

# Ropný vrchol (PEAK OIL)

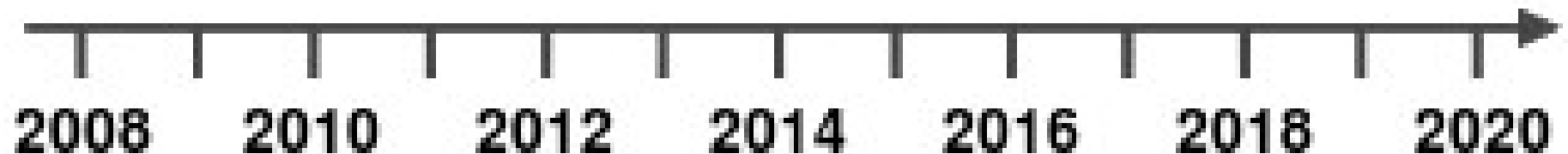


# Aktuální globální problémy

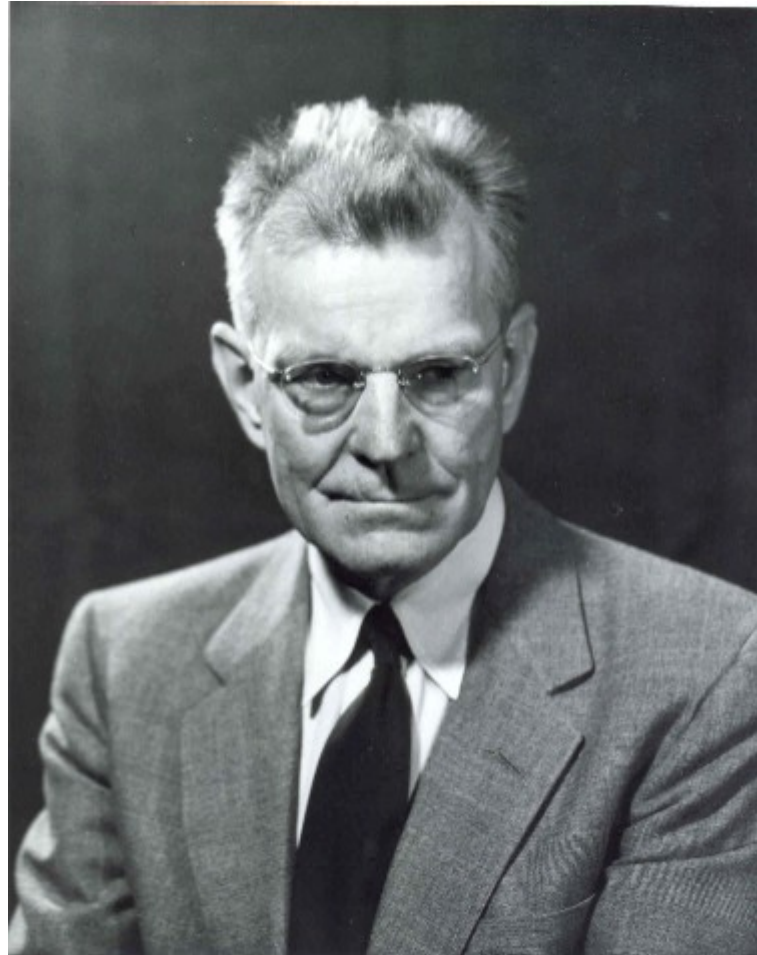
Klimatické změny

