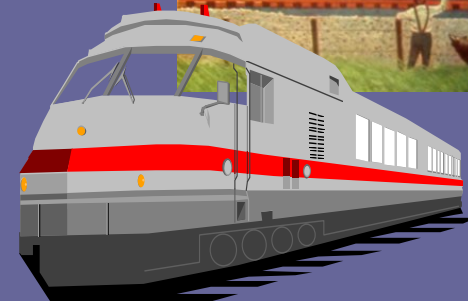
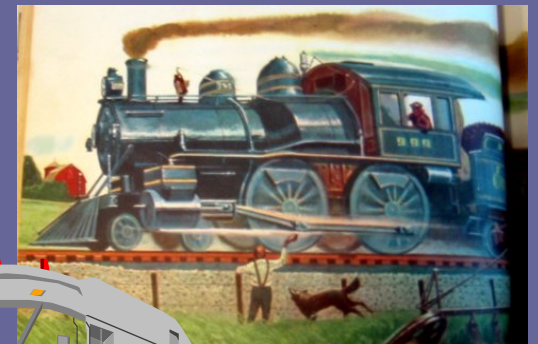
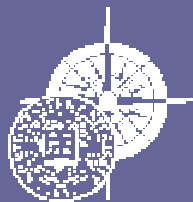


Enduring Enterprise: Development of the Railroads in the American Century

A Presentation to the Railroad
Program at the University of Illinois
Urbana-Champaign,

October 6, 2006

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and Robert E. Gallamore,
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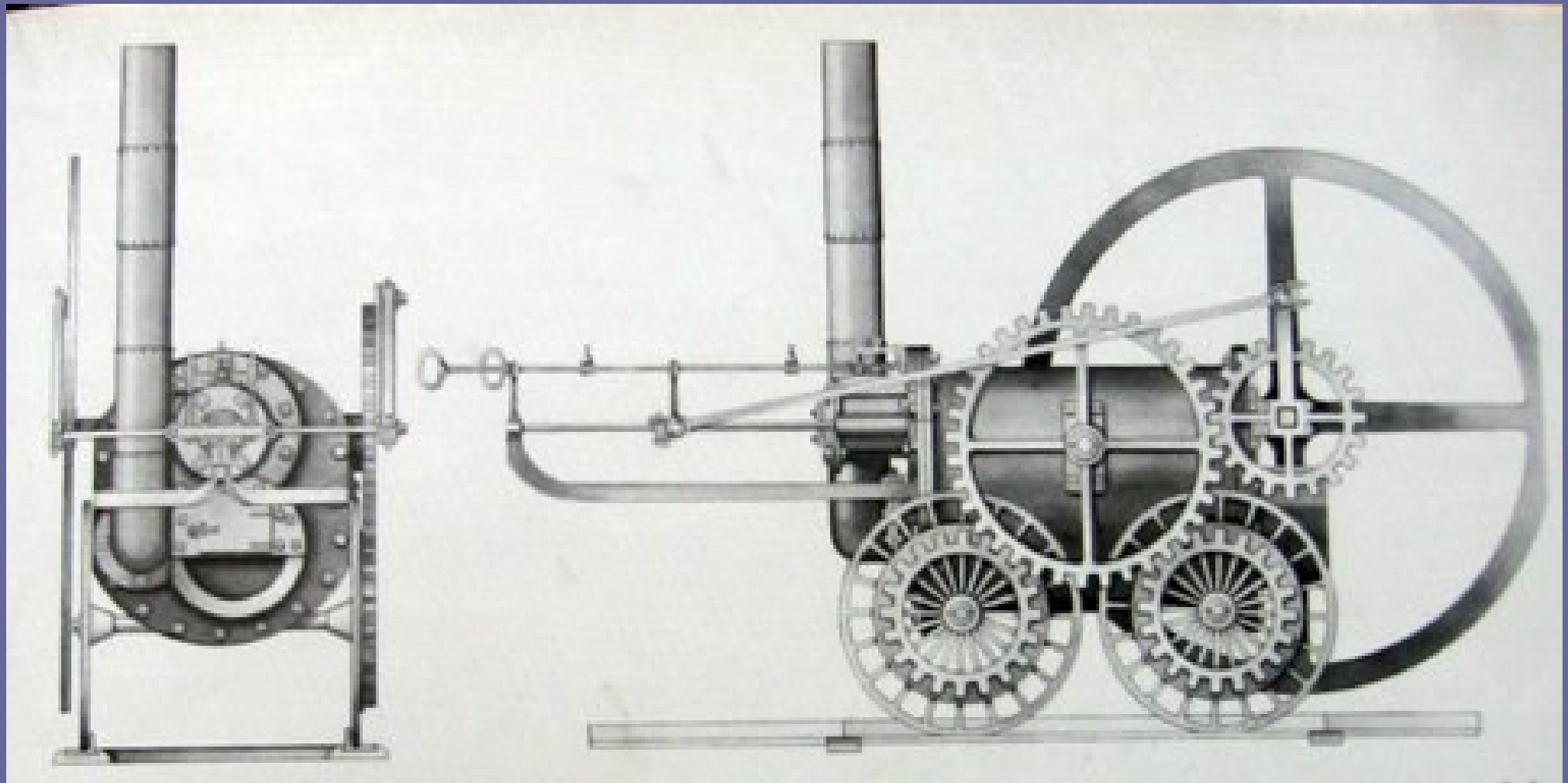
Who is John R. Meyer?

