Anaerobic Pathways


Map
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Quebec
Minnesota
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Wisconsin
Michigan
Milwaukee
Chicago
Iowa
New York
Vermont
New Hampshire
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Connecticut
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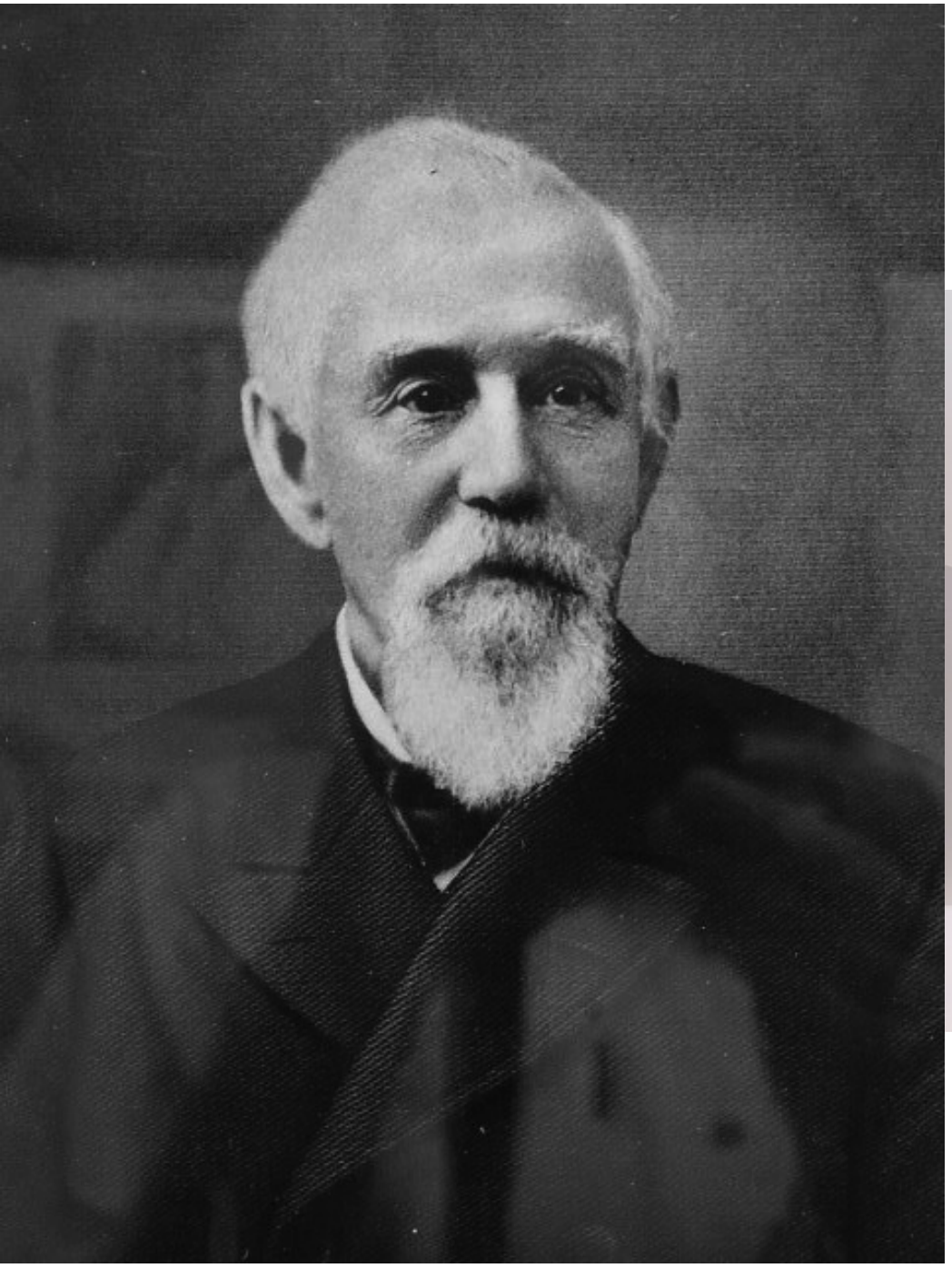
Mill St.
BEER
Plowman
Crazy Canuck
MALT