Ropný vrchol

Ekonomický kolaps



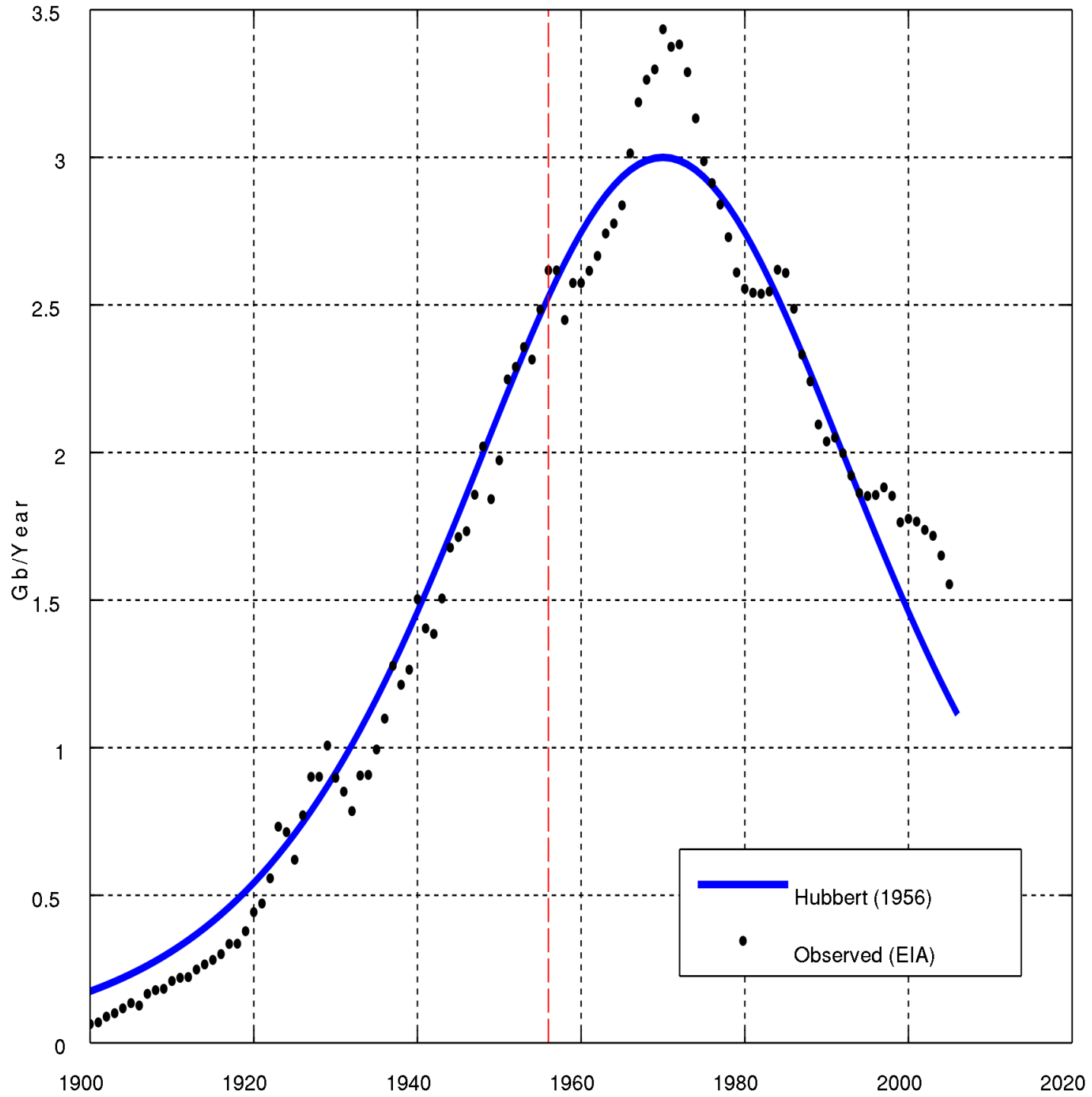
# Dr. M. King Hubbert (1903-1989)



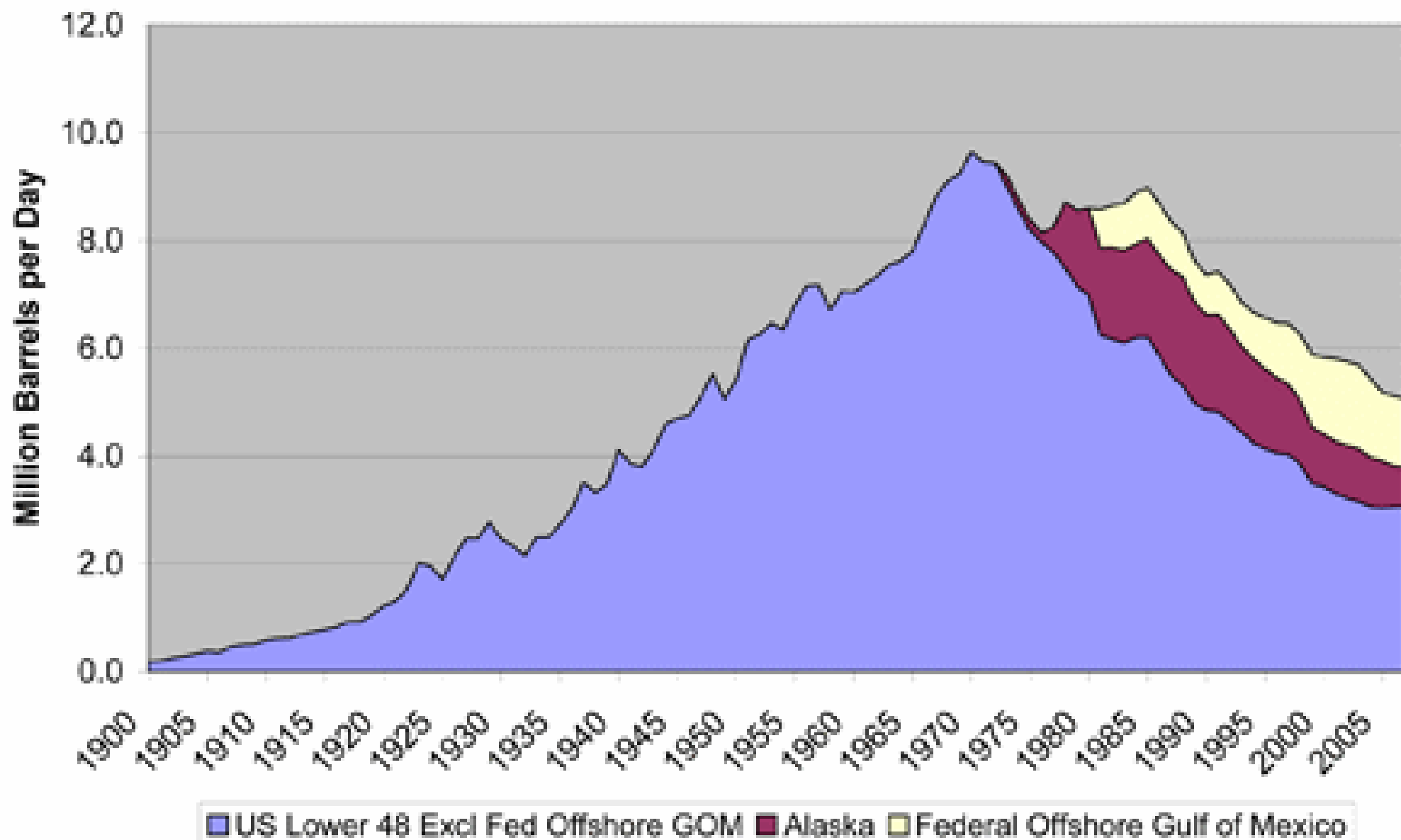
1976 video:

