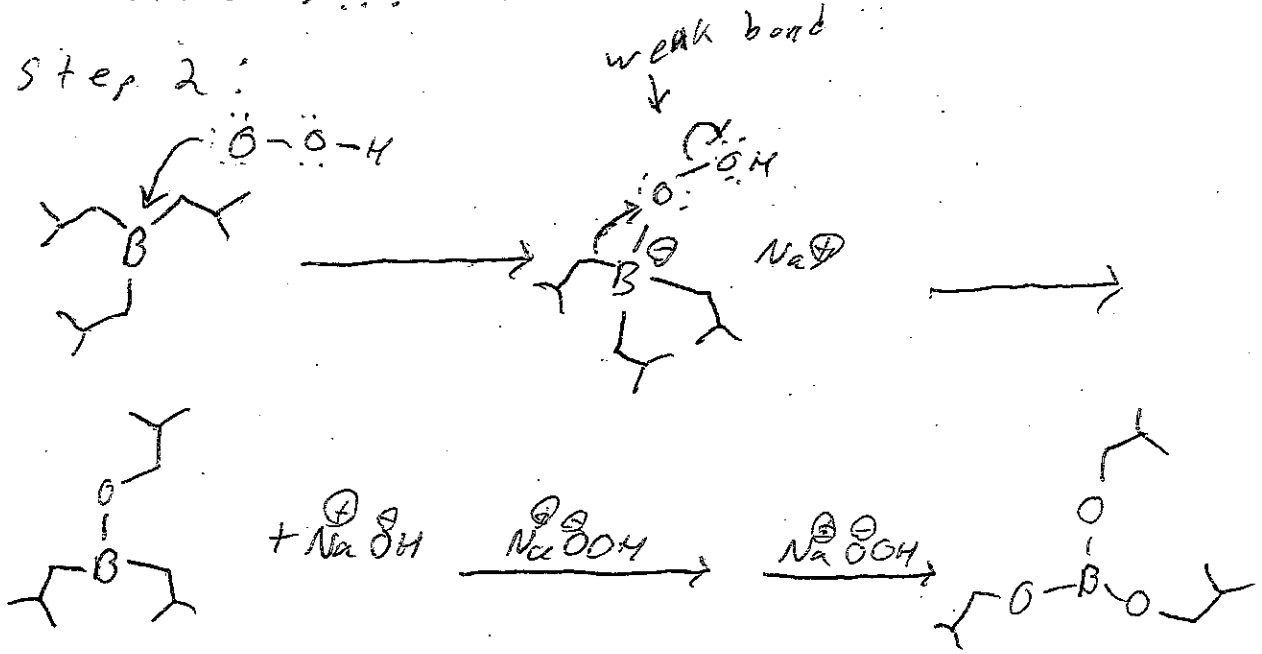
Hydroboration - oxidation

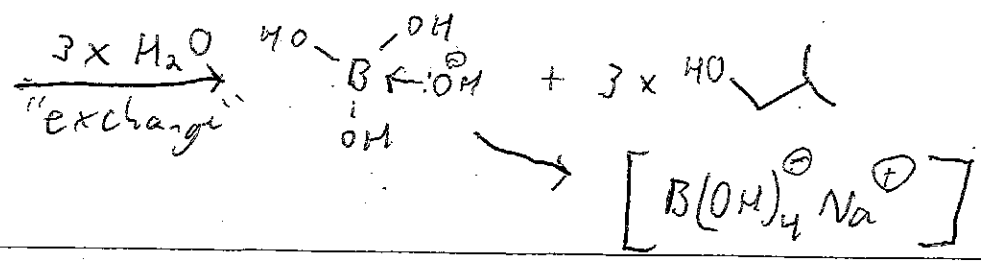


(anti-Markovnikov)

Mechanism...

