

28 Jan 19 (1)

9 AM  
Monday

Where have we seen  
problems of unsteady state  
heat xfr?

- cooking griddle
- reboiler recharge (add cold material, reheat)
- grade change on paper line requires change in heat flux
- Exothermic rxn - manage heat flow in batch rxr

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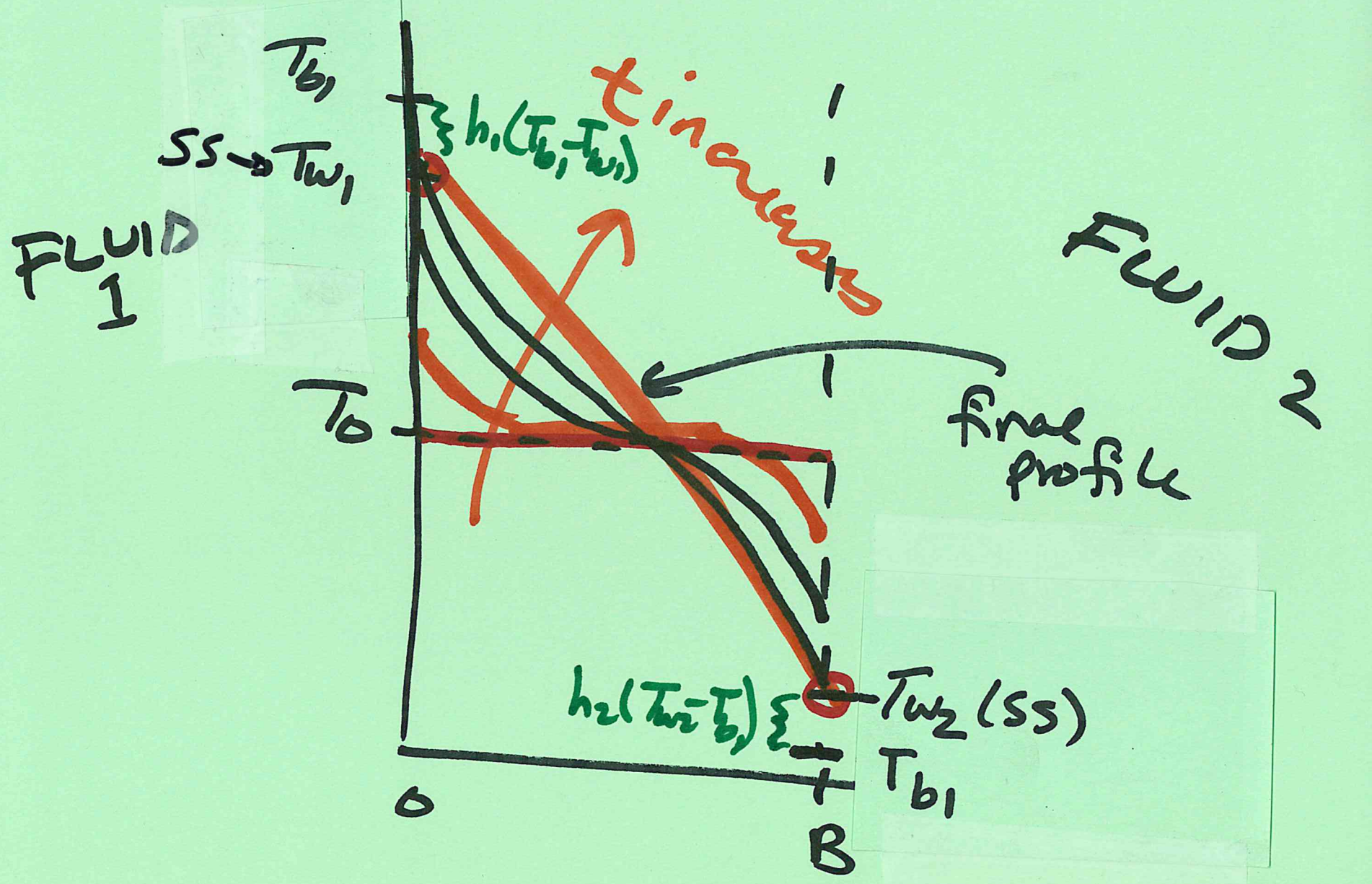
①6

What unsteady state  
heat xfer scenarios can we  
list?

