The Globalization of Our Food Supply; Implications for Emerging Infections

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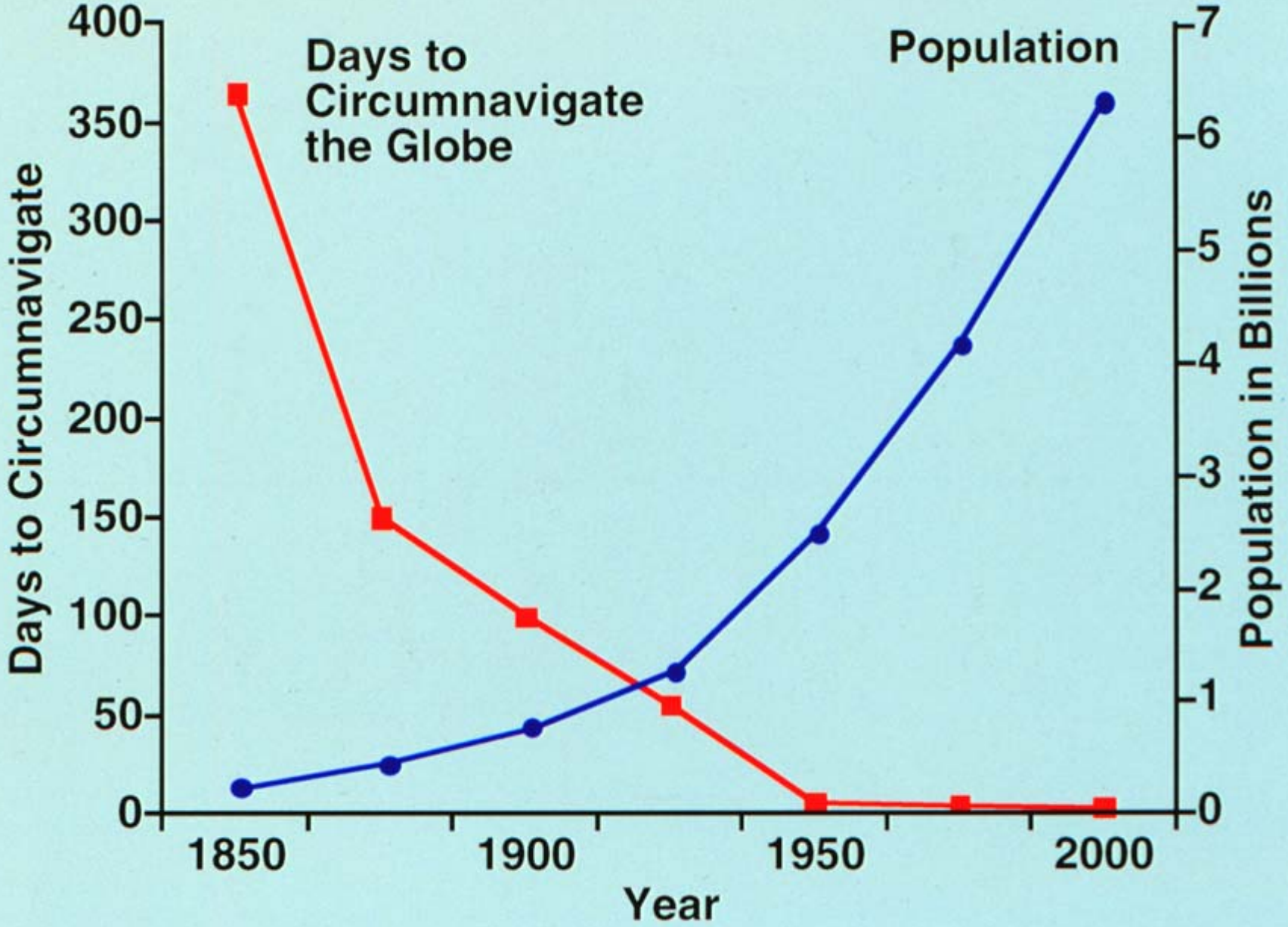
Days to Circumnavigate the Globe
Population
Days to Circumnavigate
Population in Billions
Year
400
350
300
250
200
150
100
50
0
7
6
5
4
3
2
1
0
1850
1900
1950
2000

Definition of Emerging Infections:

New, reemerging or drug-resistant infections whose incidence in humans has increased within the past two decades or whose incidence threatens to increase in the near future.