[http://www.youtube.com/watch?v=ImV1voi41YY&feature=channel\\_page](http://www.youtube.com/watch?v=ImV1voi41YY&feature=channel_page)

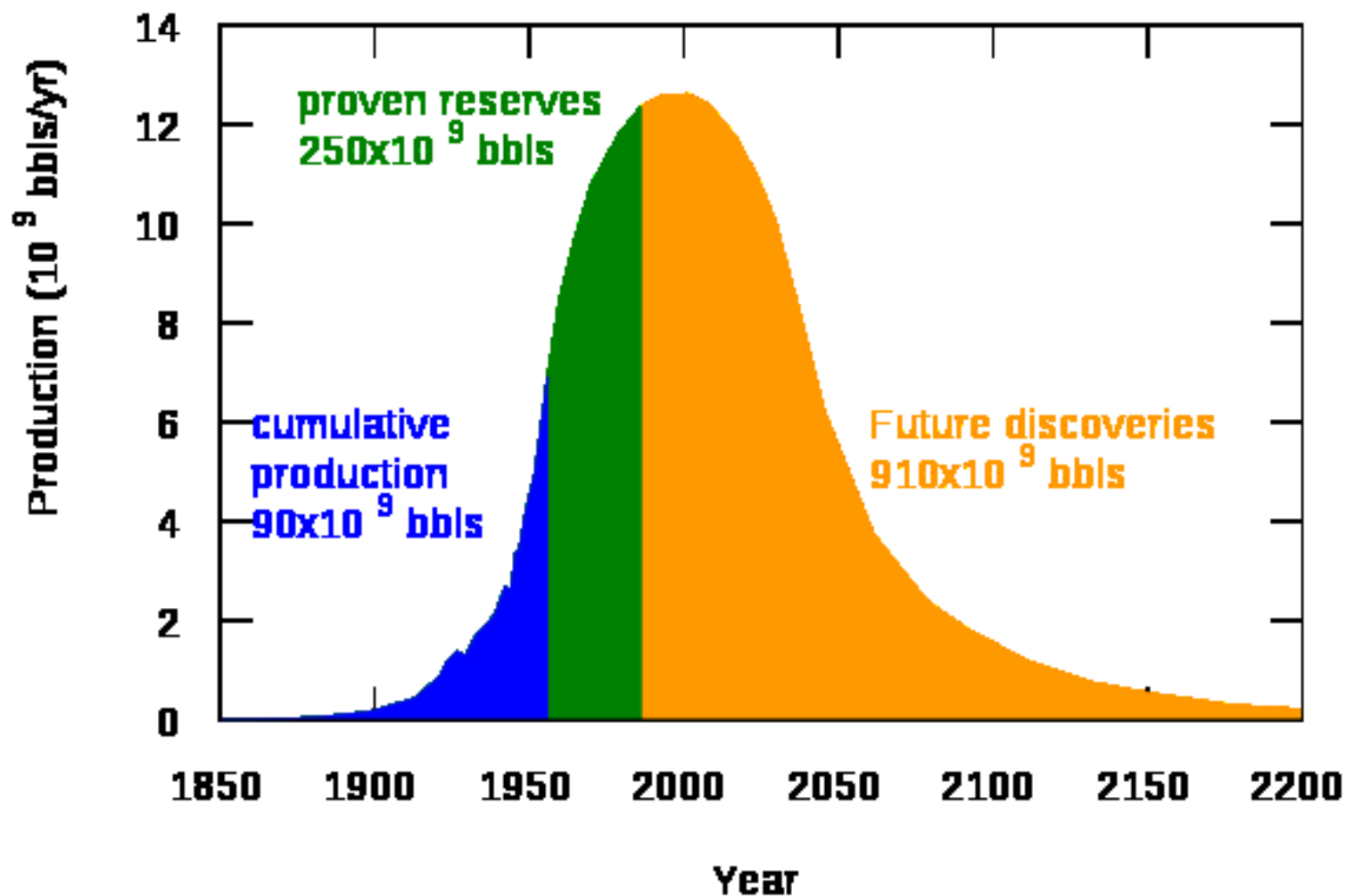
US Production (Crude Oil + Condensate)