- **Harpel Professor of Capital Formation and Economic Growth, *Emeritus*, JFK School of Government, Harvard**
- **Lead author of seminal text, *The Economics of Competition in the Transportation Industries*, 1959, a landmark in econometric analysis and statistical costing**
- **Author of numerous books on subjects including telecommunications, urban transit, transport privatization, deregulation, capital formation, and passenger rail costing**
- **Subject of festschrift by his students, *Essays in Transportation Economics and Policy: a Handbook in Honor of John R. Meyer*, 1999 (in print: Brookings, \$29) – reference especially Ch. 1, “The Legacy of John R. Meyer”**
- **Former Vice Chair, Union Pacific Corporation, and member of the Board of Trustees, Conrail**
- **REG’s dissertation advisor, 1968.**

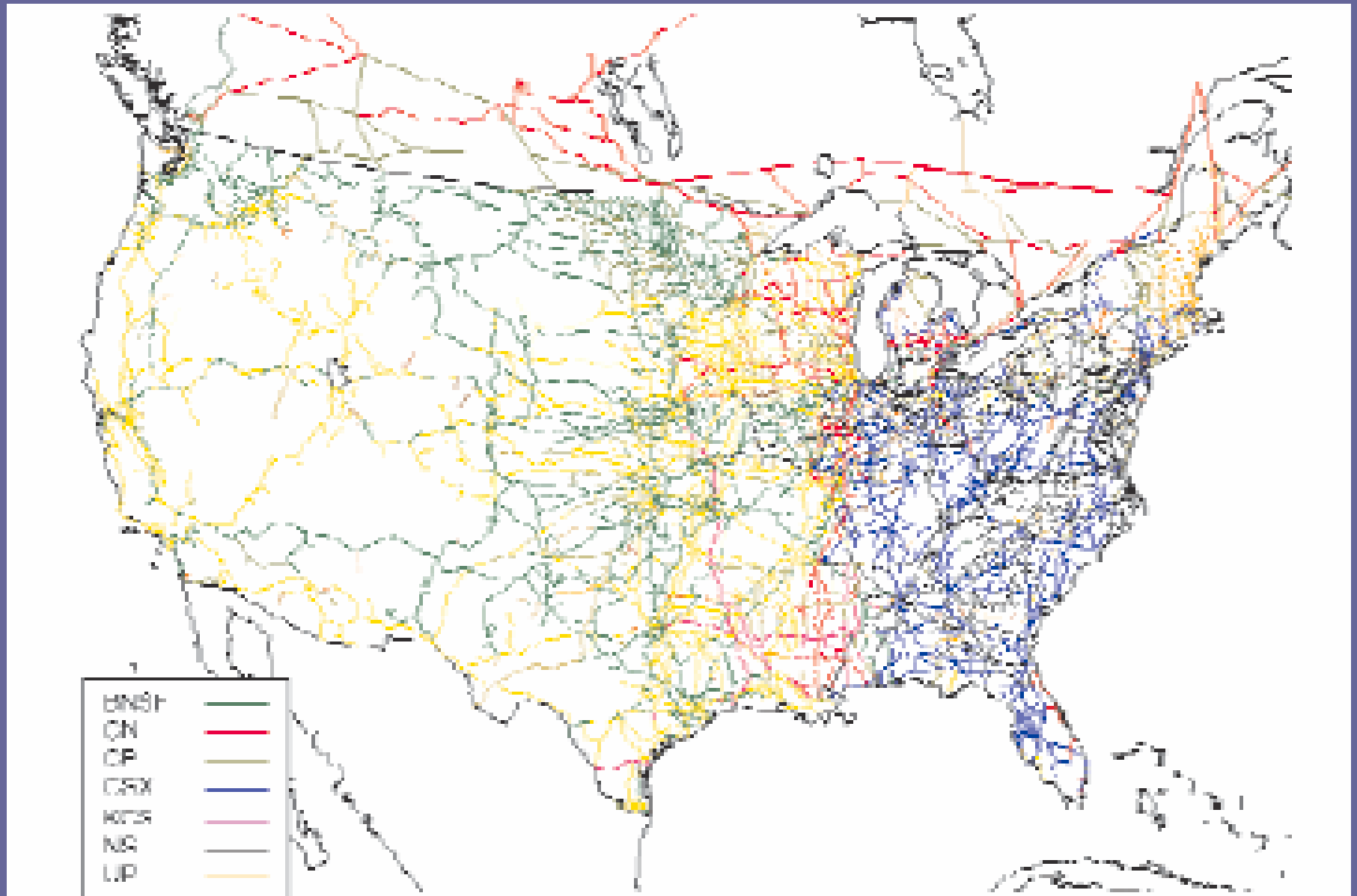
We Won't Go Back This Far!!