Step 2:





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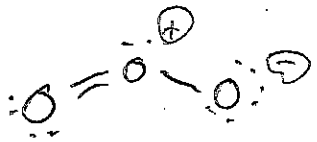
Ozonolysis of alkenes

O_3 ≡ ozone



2 aldehydes

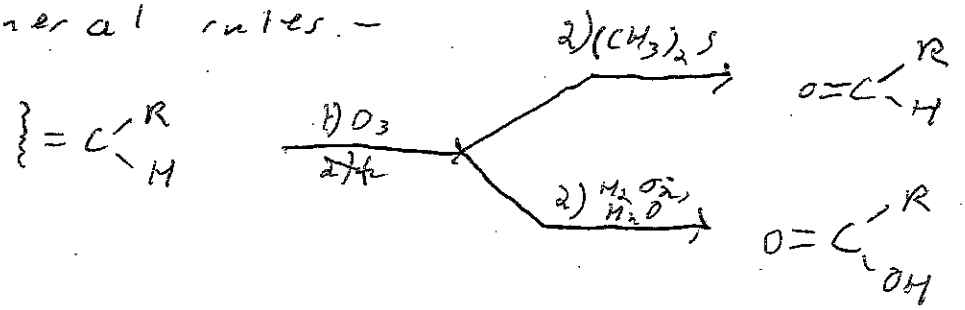
Ex: $CH_3-CH=CH-CH_2CH_3 \xrightarrow[2)(CH_3)_2S]{1)\ O_3} CH_3\overset{O}{\overset{\|}{C}}-H + H\overset{O}{\overset{\|}{C}}CH_2CH_3 + (CH_3)_2S=O$

$\left(H_3C-\ddot{S}-CH_3\right)$

Variation - provides different products

$CH_3-CH=CH-CH_2CH_3 \xrightarrow[2)\ H_2O_2,\ H_2O]{1)\ O_3} CH_3-\overset{O}{\overset{\|}{C}}-OH + HO\overset{O}{\overset{\|}{C}}-CH_2CH_3$

General rules -



If both substituents are alkyl (C), then products are ketones

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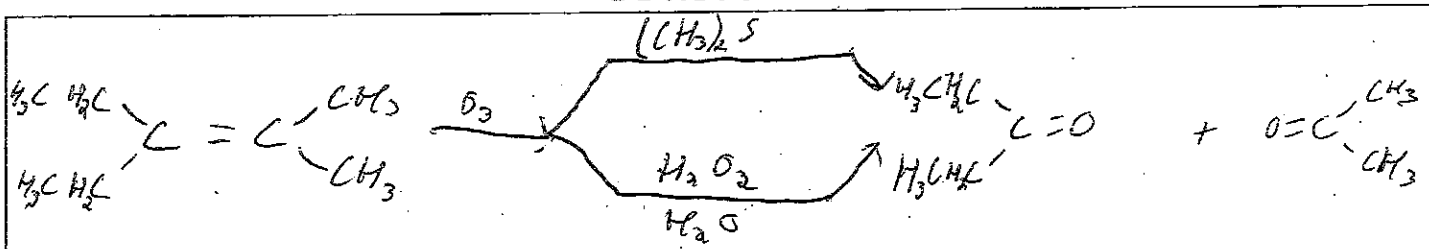
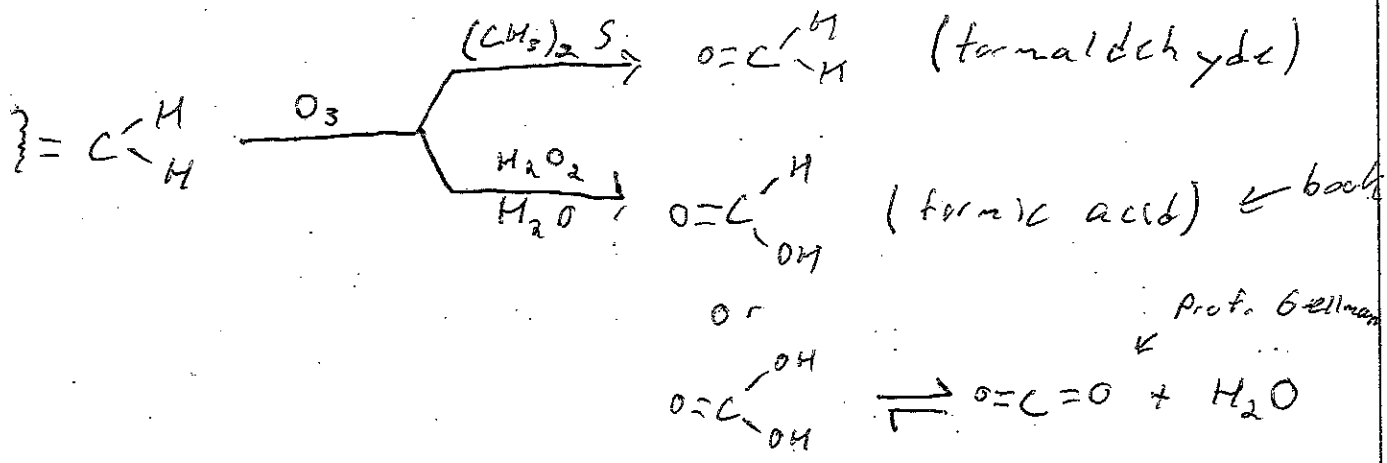
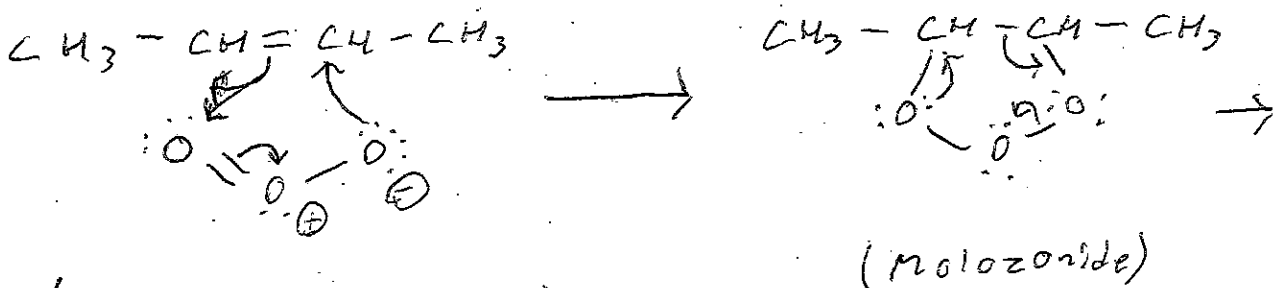