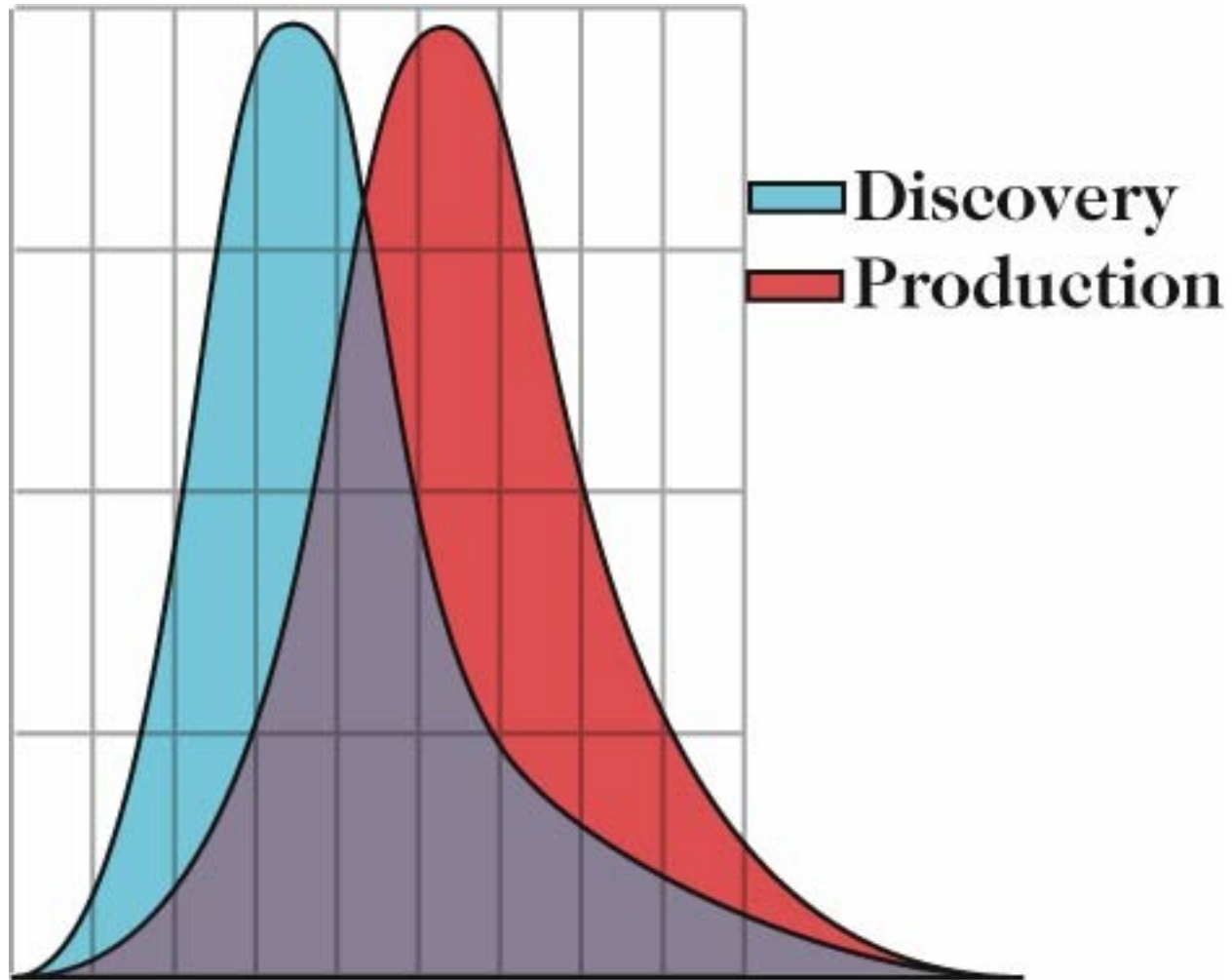
## U.S. Crude Oil Production, 1900 to 2007



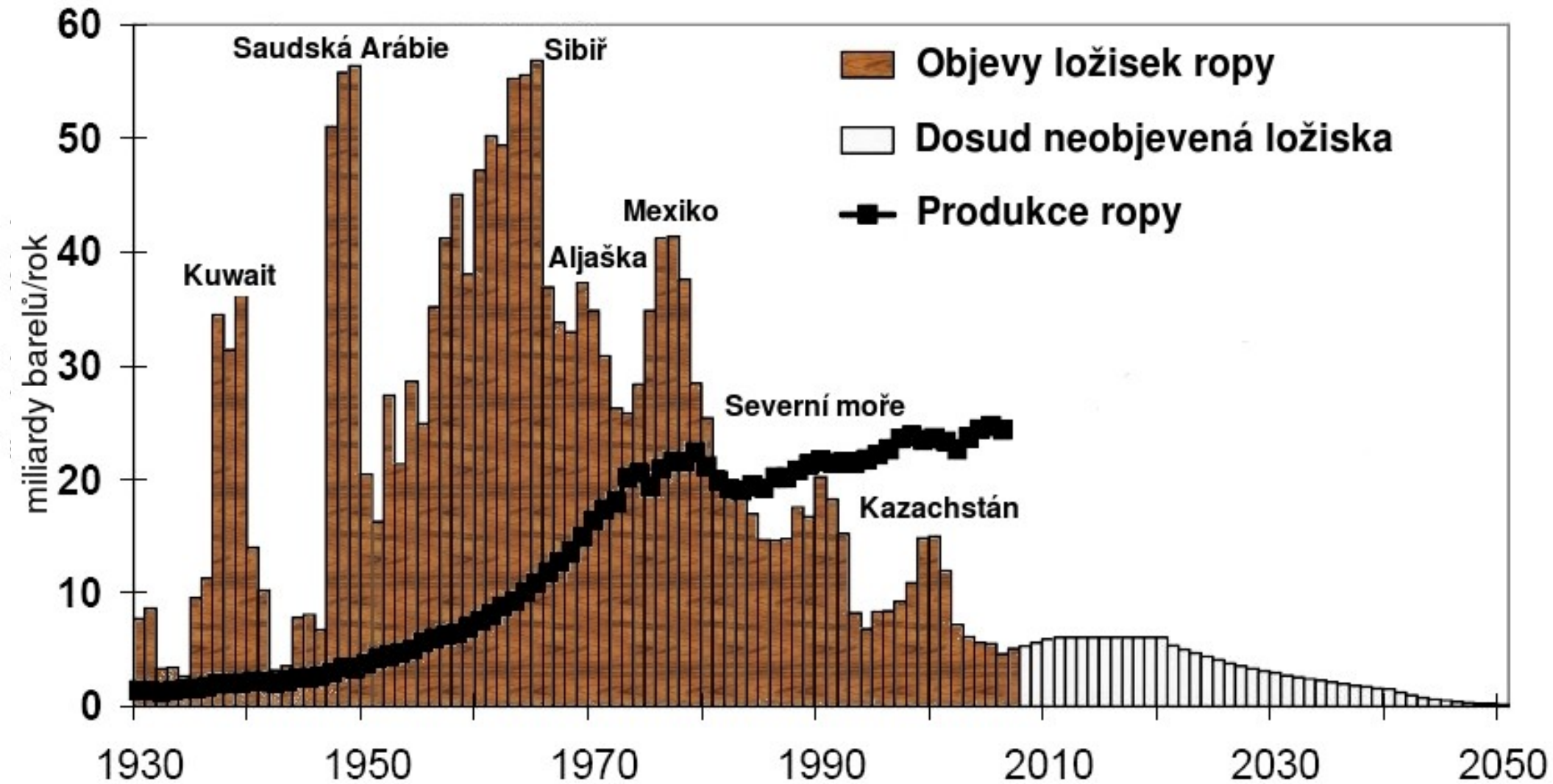
# Hubbertova křivka světové produkce ropy (vypočtena r. 1956)



