

Progress

Class 5 - Cities

Kevin A. Bryan - Toronto Rotman - Oct 15 2025

After class notes in Red

The idea of progress is logically equivalent to an implied disrespect of previous generations. As Carl Becker noted in a classic work written in the early 1930s, “a Philosopher could not grasp the modern idea of progress ... until he was willing to abandon ancestor worship, until he analyzed away his inferiority complex toward the past, and realized that his own generation was superior to any yet known”

Mokyr, A Culture of Growth

Congrats on the Nobel, Joel!

Mokyr quotes TS Eliot, about how someone claims we know more than the classics, and Eliot says, "yes, but they are what we know". Mokyr would def say they are useful to build on, as long as you believe you can improve on them! Student comments: "In most places in history, dissent was considered disrespect." Yes, this is Mokyr's point! "Respect should go from present to past and to future."



The Wagon Wheel

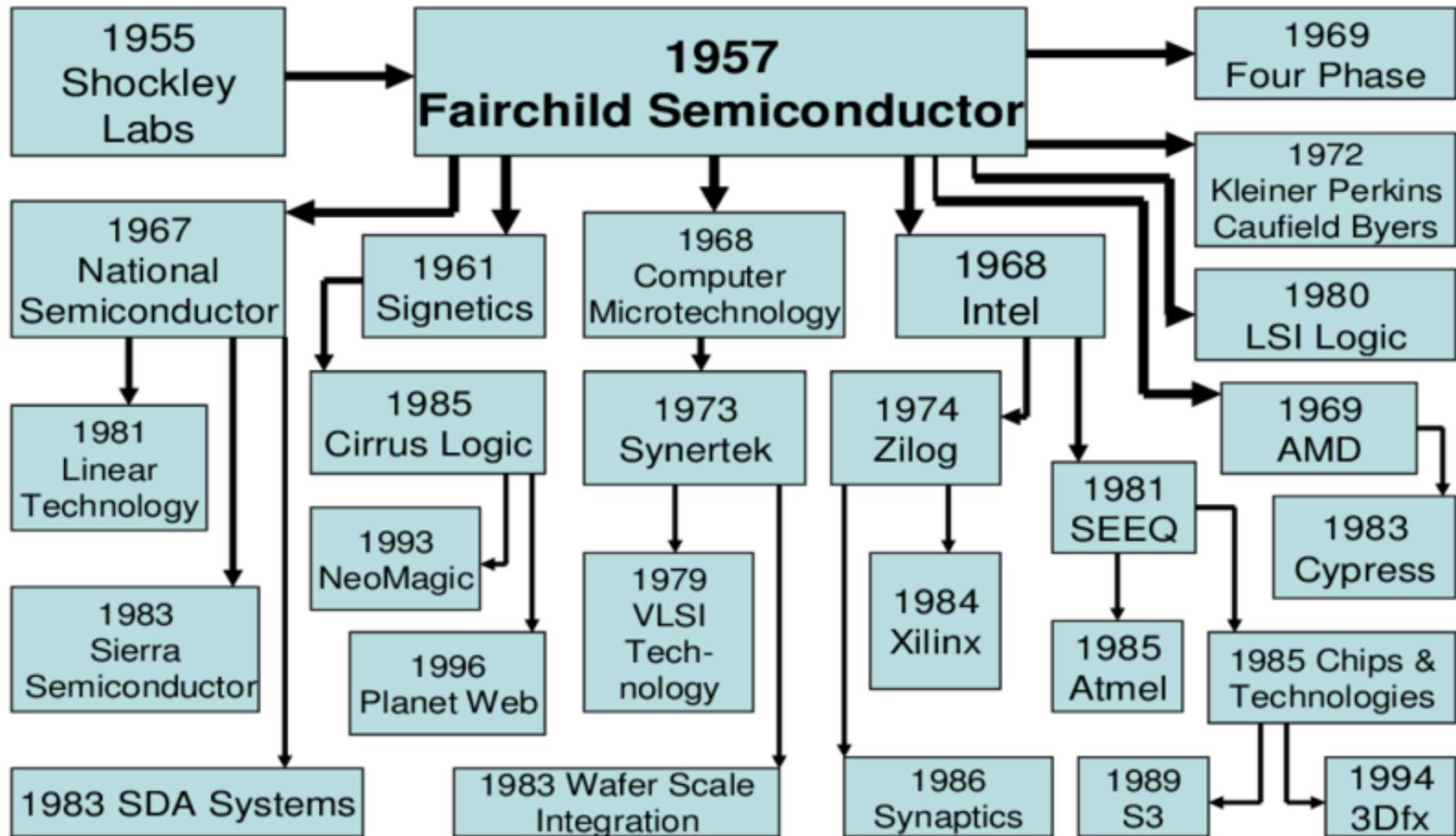


The Traitorous Eight

Why did all this happen in one place?

Consider Tom Wolfe's story of Bob Noyce. Small-town kid from Iowa. Why did he make Fairchild and Intel happen in Silicon Valley? Thick labor markets, thick input markets, shared geographical sources, knowledge spillovers at the bar, local customer demand, local culture affecting people? Which mattered the most? Which can be controlled by policy?

Even folks like Arthur Rock, one of the initial VCs, who handled Fairchild, Intel, Teledyne AND Apple! Still alive btw. And one of the traitorous eight was Kleiner of Kleiner Perkins fame.



"The defectors" as Tom Wolfe puts it make the "Fairchildren". Cities may really help when it lets you hire good people - and SV culture was that people move to new jobs. We'll return to the role of spinoffs later, but strong early strength in an industry + easy labor mobility = spinoffs + existing base of complements = more likely to succeed.



But see this wasteland. Where is this?

This is literally Sand Hill Road, the center of Silicon Valley and venture capital. It's scrubland next to one story buildings! There are millions of places like this - it's clearly not beautiful urbanism. Could this possibly be a "cities matter" situation? There's no city!

Three steps

- 1) **What is an agglomeration?**
- 2) Can you make an agglomeration?
- 3) Does that cause progress?



Humans are not at all distributed uniformly across space; economic activity even less uniformly distributed; economic activity within an industry even less so; innovation within an industry less yet!

POPULATION DENSITY MAP
CANADA

YELLOWKNIFE

VISUALISED BY @TERENCE@FOSSTODON.ORG/@RESEARCHREMORA
IN #RSTATS WITH RAYSHADER (@TYLERMORGANWALL)