Food-Related Illness and Death in the United States

Mead et.al., EID 1999

- Estimated that annually foodborne diseases cause approximately
  - 76 million illnesses
  - 325,000 hospitalizations
  - 5,000 deaths
- Known pathogens only account for 14 million illnesses (18%)

Vehicles Implicated in Confirmed Foodborne Disease Outbreaks Minnesota, 1990-2000

Vehicle	No. (%) Outbreaks
Fresh produce	62 (23)
Meats and poultry	37 (14)
Combination foods	44 (17)
Multiple food items	42 (16)
Other	44 (17)
Unknown	35 (13)
Other	264 (100)

Changes in the Factors that Contribute to the Epidemiology of Foodborne Disease

- Diet
- Commercial food service
- New methods of food production
- New or reemerging infectious agents
- “High-risk populations”

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Master

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23¢
STEWING HENS
18¢
POULTRY
COMPLETE SELECTION OF
FRESH DRESSED POULTRY
SEA FOODS
SECTION 5

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Per Capita Consumption in Pounds of Selected Foods, U.S., 1970-1999

	Pounds of Food		
	1970	**1999**	**% Change**
Whole milk	219	72	-67%
Red Meat	132	118	-11%
Low-fat milk	50	131	+162%
Cheese	11	30	+173%
Poultry	34	68	+100%
Fresh vegetables	79	129	+63%
Fresh fruit	97	126	+30%

Foods From Around The World
HERBS

Factors Associated with the "Globalization" of Foodborne Diseases

- Water
- Animal feeds and manures
- Workers
- Transportation
- Rodents, other wildlife, insects
- Food processing

Percent of Selected Produce Items from Mexico Sold in the United States, by Quarter, 2000

Quarter	Cantaloupe	Green Onions	Cucumber	Tomato
Jan-Mar	25%	96%	74%	50%
Apr-Jun	14%	95%	42%	17%
July-Sep	<1%	91%	24%	7%
Oct-Dec	16%	95%	61%	18%
Total	17%	95%	51%	23%

Source: USDA, AMS

Cyclosporiasis and Raspberries 1995, 1996, 1997 and 2000

- Outbreaks each year associated with consumption of Guatemala raspberries
- Association of raspberries with illness in 1995 recognized retrospectively

'95

'95 9 29

'95 9

Outbreaks of *Shigella sonnei* Infection Associated with Eating Fresh Parsley – U.S. and Canada, 1998