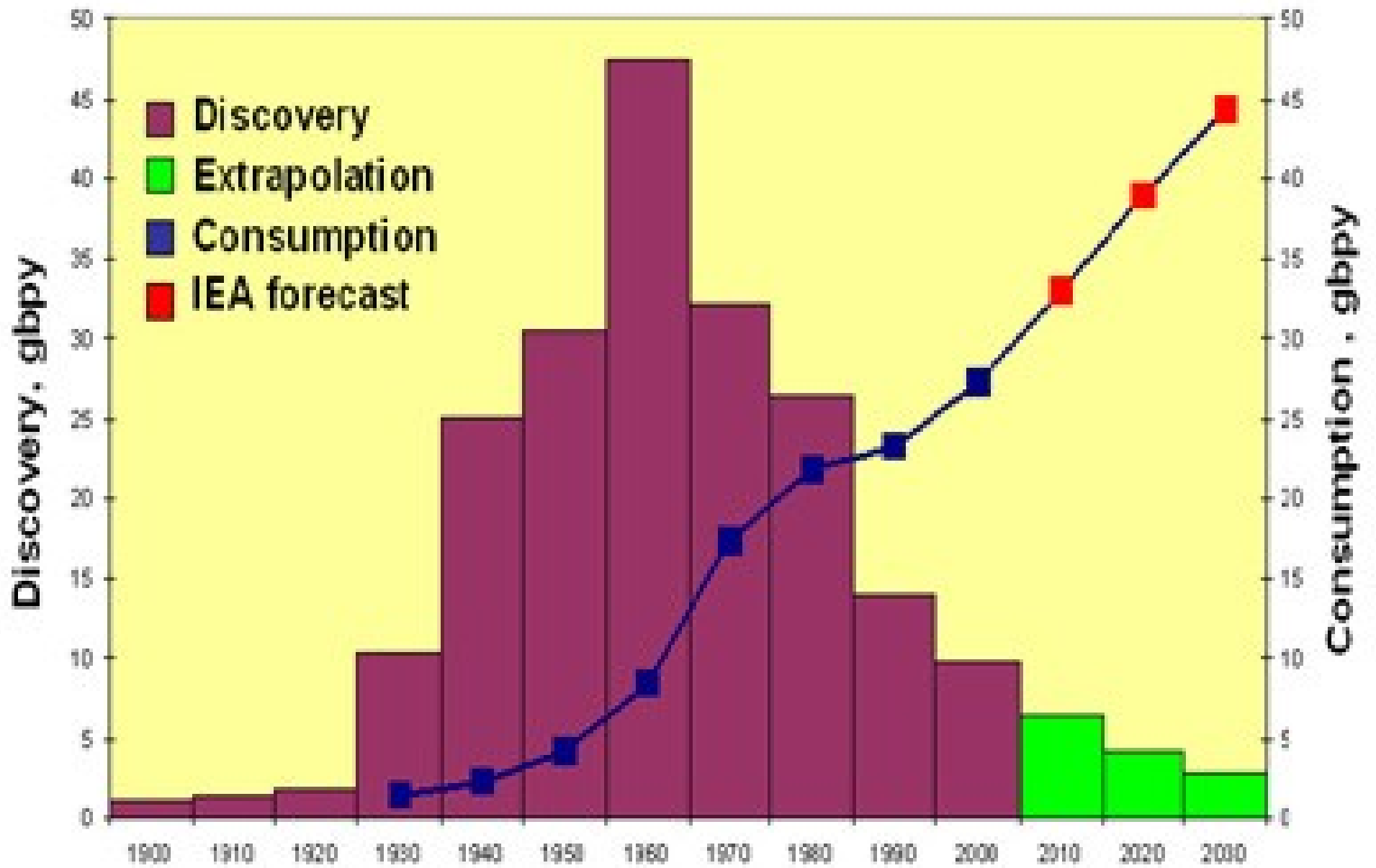
# Objevy a produkce ropy



# Objevy a produkce ropy





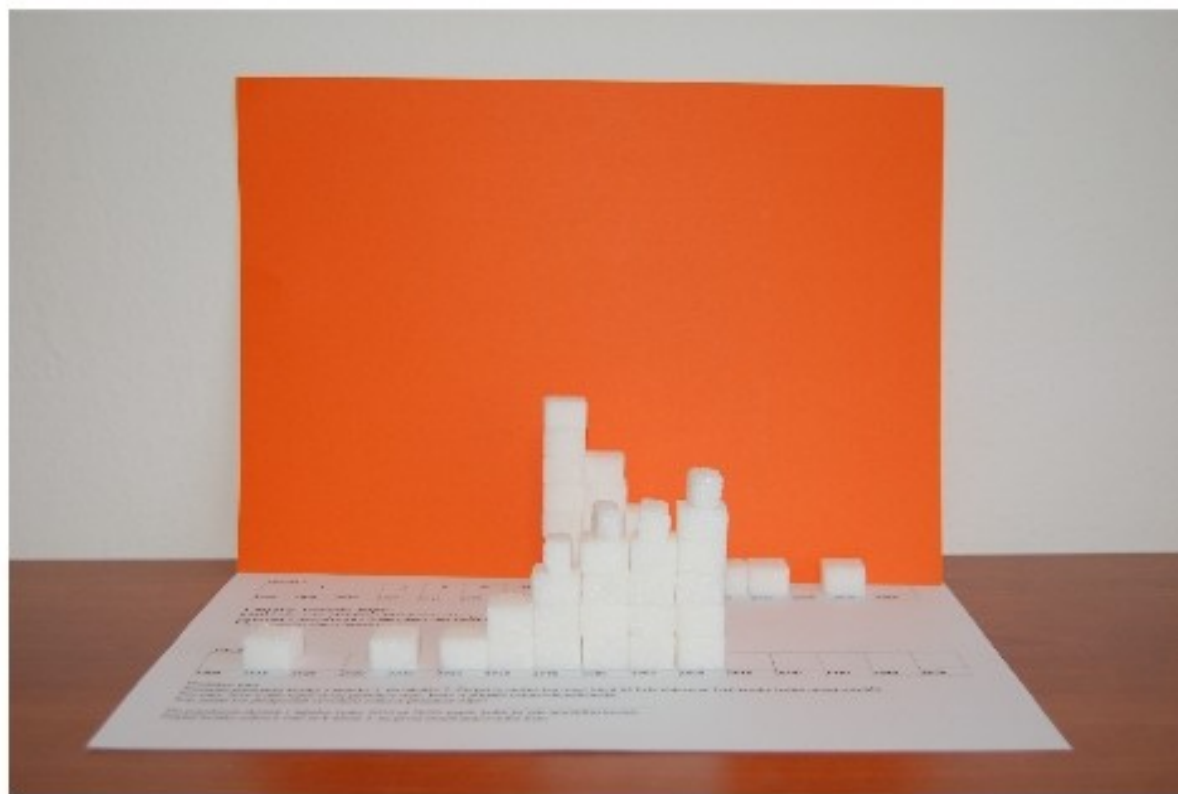


# Objevy ropy



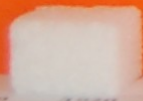