KONTUR POPULATION 2022

VANCOUVER

EDMONTON

SASKATOON

CALGARY

REGINA

WINNIPEG

THUNDER BAY

ST. JOHN'S

QUÉBEC

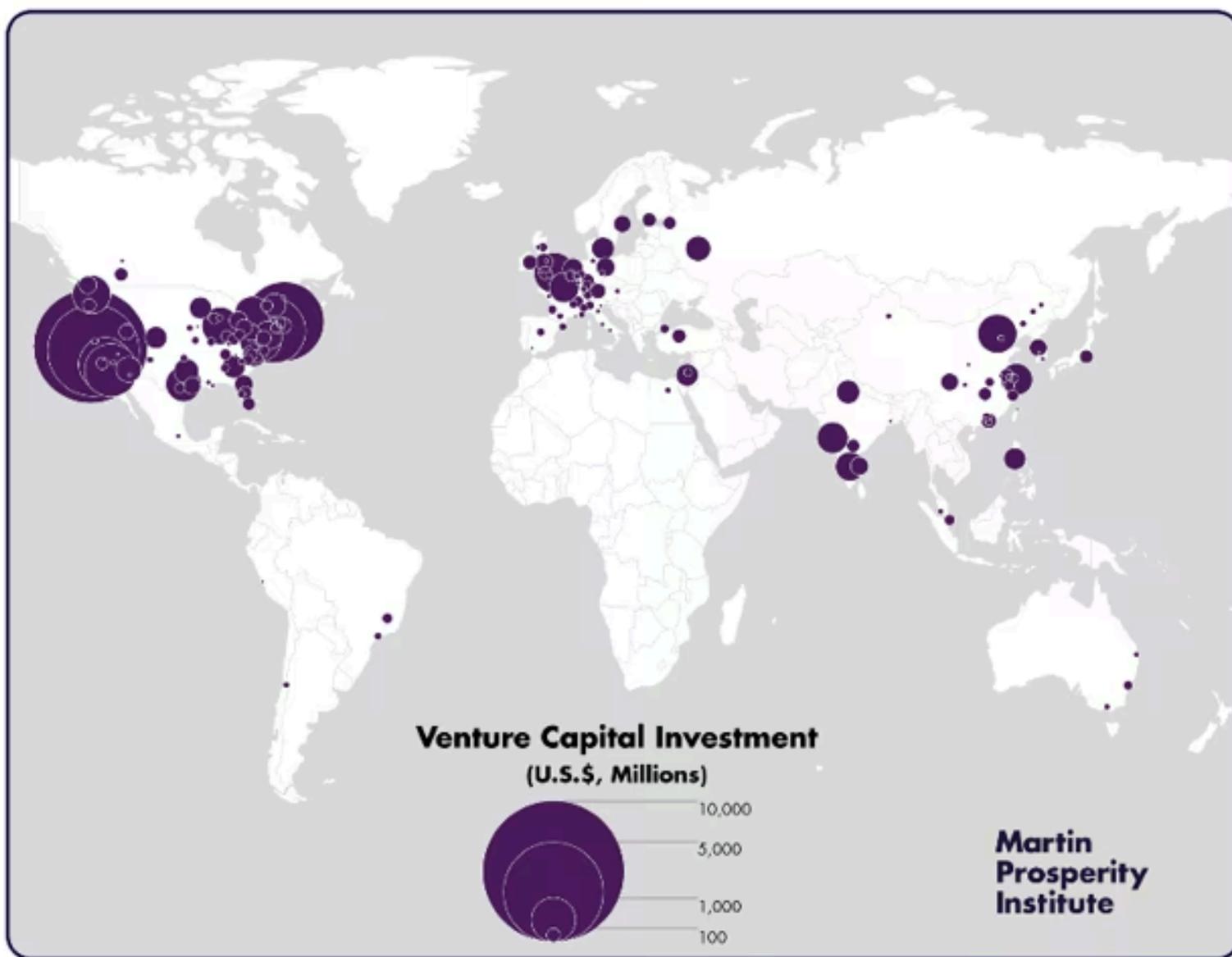
HALIFAX

MONTRÉAL

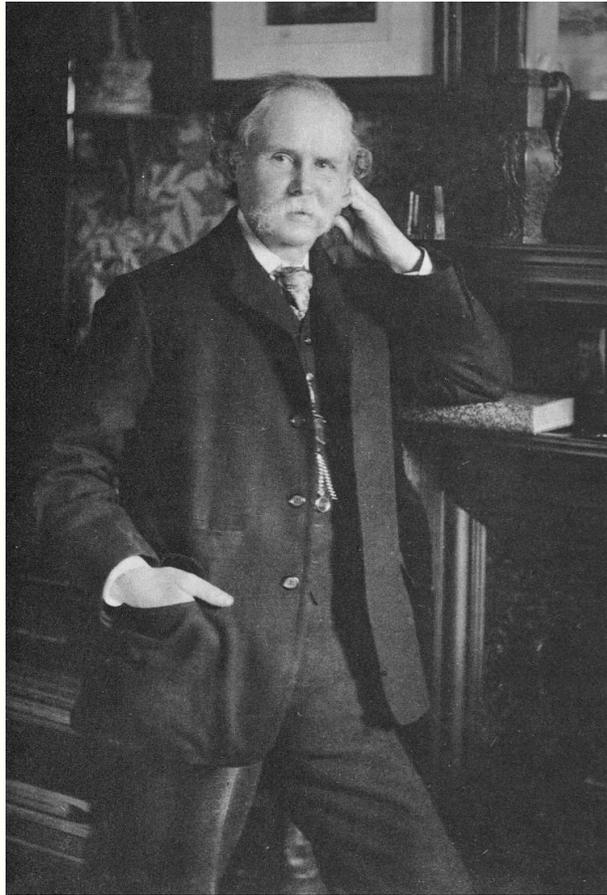
OTTAWA

TORONTO

Audretsch and Feldman (1996), among others, show that production of any good is more concentrated than population, and innovation is more concentrated yet.



2016 early stage venture capital, AI VC in 2025 EVEN MORE concentrated. Same is true of industries. By 2015, the San Francisco Bay Area accounted for more than 17% of all patented inventions (and over half of all venture capital investment), despite being about 2% of the U.S. population



Two theories of why cities might matter

Alfred Marshall and Jane Jacobs. Marshall (1890), three reasons: large, specialized labor pool that companies can draw from; specialized suppliers and customers that are located nearby, which reduces costs; and knowledge spillovers, where firms learn from the innovations and practices of their competitors located in close proximity. Jacobs argues for benefits of running into people in OTHER industries and hence informal knowledge spillovers - that is, moving people, goods, and ideas more cheaply.

Jacobs' idea seem to require CITIES. Third places. Impromptu interactions. Ellison et al AER 2010 finds evidence for each of the Marshall effects, and Duranton Puga "Nursery Cities" for Jacobs effects for young firms.

Even if no externalities:

Economies of scale in production +

Low transport costs to sell final good +

Most work in areas with 'linkages' =

Bigger cities get bigger (Krugman)

Caveat: until congestion gets too bad, so different industries spread out, and perhaps 'nursery cities' specialize in Jacobs

So the existence of cities is not just that cities come from positive externalities (e.g., I do research and some of the benefits spill over to nearby firms, though of course this is real also!). Krugman's famous result is that economic activity happens in cities when we produce things that are expensive to transport and which have economies of scale and where most people work in industries where upstream and downstream transport of goods matters. In that case, bigness is self-reinforcing for city. Of course, if you add multiple industries to Krugman, you can get them specializing in different cities, and if you take Jacobs "do interesting new things" as an industry, you can cities that specialize in startups (see my "Entrepreneurial Migration" paper for some empirical data on this).

