

# Wheels up.



Jim Lane, October 2016

# Consider the wheel.



Is there a more fundamental and important technology?  
Transportation, manufacturing, clocks, controls — where  
we would we be without the wheel?



Jim Lane, October 2016

# Getting technology to market.



The wheel wasn't invented for transportation. Wheels were first used for pottery. They spun sideways.



Jim Lane, October 2016

# Patient investors.



It took 1,300 years before someone thought up rotating a wheel 90 degrees, and to use it to power a wagon or a chariot.



Jim Lane, October 2016

# Transportation as the killer app.



“Love that wheel. Let’s get the military to buy some first.”



Jim Lane, October 2016

# Drop-in please.



“Your wheel needs to be compatible with my horse.”



Jim Lane, October 2016

No price premium, thank you.

**EVERYDAY LOW  
PRICES**

“I’m not paying a darn cent more for your dang chariot.  
What do you want, a government hand-out?”



Jim Lane, October 2016

# Oh, my. New materials, anyone?



Bad news, we ran out of wood. Then bronze.



Jim Lane, October 2016



# Sorry you have supply chain issues.



Iron, great idea. Your problem figuring out how to get enough.



Jim Lane, October 2016

# Consider the whale.



Is there a more beloved mammal than the whale?  
Tourists come from all over the world to see them.



Jim Lane, October 2016

# The killer app.



Great looking animal. Let's kill some and make candles.



Jim Lane, October 2016

# Patient investors.



It took years before someone thought up using whale oil for lamps instead of whale blubber for candles.



Jim Lane, October 2016

# Supply chain crisis.



Thereafter, demand exploded. Soon, the world was running out of whales.



Jim Lane, October 2016

# Oh, my. New materials, anyone?



Eventually, a technology emerged to convert rock oil into kerosene.



Jim Lane, October 2016

# Drop-in please.



“Please don’t make me buy a different lamp, thank you.”



Jim Lane, October 2016

# Waste management crisis.



For every gallon of kerosene we made, we made 3 gallons of waste.



Jim Lane, October 2016



# Transportation as the killer app.



Finally, someone developed a use for a waste product from petroleum distillation called gasoline.



Jim Lane, October 2016

# No price premium, thank you.



Gasoline was priced at just 2 cents per gallon when introduced. The aim? To compete with the cost of feeding a horse.



Jim Lane, October 2016

# Sorry you have supply chain issues.

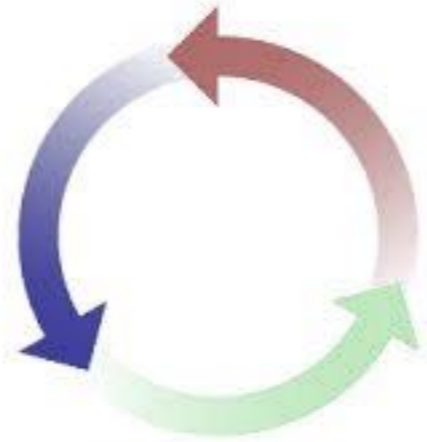


Demand skyrocketed, and oil industry officials thought the US would run out of oil by the 1960s.



Jim Lane, October 2016

# We've heard it all before.



The wheel turns, and we hear it again. Supply chain crisis. Oh, my. New materials, anyone? Drop-in please. No price premium. Transportation is the killer app.



Jim Lane, October 2016

# What makes people desire change?



Try these: “faster and farther.” Preferably both.



Jim Lane, October 2016

# Good news.



Biobased fuels take us faster and farther.



Jim Lane, October 2016

To excite people, make it a race.



The sprint. The world's oldest contest.



Jim Lane, October 2016

Races unite.



Race for the Moon.



Jim Lane, October 2016



# Races tap the power of emotion.



The thrill of bio-victory, the agony of petro-defeat.



Jim Lane, October 2016

# Make it a race.



For example, what about New York to Sydney, one jet type? Bio vs Petro.