12
IMPORTED
Canadian Club
CLASSIC
AGED 12 YEARS
Canadian Whisky
HIRAM WALKER & SONS, LIMITED
40% alc./vol. 70 cl

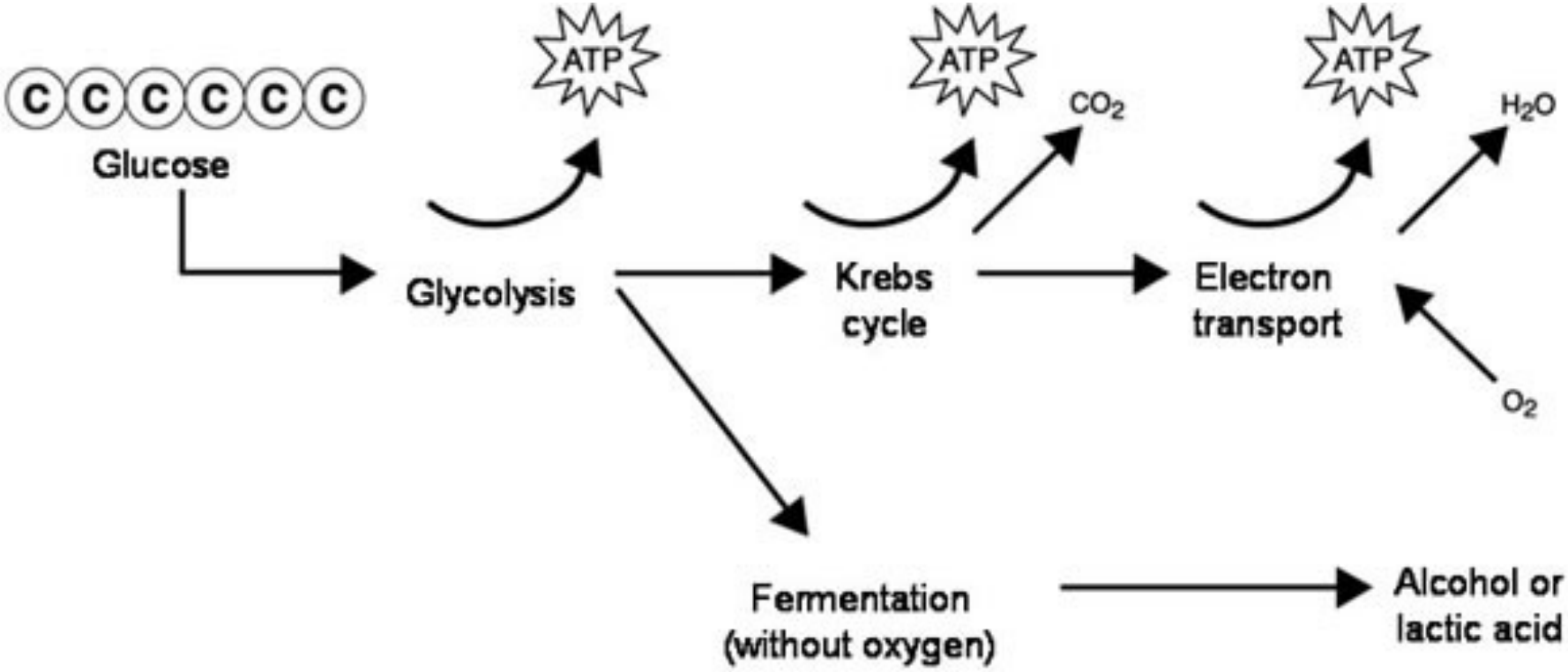

Detroit
Tecumseh
Windsor
Lakeshore
LaSalle
Essex
Amherstburg
Leamington
Kingsville
3
34