A Richard Trevithick Locomotive

***First Demonstration of Locomotive Traction with a Train,
at Pen-y-Darren, Glamorganshire (1804).***



*But We Want to Explain How This Venerable Industry Matured
and Survived through the 20th Century*



USA & Canada Class I Railroad Network

The Enduring Enterprise

This Title Because the Railroads Have Survived, More than they Have Prospered

- ***Part I.*** Big Government Confronts Big Business: {1880} - 1920
- ***Part II.*** Contrasts and Confusions in Transportation Regulatory and Promotional Policies: 1920 - 1940
- ***Part III.*** Coping with a Chaotic World: 1940 – 1960
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Antecedents of the Enduring Enterprise in the "Railroad Century" – the 1800s

- As the "Nation's First Big Business" (Chandler, 1965) railroads pioneered modern management and organization styles, but also were 1st to be regulated!
- **The Act to Regulate Commerce (1887)** – From the *Wabash* decision to the March of Sherman's Act – Populists' hatred of railroads
- **Kolko (1965)** thesis: RRs co-conspired in 1887 regulation
- Legacy of rigid rates led to many problems in 20th Century – including the irony of *Overbuilding* while *Underfunding* –
- Bankruptcies and Consolidations: Crash of 1893 and formation of large systems: PRR, NYC, B&O, SP, UP, ATSF, etc.
- **Some enduring technologies carry forward with the legacy:**
 - Winans radial bogies
 - Bessemer steel rail
 - Robinson track circuits
 - Walschaerts valve gear
 - Westinghouse air brakes
 - Janney automatic coupler
- As with standard gauge imposed in the Pacific Rail Act (1862), implementation of some of these was legislated as safety measures
- **Reflect:** Steam & steel (freight RRs) versus ICE & juice (passengers)

1900 – 1910: Fulminate Government Regulation of Railroads

- 1887 Act to Regulate Commerce weakly imposed before 1903 Elkins Act (rebating made a crime)
- 1906 Hepburn Act (ICC authority to set maximum rates)
- Martin, *Enterprise Denied* (1971), corrects Kolko's history – RRs liked anti-rebate law (revenue increased), not Hepburn's interference in setting rates.
- 1910 Mann-Elkins Act, put burden of proof on carrier to show increased rate is "just and reasonable" – Now RR managements get it for sure!
- First RR general rate increase – denied 1910. RRs "out-lawyered" by Lewis Brandeis – shamed RRs with "scientific management" onslaught
- Confusion over whether rates had actually risen or declined.
- Fishlow (1966) showed net RR productivity 30% gain 1890-1910 and 15% gain 1900-1910 – account, capital substitution for labor!
- 1904 *Northern Securities* case applied Sherman Act to RR consolidations, stopped merger wave, set stage to break up Hill and Harriman combines
- *Theodore Rex* dominated public knowledge of RR affairs for 15 years