- process start up
- solid particles wet need  
to be dried
- grilling in winter  
frying wings
- snowing in paper mill

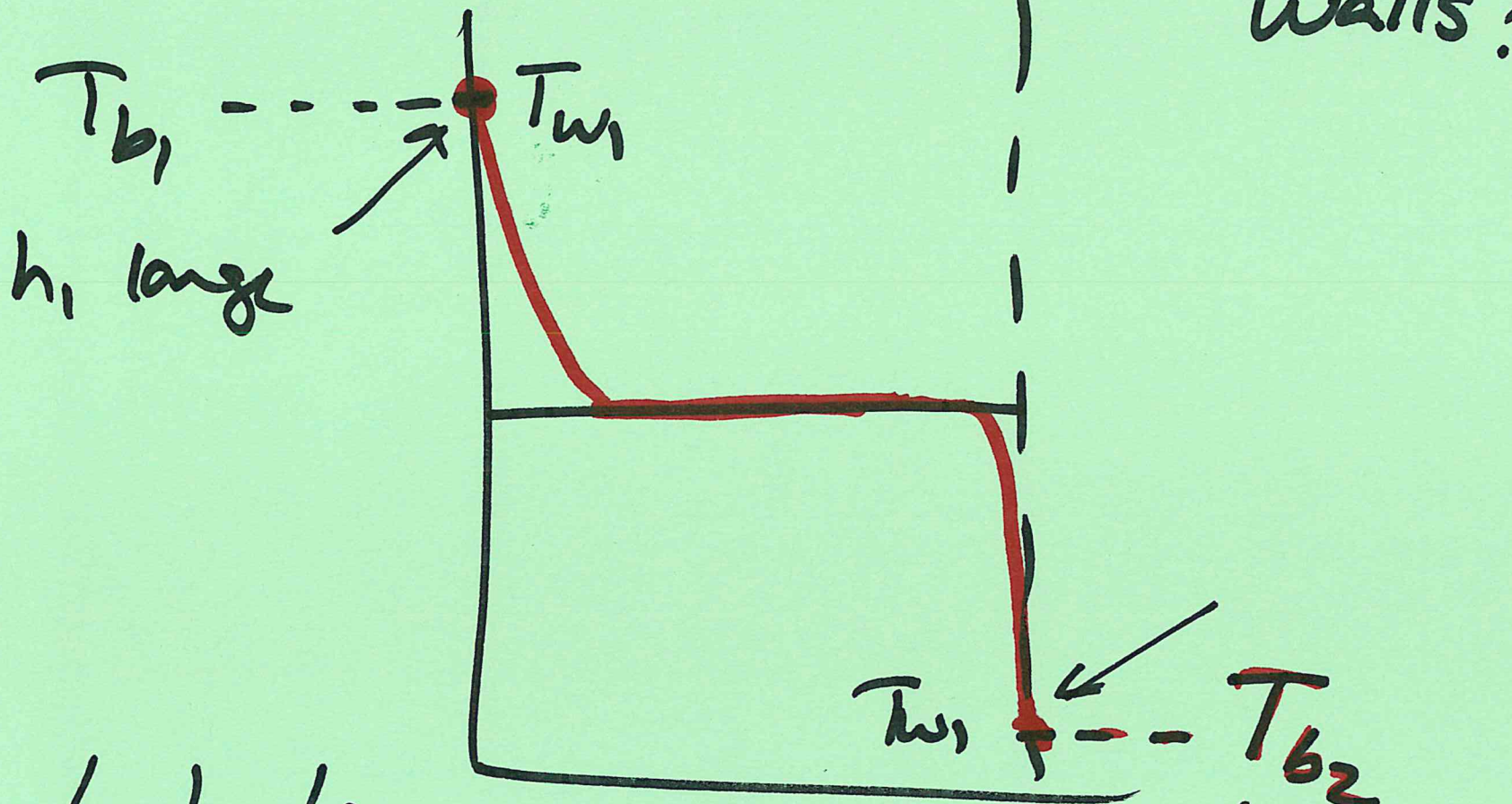


What would we guess for  $T(x)$ ? (2)