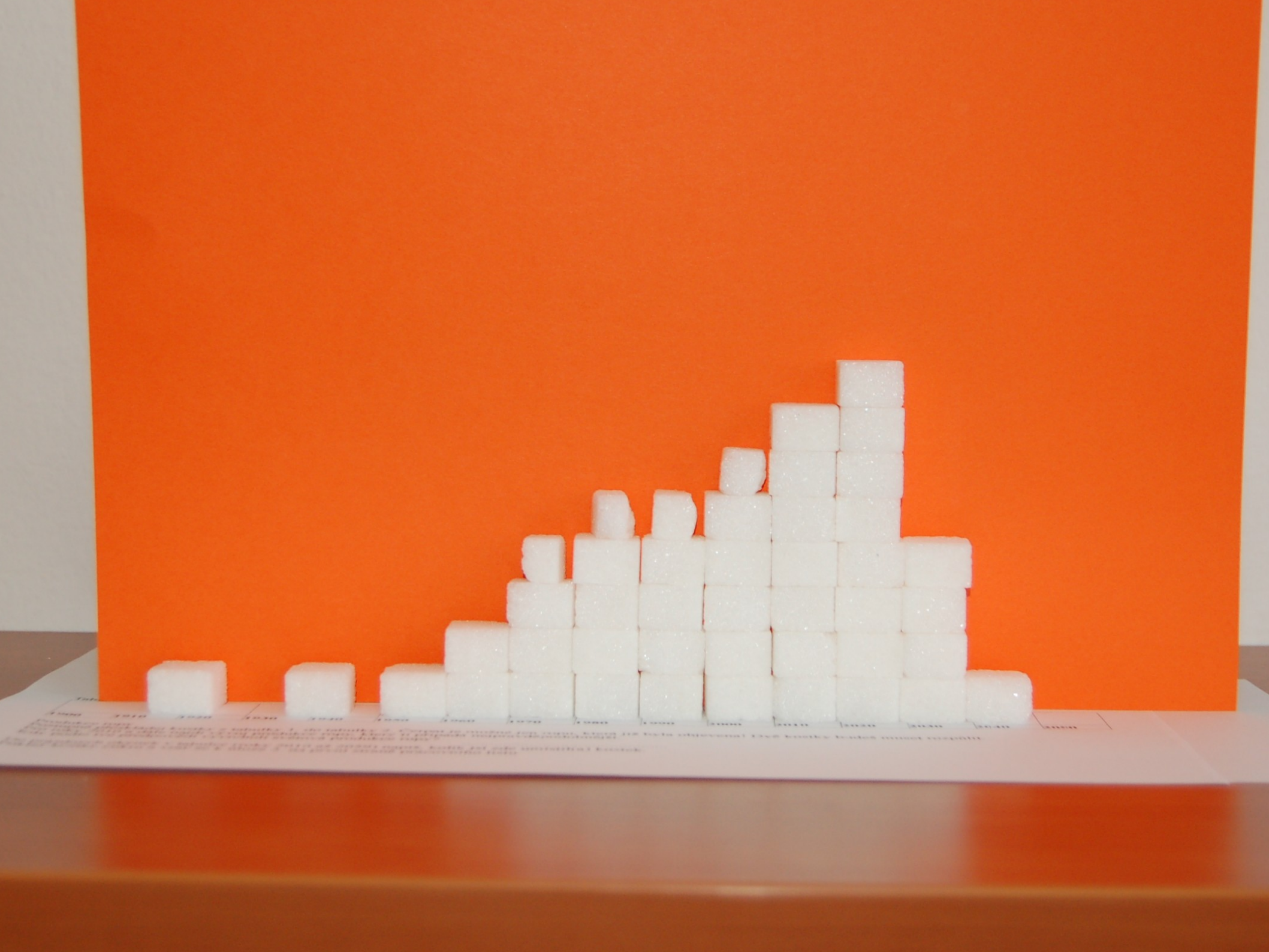
	1	2	5	6	9	7	5	3	2	1	1		1		
1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050

# Produkce ropy



1				1		1	2	3,5	4,5	4,5	5,5					