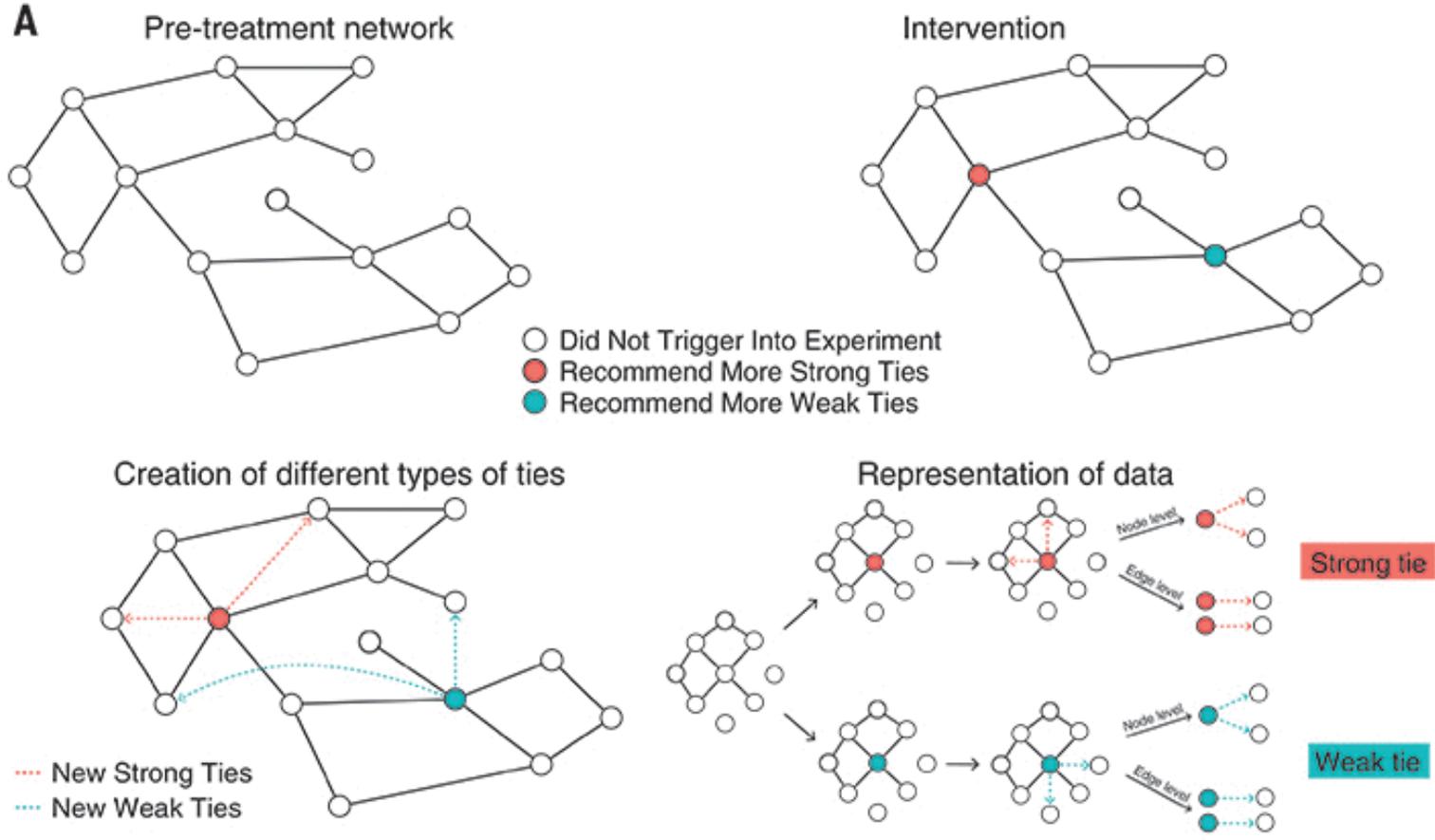


But how important is this?

This is "CAForever" plan for a new good urbanism city near SF. Beautiful. Would love to live here. Not really sure how important any of these urban design features are - even for Jacobs, where impromptu meetings between people in different industries generate ideas: are we sure this can't happen at the Wagon Wheel bar in Silicon Valley just as easily?

Three steps

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B

2015 Experiment						
Experiment Variant	1	2	3	4	5	6
Number of I Inits	195,712	1,464,710	1,455,554	73,704	388,154	73,691

LinkedIn experiment, randomly suggest two folks as friends, vary how far they are from each other's current network, look at whether they become coworkers. This is based on Granovetter - weak ties let you access new parts of a network that you tightly clustered friends do not help you access. And we see this in data: suggest a new friend that is a moderately weak tie, marginal change in probability the two now-tied people work together in the future goes up. Wild study!