1910 – 1920: Modern Problems

- Finding capital for improvements remains a challenge: rates capped and costs inflated
- 1916 = track mileage zenith, but capacity expansions!
- Example = E. H. Harriman straightening curves, building short-cuts and multiple track – but UP-SP-IC split eventually forced by U.S. government
- ICC, Populists thought stock “watered,” improvements should be from current revenues, not retained earnings
- **1910 – 1911 Hadley Commission: A “reasonable return” is one that attracts investment needed for RR development !**
- **ICC launched 15 year, >\$100 million Valuation Study in 1913 – result: real physical value very near book capitalization!**
- *Outlook* article prescient re R/TM & “mix” issue
- **Rate-basis remains value-of-service with rate classification**
- **World War I – government takeover of operations with McAdoo’s U.S. Railway Association; economies of scale?**

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1920 – 1930: Federal Ownership Averted

- WW I exposed problems in network structure and operational efficiency; confusion over competition vs. consolidation, line ownership vs. car management
- Unique U.S. Constitutional preference for private enterprise prevailed over nationalization as in rest-of-world
- Was ICC (Prouty) Valuation Study really designed to estimate cost of nationalizing railroads?
- RRs taken out from under anti-trust laws by 1920 Transportation Act
 - The 1920 Act, ironically, sought “RR consolidation into a limited number of systems.” ICC hired Harvard professor Wm Z. Ripley to create a plan.
 - Many tries at plan failed – weak vs. strong roads problem
 - ICC finally adopted a plan, begged relief, and got it after 1929 Crash
- Value-of-service ratemaking used by ICC to cross-subsidize poorly located regions, shippers, agriculture
- Agriculture rate subsidy = Hoch-Smith Resolution (1925)
- Rise of new competition to RRs with Good Roads Movement and air-mail subsidies

1930 – 1940: The Great Depression

- The economy needs railroads; RRs need an economy
{Economic historians' debate about the 19th Century: Fogel (1964) = RRs consumed less iron, steel, and coal than supposed, and transcontinental investment was premature – brilliant but mystifying}
- **1933 Act repealed 1920 call for RR consolidation, set up Eastman as Federal coordinator**
- **Bankruptcies swept industry nonetheless**
- **Rise of trucking industry – regulated (1935) on RR pattern**
- **Bright spot in decade of the 1930s for RRs = GM EMD diesel-electric locomotive (covered wagon) demonstrations**
- **Proved advantages over steam: non-slip traction, long non-stop running, lower maintenance cost**
- **Also, advent of light-weight streamliners for passengers**
- **But WW II coming, and War Production Board wanted diesel engines, and oil fuel, for landing craft and tanks**

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1940 – 1950: WW II and Integration of the American Economy

- **Transportation Act of 1940 set “Inherent Advantages” criterion for ICC resolution of cross-modal conflicts – “A law written by idiots, signifying nothing sound, but full of wasted fury...”**
- **World War II dominated all aspects of the times, RRs included**
 - **Taught us *Logistics*, America’s diamond in the rough**
 - **Brought *Science and Technology* to the front – synthetic chemistry, advanced materials, electronics, nuclear power**
 - **Built the *Aviation Industry* to young adulthood**
 - **Introduced USA to *Foreign Geography and Culture***
- **WW II RR stories made great movies, but tactical bombing of Axis rail facilities not the knock-out blow that strategic bombing became.**
- **Nonetheless, quote Ike on the advantage to D-Day invasion of bombing SNCF junctions supplying German Atlantic Wall.**
- **Biggest contribution of RRs to the Allied cause was in supporting North American industry, ag, troop moves to ports of embarkation.**
- **After the War, railroads reinvest in passenger equipment and rapidly dieselize – as a *system change* in operations.**