1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	

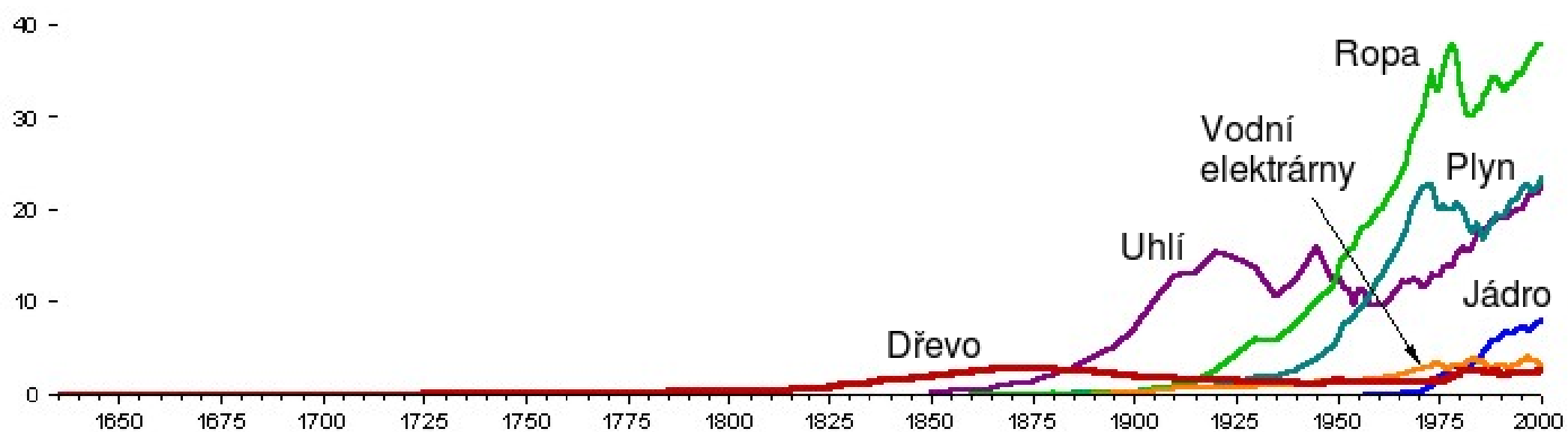




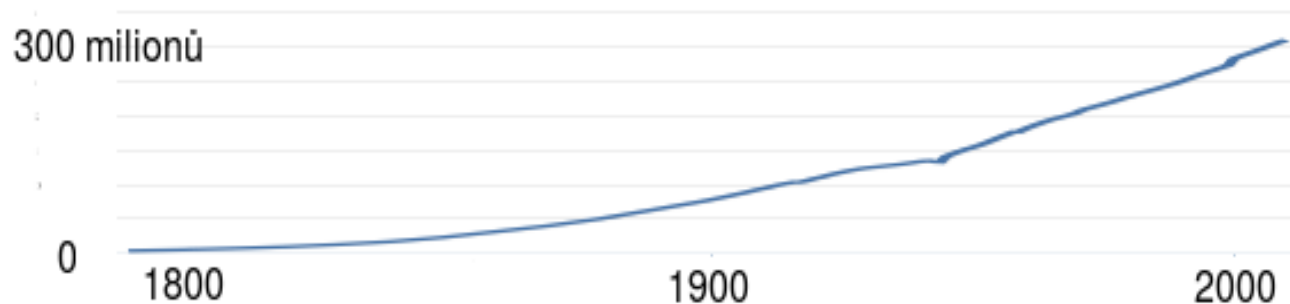
# ERoEI - Energy Returned on Energy Invested