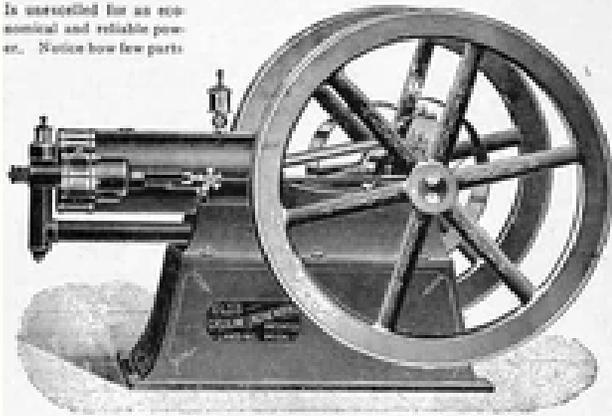


Regional clusters instead of subsidize best R&D proposal

Instead of just giving grants to the best idea (an academic project, a startup you are subsidizing in the tax code, etc.), subsidize ideas/new firms that help kickstart an agglomeration .But can you do this? US, UK, Canada, China, EU etc all trying policies like this. Lerner's Boulevard of Broken Dreams suggests the problem!

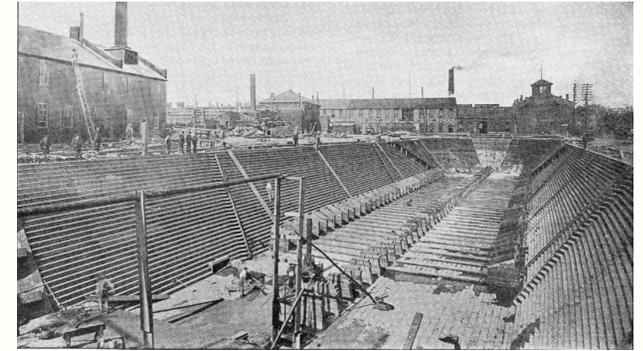
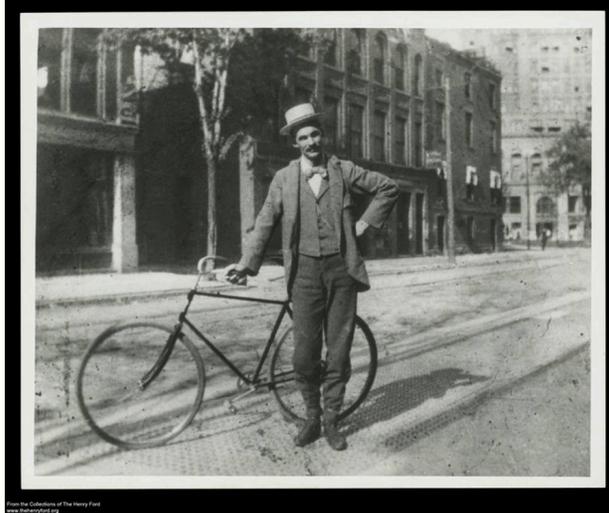
THE "OLDS" GASOLINE ENGINE

Is unequalled for an economical and reliable power. Notice how few parts.



Write for Catalogue.

OLDS MOTOR WORKS, 1316 Jefferson Avenue, Detroit, Mich.
BRANCH AT OMAHA, NEB.



Ransom Olds

Leland (Cadillac)

Henry Ford

Small engines, bicycle parts, ship engines. All in Detroit!

Any surprise you get an automobile agglomeration when you have major industries in carriage production, small engines, boat engines, and bicycles in the late 1800s in Detroit? We see the Oldsmobile, Cadillac and Ford founders, three of the big early auto companies, in those fields! There were car companies all over in early 1900s. Detroit got the industry because of the labor inputs and complementary goods already there...

Where things go wrong 1:

Does government know *what* to do?



Ok, you want to try to create an agglomeration. Do you know what you should do? French "dirigisme" policies in 1981 under Mitterrand have govt take control of a number of computer and technology companies like Bull, and have many smaller companies get merged in. This does not lead to a great success - Bull loses 3/4 of their employees over next few years!