1950 – 1960: The Interstates – America Chooses Roads over Rails

- **General Eisenhower as President championed Interstates**
 - Returning servicemen had seen autobahns in Germany
 - America wanted big cars, suburbs, and freeways
 - Conservatives in Congress wanted low taxes, no deficit spending
 - But everyone wanted new (defense & commerce) highways *fast*
 - Compromise = “Pay-as-you-go” Highway Trust Fund, small gas tax, Federal (90-10) construction, states own and maintain
- **Interstates did for autos and trucks what railroads had a century earlier: made America a *continental* economy**
 - Regions and firms could specialize (Adam Smith’s division of labor) with inter-regional trading tariff-free, thanks to great transport
 - But Interstates paralleled railroads and took away much business
- **ICC did not understand consequences – couldn’t figure out if it wanted cost-based rates or ongoing rail “umbrella”**
- **Jet engine aircraft signals demise of long haul rail pax service**

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1960 – 1970: The Railroad Merger Decade

- Merger legal standard set in 1940 Act: Proposal must be in the “public interest,” assess impact on other railroads in the territory, protect labor, not increase “fixed charges.”
- 1960 Kennedy Transport Message, 1961 Doyle Report address RR problems.
- Merger wave began with N&W – Virginian (1959), 1st major merger since Northern Securities – a classic “parallel” merger
- Why? Use most favorable grades, save costs, not upset competitors. But, it effectively closed interchange to NYC for Pocahontas coal.
- ICC continued to favor parallel over end-to-end mergers (less impact on other railroads) despite reduction of competition and only modest cost savings, if any (REG dissertation - 1968).
- E.g. ICC rejected benign Frisco-Central of Georgia merger request; couldn't decide Rock Island division to UP and SP for 12 years.
- 1968 – pivotal Penn Central Merger, bankrupt in 2 years, pulling down others.
- *Ingot Molds (1968)* and *Big John* cases (along with Rock Island and PC fiascos) = nadir of ICC competence. Roused academics to promote reform.

1970 – 1980: The Northeast and Midwest Rail Crisis and the Beginning of Regulatory Reform

- 1970 – A young (1967) DOT proposes National Railroad Passenger Corp.
 - Goals: to relieve freight RRs of huge burden, test if national network with better incentives could work, avoid more expensive direct subsidy to operators
 - Judgment: succeeded in short run, but who expected it to endure as it has?
- **Northeast collapse:** Mr. Saunders goes to Washington, courts hold firm
- Council of Econ Advisers commissions RR Productivity Task Force under John Meyer; influential report catalogs industry ills, calls for ICC reform, promotes search for new technology, favors “de-Balkanizing” transcontinental mergers
- **1973 Regional Rail Reorganization (3R) Act sets up USRA planning process to stop erosion of the PC and other estates and develop System Plan**
- **1975 Preliminary and Final USRA System Plans, approved by 1976 Regional Reorganization and Regulatory Reform (4R) Act, create Conrail**
- 4R Act regulatory reforms (key author, John Snow) timid and undermined by ICC until arrival of Darius Gaskins.
- 4R Act commissioned FRA *Prospectus for Reform* = blueprint for Staggers Act
- **FRA works to help bankrupt (and nearly so) granger RRs avoid PC fate.**