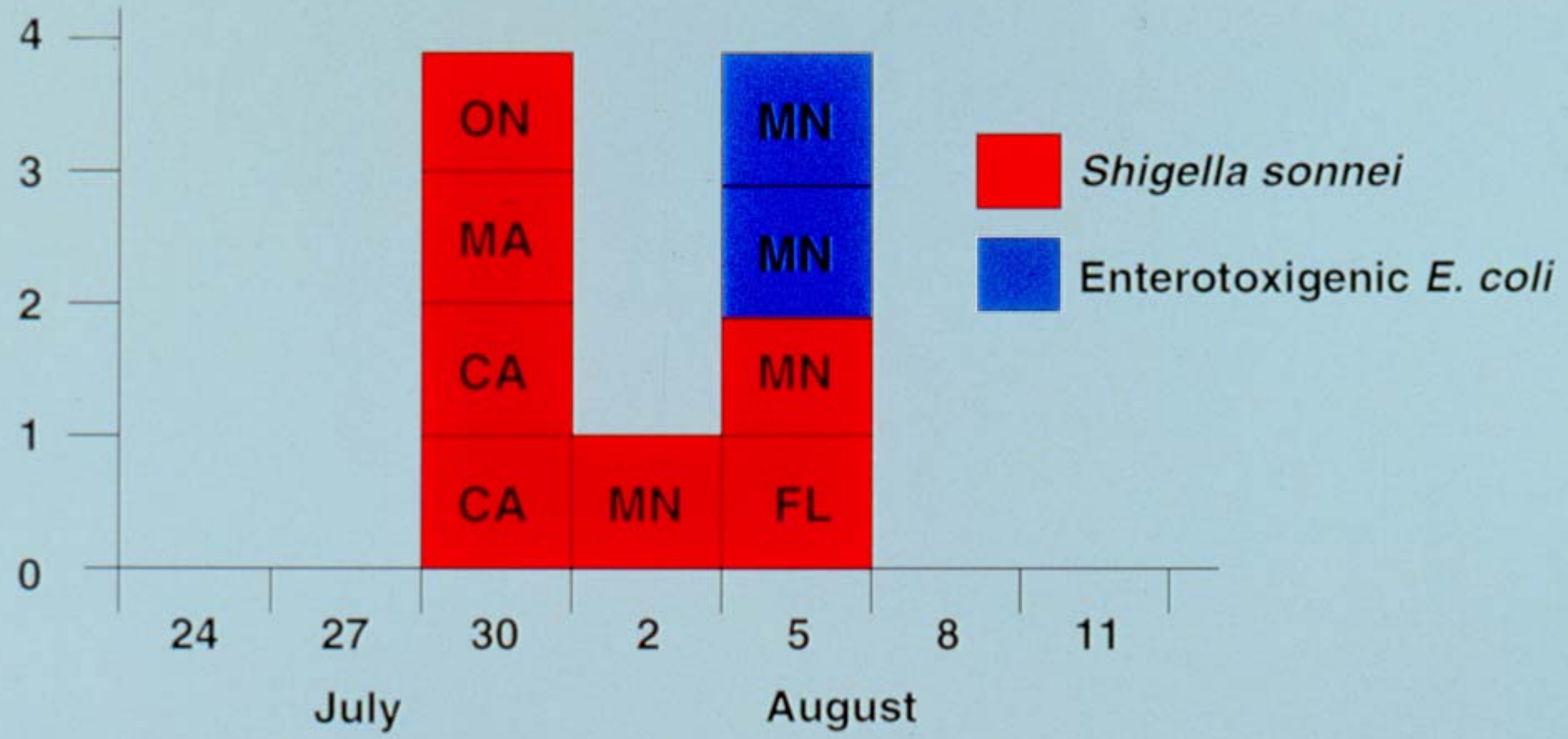
MMWR April 14, 1999

- In August, 1998, the Minnesota Department of Health confirmed outbreaks of multidrug-resistant *Shigella sonnei* infection among patrons of two different restaurants.
- Isolates were resistant to ampicillin, trimethoprim-sulfamethoxazole, tetracycline, sulfasoxazole and streptomycin and had the same PFGE pattern