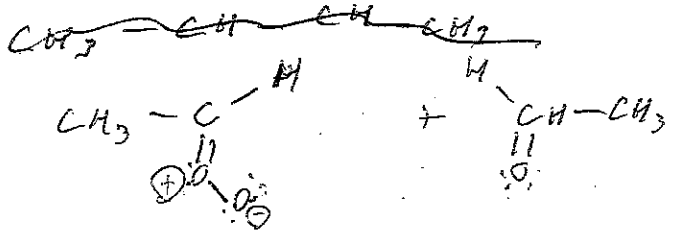


Mechanism



(concerted mechanism)

(molozonide)



(carbonyl oxide)

redraw next page

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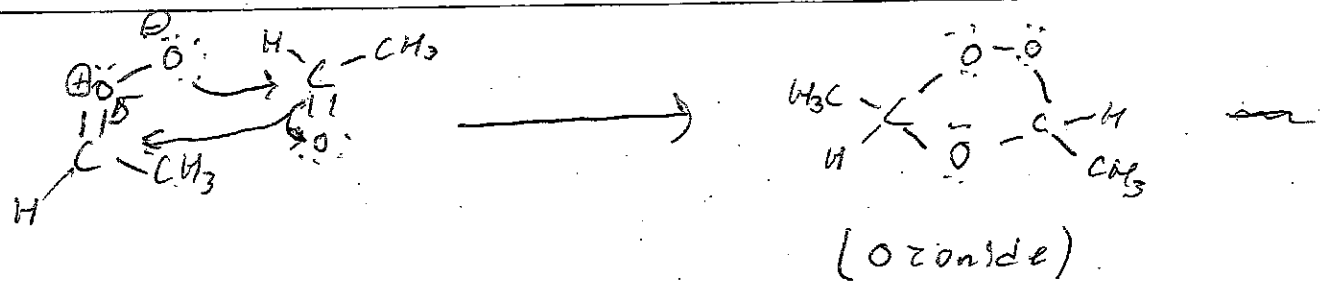


(ozonide)

add $(CH_3)S$

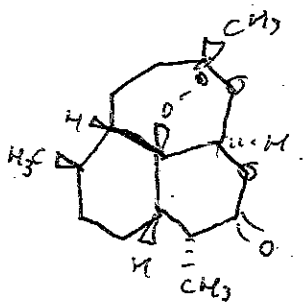
→ Final products

or

H_2O_2, H_2O

Ozonide and ozonide-like molecules as anti-malarial drugs.

Artemisinin:



not quite an ozonide, but very similar