1980 – 1990: Deregulation Saves the Industry

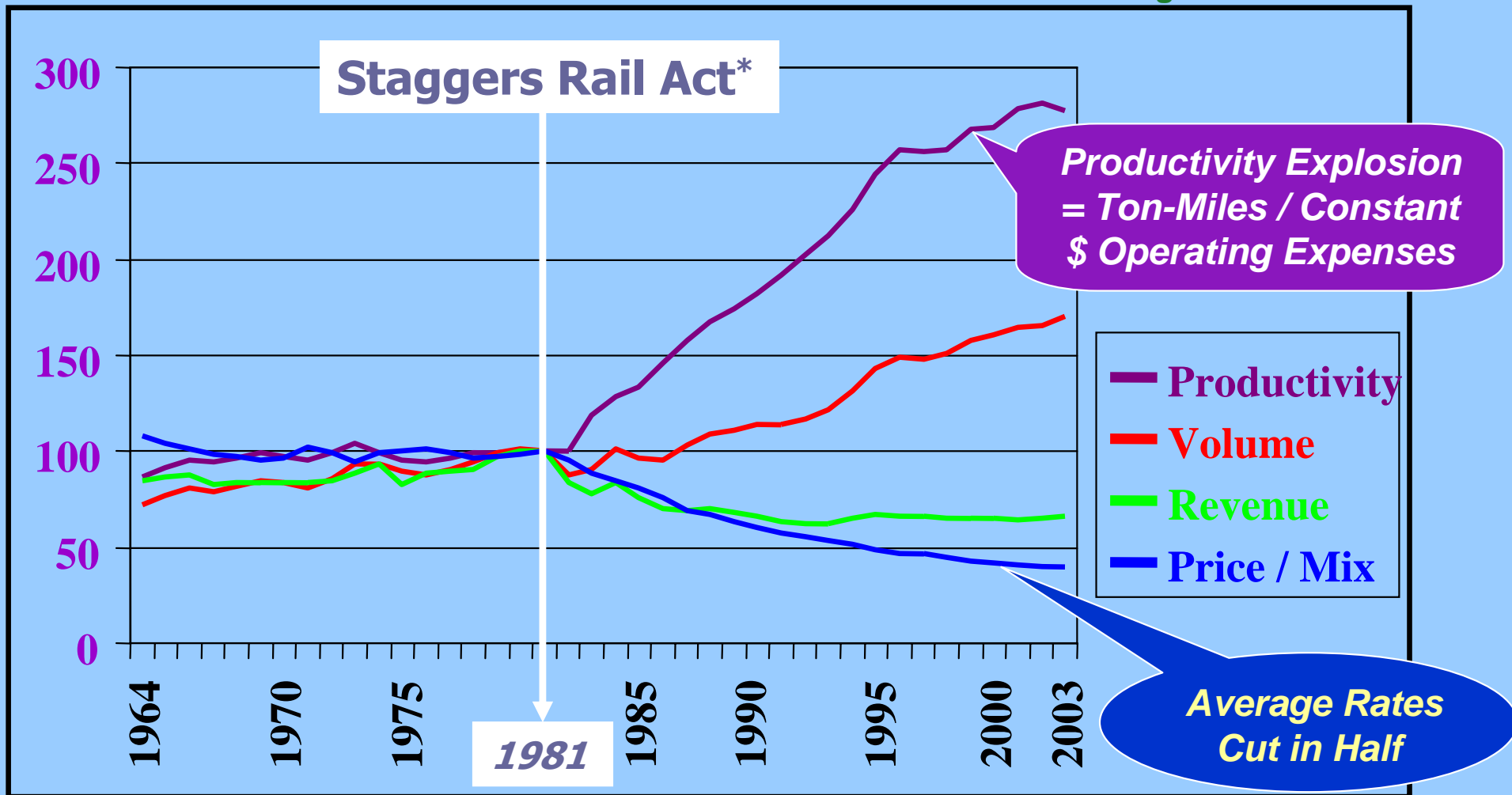
- 1980 – Passage of the Staggers Rail Act. Key Factors:
 - Rock Island (1975) and Milwaukee Road (1977) bankruptcies
 - **Carter Administration's reform agenda (also trucking and air)**
 - FRA analyses (*Prospectus, 1978*) pointed out flaws in 4R Act
 - Gaskins ICC non-statutory deregulation (exemptions and contracting)
 - Conrail losing \$1,000,000 / day. CEO Ed Jordan's advocacy.
- FRA appeal in Staggers: Let RRs be like other firms; markets regulate better than bureaucracies. Contracts are the secret, as interdependent negotiations can best reconcile supply and demand at fair levels of compensation.
- Proof of Staggers success is in the spaghetti. {Chart}



Performance of the American Railroad Industry 1964 – 2003

Constant Dollars Where Appropriate, Indexed to 1981 = 100

Data Source: AAR Fact Books. Chart Design: R.E. Gallamore



* The Staggers Rail Act was passed in 1980, but implementation did not begin until 1981.

1980 – 1990: Deregulation Saves the Industry, continued

- **Staggers deregulation also had strong beneficial effect on Safety and Innovation.** Financial success allows reinvestment in better track, locomotives, rolling stock, signal systems. With investment, new technology is deployed. New technology is safer and more productive. (REG, Festschrift Ch. 15)
- **Pall of Penn Central lifted from mergers – Big systems soon approved:**
 - CSX formed (1980) from Chessie System and Family Lines (ACL-SAL-L&N-RF&P-Clinchfield, etc.); CSX Transportation in 1986
 - N&W-Southern merger (1982)
 - UP-MP-WP merger (1982) counters BN-Frisco (1980)
- With NERSA (and Stan Crane) **Conrail turns profitable (1981) and goes public (1987) in largest IPO ever.**