Why did French nuclear power plant policy, or even the creation of the Airbus-driven aerospace cluster in Toulouse, work, but not Bull? Invest lots of capital + use govt to help secure deals overseas is within government competence + France already had nuclear expertise (via Ecole des Mines type training on big energy projects) + Toulouse area already had an aerospace industry a la Detroit's pre-car industry. But in very experimental, quickly-changing industry like early computers, the task for government to "pick winners" suffers from some very severe Hayek/James Scott type problems!

Where things go wrong 2: Does government get captured?



Consider the Google garage on the left to the MARS building on the right, an attempt to create a startup incubator. Latter was what Ontario govt chose. But perfectly competitive market for office rentals. Why spent 100s of millions on this when Google just needed a garage? Politicians cut ribbons, help incumbents, work with unions, etc. Their incentives are not always aligned with high-growth entrepreneurship - remember Mokyrr, progress sometimes requires disrespecting the past!

This may be a reason why you see NON cities do so well with new things - fewer incumbent sources of power constraining things. Dubai grows a ton - but it was a village in 1960! Note that center of Mideast economic progress is NOT Beirut or Baghdad or Muscat or Jeddah. The advantage those places had as "cities" were perhaps less important than what Dubai had as a "not city". See also Silicon Valley from earlier in these slides.

See also BITS Australia program (incubators get the money, not startups). Lots and lots of so-called "public choice" problems even if the government picks the right industry and right location.

Where things go wrong 3:
Can government create the cluster even if
competent and single-minded?

I pick the right location and industry. Can I make a cluster? Detroit is a good example. While it is true there are self-reinforcing loops when you have early traction in an industry ,then suppliers and complementors pop up, then labor moves there and gets skilled, and so on. But most government programs are WAY too small and spread out to be able to create this. Imagine you wanted the car industry in 1910 in Dallas or Halifax instead of Detroit. To *overcome* Detroit's advantage would have required a TON of investment.

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Note when Saxenian wrote, Boston/Route 128 was in trouble. Defense + mainframe computers were big industries!

Saxenian sees Route 128 as a failure of innovation when she was writing. But Boston is super rich now - the bottom picture is Moderna's HQ, GE's HQ, huge Vertex Pharma office, etc. Boston was first military tech like Raytheon -> minicomputers like Wang, DEC, Data General => Now, Vertex, GE, Moderna, etc. etc. - Route 128 is pharma capital of the world! Why? *Less* specialization was better. Just like a firm whose competitive advantage is based on going down a very steep learning curve, specialized cities cannot easily adapt to new things, to progress. Cities with high levels of education and industrial diversity adapt more easily - what you want for progress is a city that has few incumbent constraints on doing new things but enough talent to be able to generate a cluster on some new things. That's rare! Do any policies encourage this balance (maybe "well-funded deep science based universities?")

Are cities about *deepening* an industry a la
Marshall?

Or about unconventional pairing of new ideas, a
la Jacobs?

Which matters more for progress?

Cities do in fact accomplish the latter...but many are so specialized that they can't build on those new ideas.

Let's brainstorm: what urban policy (from benches in the park up to billion dollar real estate) is most likely to create progress by our definition?

So, a survey. You are asked by a friend (or policymaker!) "how important are cities to progress?"

Let's vote: 1-5, where 1 is "not at all" and 5 is "I imagine the most important factor we'll discuss this term". We'll keep track of these votes as we go!

Result: 2/5: 9, 3/5: 10, 4/5: 8. Average: 2.96/5. Why? Perhaps the counterexample of Silicon Valley thriving despite very little urban character is too much to make one thing cities are *necessary*. They still play a role, though! Marshall and Jacobs weren't wrong!

Due next week: term paper precis

Two pages, submitted on Quercus

Be **much more narrow** than you think you should be!

Only restriction: topic must be why some type of progress does or does not
happen

Keep in mind: must generate at least *one fact* someone knowledgeable in the field would find interesting. How? Get on the phone and go in the library stacks.

I will give you brief feedback next week.

Next Week

The 'Great Man (and Woman)' Theory

How much do specific individuals versus systems matter for progress?