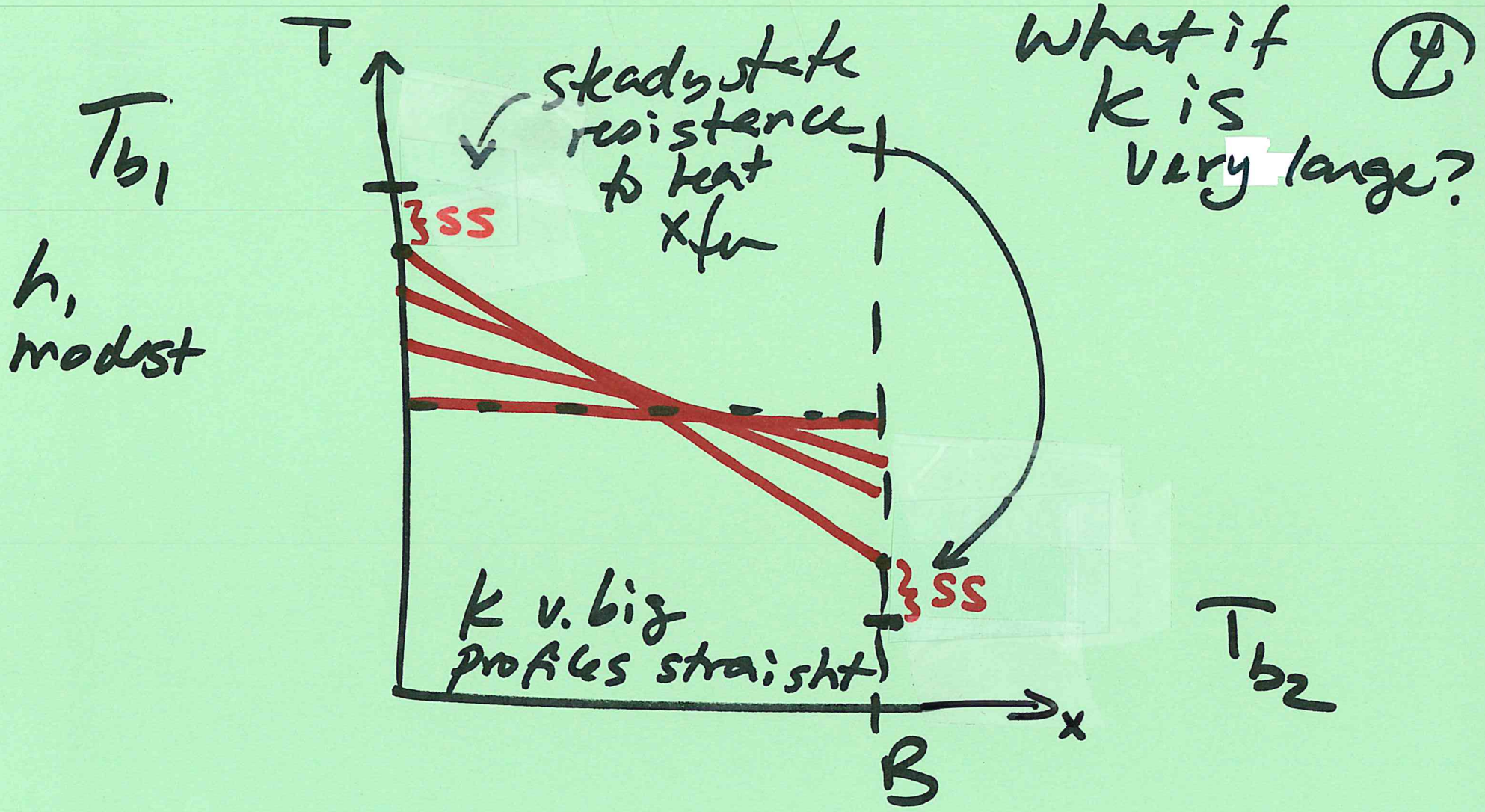
What if  $h \rightarrow \infty$  at both walls? (3)



$h_1, h_2$  big:

- No resistance to heat xfer from fluid to wall.
- The xfer within the slab (conduction) is rate controlling.





- $k \text{ big} \Rightarrow$  no internal resistance to heat xfer
- The xfer from fluid to wall is rate controlling. //