1990 – 2000: A New Merger Wave Alters Railroad Industry Structure

- Result of post-Staggers merger wave is a rather unbalanced 3 Eastern and 4 Western roads structure, with several wild cards. NS makes a play for 5% of ATSF, scaring other roads.
- Corporate raiders hit CNW and ATSF; SP in trouble; Santa Fe buys SP, but ICC denies merger (1987). { Pique, yes, but competitive issues unresolved.}
- As with BN (GN-NP-CB&Q-SP&S, 1970) and BN-Frisco (1980) mergers, **BN** makes first strategic move in taking ATSF, and ICC gives approval (1995).
- UP responds with SP acquisition (1996), but fumbles implementation.
- CSX woos Conrail and almost succeeds; NS plays catch-up but takes larger share of Conrail divided with CSX (1998) – basically undoing Penn Central!
- Kansas City Southern surprises with winning bid for largest part of Mexico rail privatization, and emerges with a favorable position in next merger round.
- Canadian National goes from last to first in reputation in a decade.

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Ours Is a Story of Ironies

1. Government helped make the American railroads with land grants, but nearly extinguished them time after time.
2. The “inherent efficiency of the steel wheel on steel rail” can be learned in elementary physics, challenged in intermediate history, and disproved in advanced economics.
3. Railroads are thought to be old fashioned, militaristic, rigid. Sometimes true, but we reject the generalization. **Instead, railroads are the *Enduring Enterprise* because they have modernized with new investment and technologies, reorganized repeatedly, and shifted operations to match changing markets.**

Ours Is a Story of Ironies, cont.

4. **Railroads appear to be natural monopolies because they usually exhibit declining marginal costs (economies of scale and density) everywhere below average unit costs. But network economies are powerful; intermodal competition and congestion costs can turn the natural monopoly model on its head.**
5. **Regulation was thought to be necessary to curb railroad excesses, but the sins of regulators sent more adherents to economic hell than the abuses of rail barons.**
 - a. **Anti-rebating laws welcomed by the carriers; effectively raised rates!**
 - b. **Anti-bigness biases of TR, Taft, La Follette, Brandeis, and others thwarted logical development of the industry.**
6. ***Enduring Enterprise* says RR-as-natural-monopoly card overplayed, gimmicks like stand-alone costing test are still arbitrary and an expensive distraction.**
 - a. **“Captive” shippers are big boys; let them negotiate or invest in alternatives**
 - b. **Wrong of STB not to allow consideration of *Product* and *Geographic* competition..**

Ours Is a Story of Ironies, cont.

- 6. Government takeover in WW I was only necessary because market incentives for car management were either not understood or impossible under ICC interpretation of the law. And, RRs had to carry government traffic at 1/2 rates (paying off land grants).**
- 7. Nationalization of the railroads was narrowly averted because of the strength of the U.S. Constitution and the budget cost it would force.**
- 8. The Act of 1920 and ICC policy of planned consolidations into a few systems contradicted three decades of anti-trust policy; rather than fostering an optimal industry structure, the 1920 law was really intended to preserve weak roads at the expense of the strong.**

Ours Is a Story of Ironies, cont.

9. **The Act of 1940's National Transportation Policy for favoring modes based on their "inherent advantages" was inherently flawed.**
10. **The U.S. government historically has subsidized new modes at the expense of existing modes; this did not end with the Interstates, as Congress has not given up trying to stimulate magnetic levitation.**
11. **In the Northeast Rail Crisis, the most obvious culprits were ICC rate regulation and approval of the Penn Central merger (with full labor protection). Secular declines in the "Rust Belt", discriminatory state taxes, and the ongoing passenger burden, of course, also played key roles. With a streamlined Conrail, new management, and regulatory reform, recovery was remarkably swift and sure.**

Ours Is a Story of Ironies, cont.

12. Most observers thought “controlled transfer” of the bankrupt properties to solvent railroads was radical and naïve, but USRA actually proposed significant transfers in the System Plans; Chessie and N&W managers rejected the offers, foolishly, it turned out.
13. “Big Conrail” (with some \$8 billion of U.S. investment) subsequently turned into perhaps the most successful rail “monopoly” of all time. It soon was returned to the private sector for about 25¢ on the \$1⁰⁰, then later was split between NS and CSX for about \$2⁰⁰ on the \$1⁰⁰.
14. The 1970 Amtrak legislation and USRA System Plans (i.e. “dominant use” policy and designation of NEC to ATK) were appropriate. Congress got carried away, however; some \$30 billion in taxpayer costs was too much, and could have been better spent.