CREW

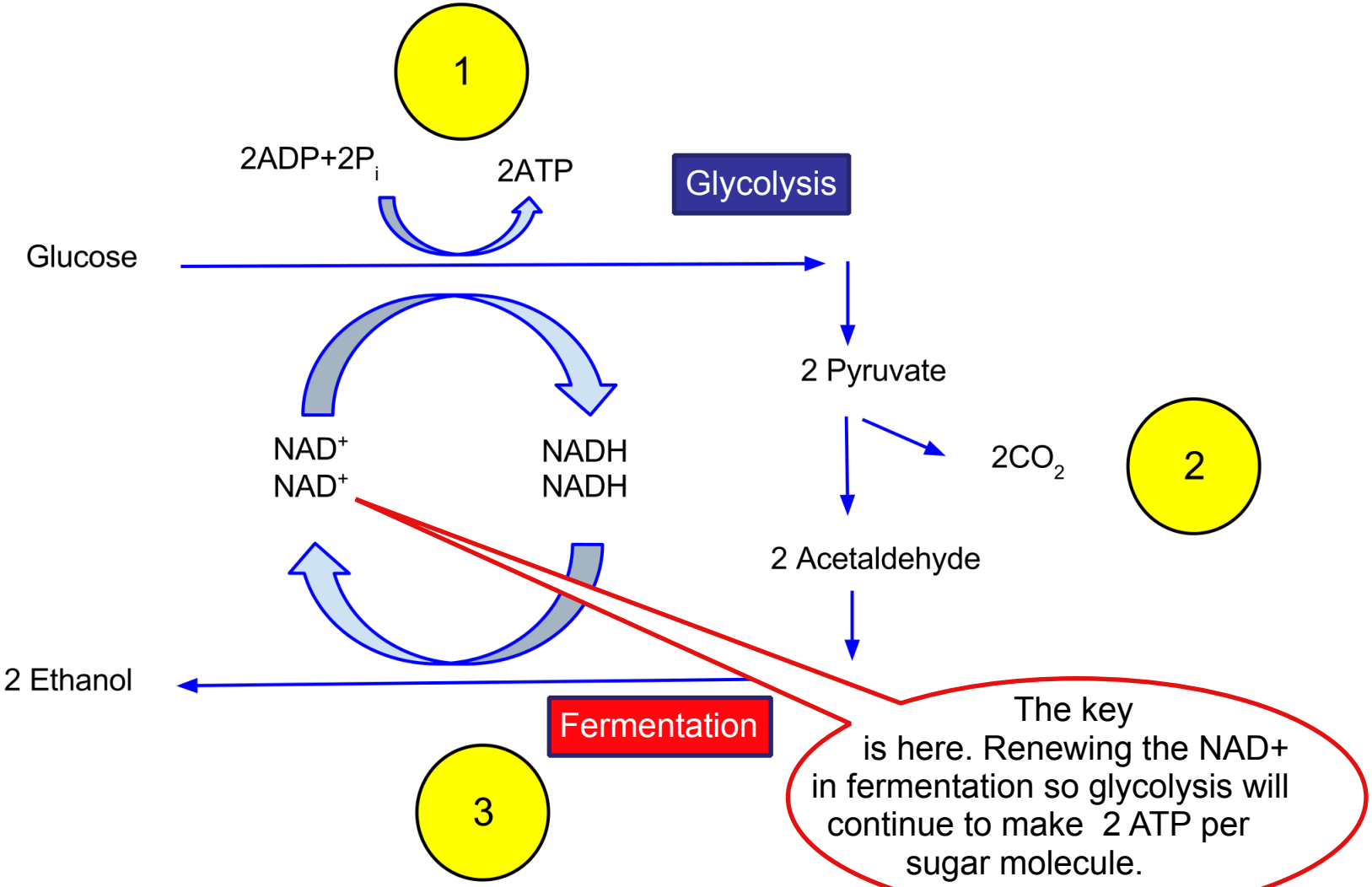

SONORAN
LIVING
LIVE

Remember. After glycolysis, pyruvate is oxidized in P.O., Krebs, and ETC. BUT on if O2 is present

If O2 is absent, *or if organisms are anaerobic—> then they ferment*



Alcohol Fermentation



Alcohol Fermentation Summary

•Cells that operate in the absence of O_2 will not progress along Oxidative respiration. Instead they choose to reduce pyruvate to alcohol and make CO2 waste gas

• The net gain is 2 ATP per sugar molecule gained during glycolysis

• the pyruvate molecule is reduced to alcohol

• <u>NADH is oxidized to regain NAD+</u>

-> This is ***Key since NAD+ is needed to maintain th glycolysis reaction

NET REACTION

Glucose + 2ADP + 2Pi —> 2 Ethanol + 2 CO_2 + 2ATP

(pyruvate + NADH —> Ethanol + CO_2 + NAD+)

» Question

1. What's the difference between fermentation and glycolysis?
2. Why do cells rely on fermentation rather than glycolysis alone?
3. Describe one advantage and one disadvantage have a species that is able to perform fermentation. How do the advantage and disadvantage influence the energy efficiency of the species and where the species can live?
4. a. Explain the aerobic pathway that is used to create a loaf of bread how does this pathway work?

   b. Named the two products of this fermentation and their role in the baking bread process.