- 100 - ropa z Blízkého Východu z počátku těžby do 50. let 20. století
- 30 - ropa z Blízkého Východu v současnosti
- 6-18 - solární energie v podmínkách ČR
- 3 - ropné písky
- 1,5 - ropné břidlice
- 1,5-2 - etanol ze zemí Evropské Unie

# Energetické zdroje v USA, 1635-2000



## Populace v USA



# Světová produkce fosilních paliv

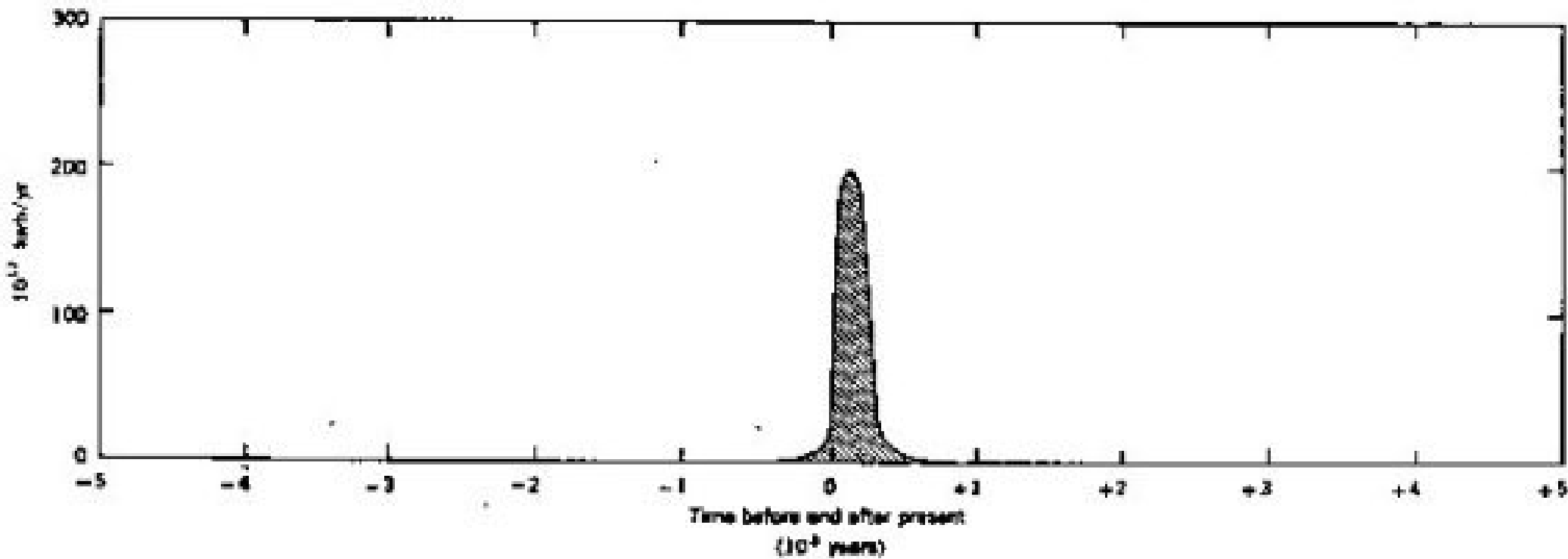
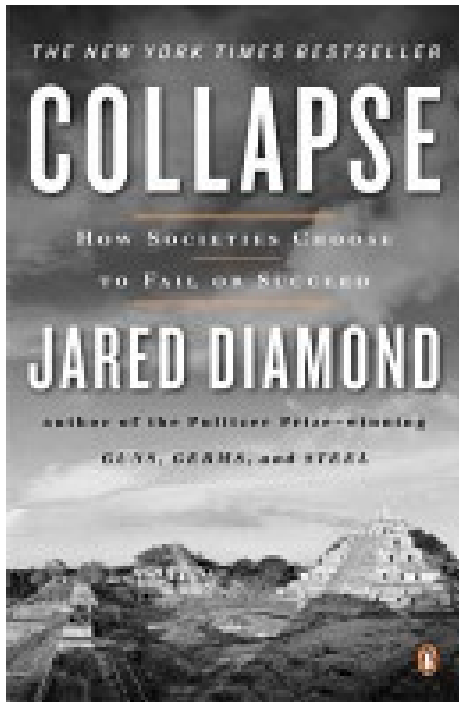


Fig. 10 - Epoch of fossil-fuel exploitation in human history during the period from 5,000 years ago to 5,000 years in the future (Hubbert, 1974a, fig. 69).



# Zánik civilizací: katabolický kolaps



Adaptace?