Ours Is a Story of Ironies, cont.

15. Amtrak's basic problem is poor asset utilization on long hauls; "national network" coverage was too ambitious, and should have been limited to most promising and needed corridors. The Reform Council's "glide path" was a hoax; Warrington's mortgaging the future was unwarranted.
16. Amtrak policy today should concentrate on acquiring and upgrading promising corridors with Federal \$; operations should be subsidized, if at all, through state compacts.
17. Advocates of "open access" for "captive shippers" misread the U.S. Constitution, the operational realities of modern railroading, the competitive alternatives provided by other modes and substitutes, the virtues of differential pricing, and the fact that little progress has been made in making regulatory rate-making any less arbitrary or more reasonable than it was when the ICC held full sway.

Ours Is a Story of Ironies

18. “Reasonable rates” are those that allow the enterprise to endure! {*cf.* Hadley Commission, 1911}

20. Unresolved, and still a subject of much confusion, is what would be the best standard for judging mergers.



#20 Continued: Resolving Policy Ambivalence over "Competition" vs. "Cost Economies"

	<i>Pro- Competitive</i>	<i>Pro- Cost-Efficiency</i>
<i>ICC / STB Merger Policy Traditional and New</i>		
<i>USRA System Plans for Conrail</i>		
<i>REG Conclusions in Meyer Festschrift (Chapter 15)</i>		
<i>Alternative U.S. Policies Going Forward</i>		

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<i>Alternative U.S. Policies Going Forward</i>	Competitive Industry and Intermodal Structure Allows Full Deregulation	<i>But</i> , Fear of Larger RRs Could -> Legislative Re-Regulation

Ours Is a Story of Ironies

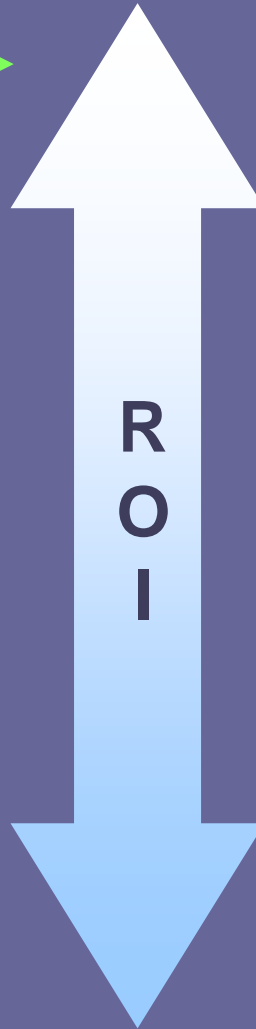
21. Railroad enterprises able to reinvest in their plant, equipment, and employees – *if they are wise enough to dedicate a substantial share of that investment to R&D of new technology* – likely will endure as long into the future as they have survived from Trevithick and Stephenson until now.



#21 Continued: Return on Investment is the Sine-Qua-Non

If ROI > cost of capital:

- Capital spending expands
- Stronger physical plant; more and better equipment.
- Faster, more reliable service
- ***Sustainability***



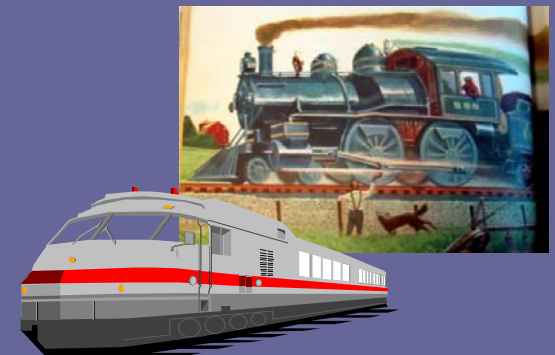
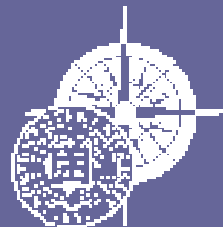
If ROI < cost of capital:

- Lower capital spending
- Weaker physical plant and equipment
- Slower, less reliable service
- ***Disinvestment***

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Thank You

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Thank You

Discussion?

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