Outbreaks of *Shigella sonnei*

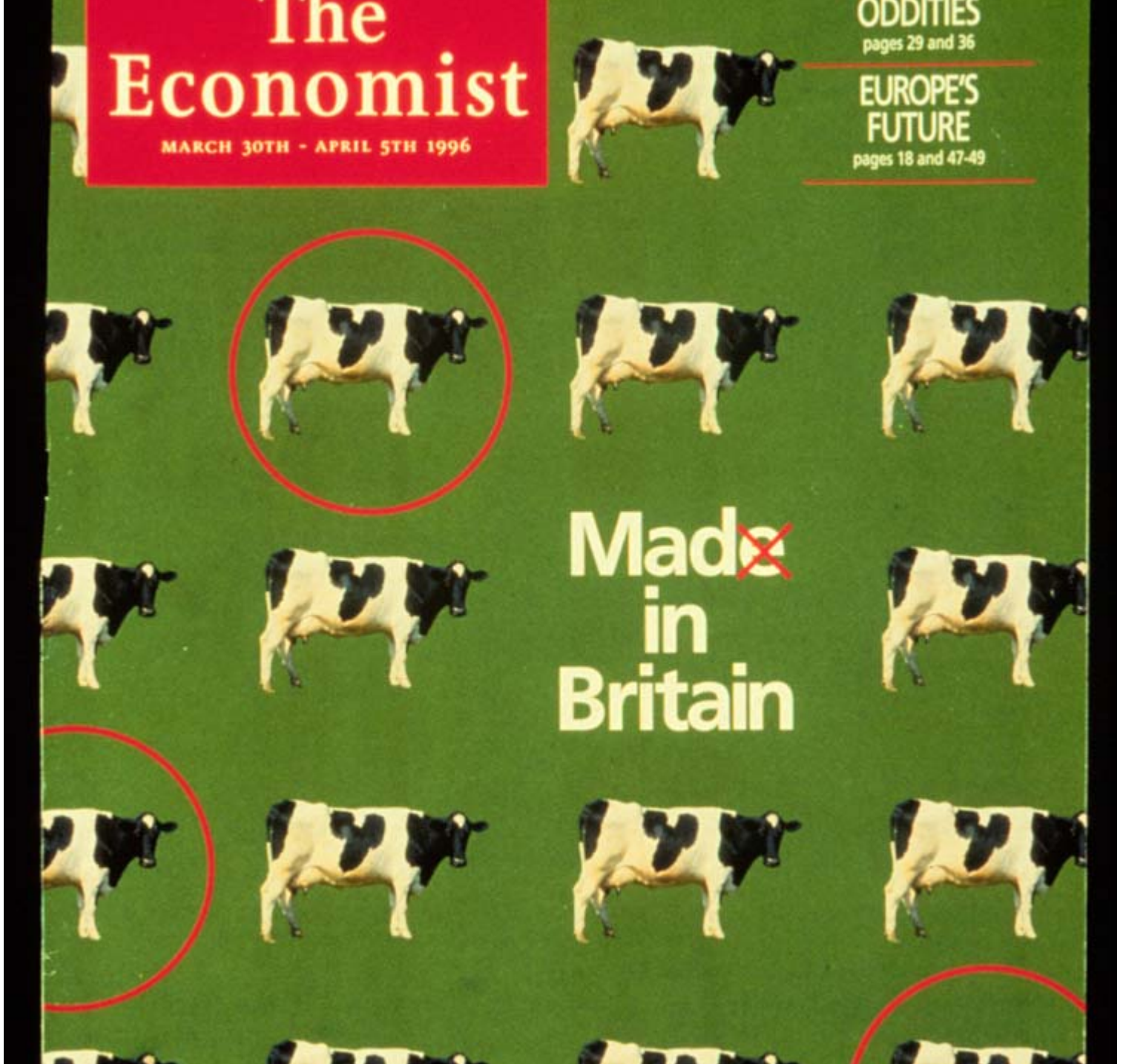
- Parsley implicated as vehicle
- With additional investigation by the MDH, outbreaks identified in LA County, Massachusetts, Florida and Ontario
- Traceback by MDH implicated parsley from Mexico

Outbreaks of *Shigella sonnei* and Enterotoxigenic *Escherichia coli* Infections Associated with Parsley in North America, July-August 1998



National Restaurant Association 2000 Restaurant Industry Facts

- Sales $399 billion
- Locations 844,000
- Employees 11.3 million
- Restaurant share of the food dollar 46%


The Economist
MARCH 30TH - APRIL 5TH 1996
ODDITIES
pages 29 and 36
EUROPE'S FUTURE
pages 18 and 47-49
Made in Britain

“If you don’t know where you’re going, any road will get you there.”

- Lewis Carroll