Jim Lane, October 2016

# Master. Reach. Endure.

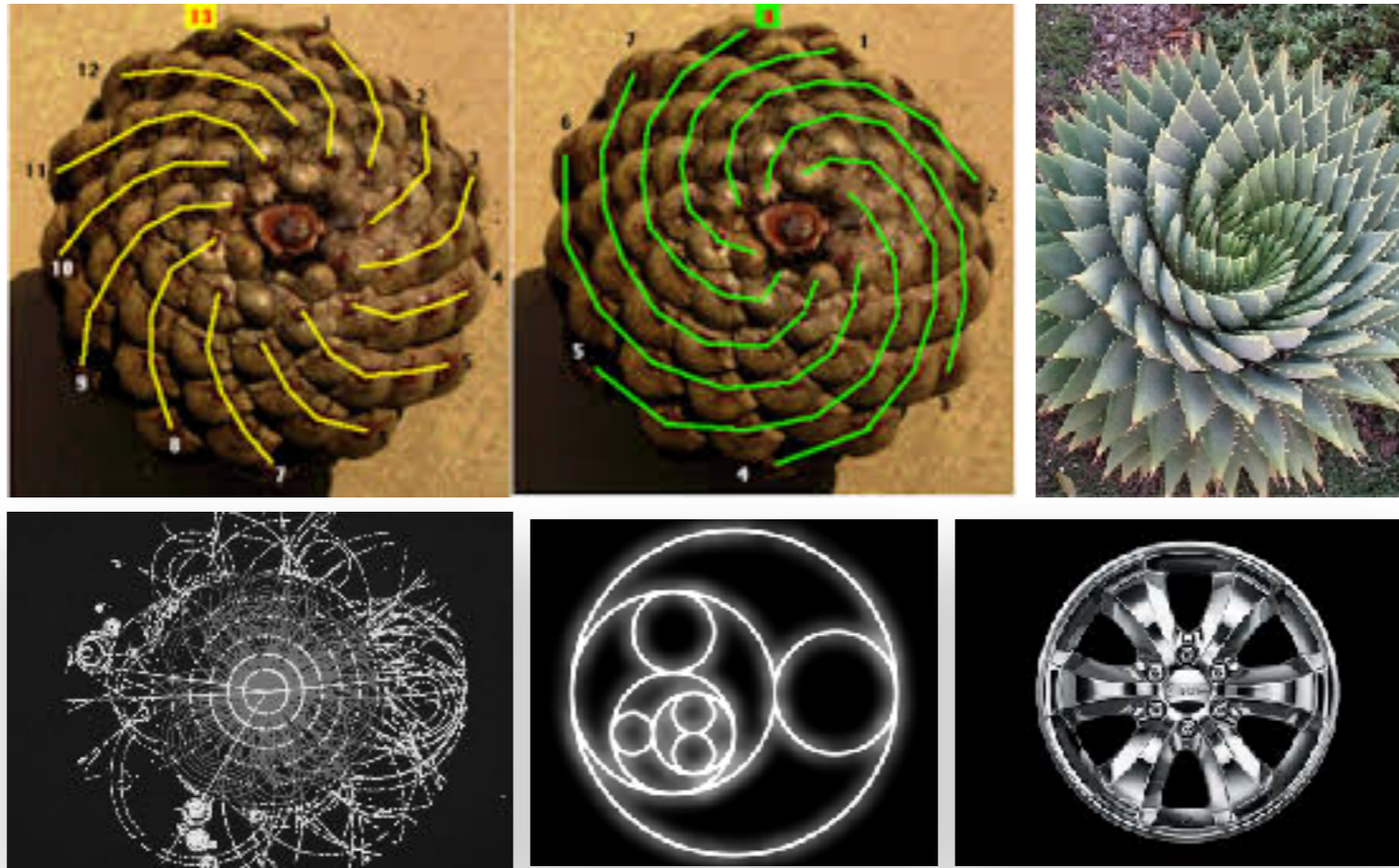


Be ready, aim high, stay the course.



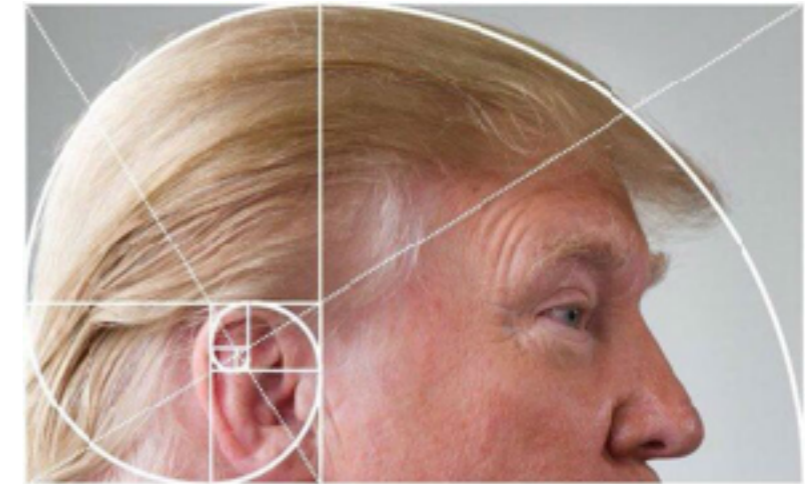
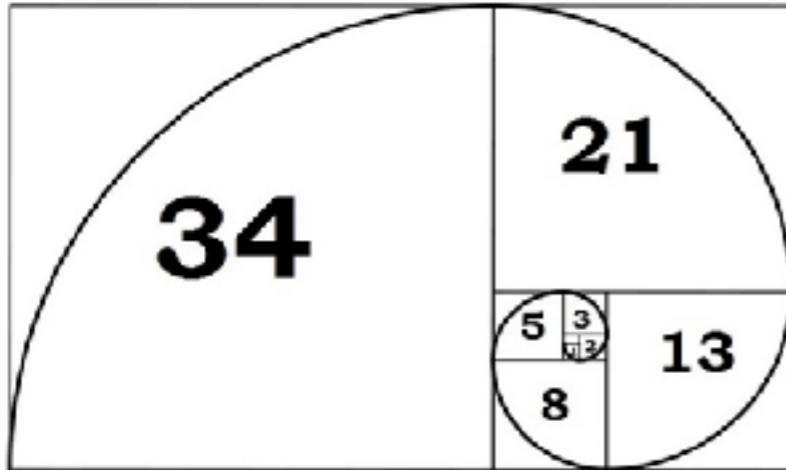
Jim Lane, October 2016

# It's all just a wheel.



Jim Lane, October 2016

# To everything, there is a season.



Jim Lane, October 2016

# Wheels up.



Jim Lane, October 2016