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THE CONSERVATION OF FORESTS AND WATER IN NEW ENGLAND ...AGAIN

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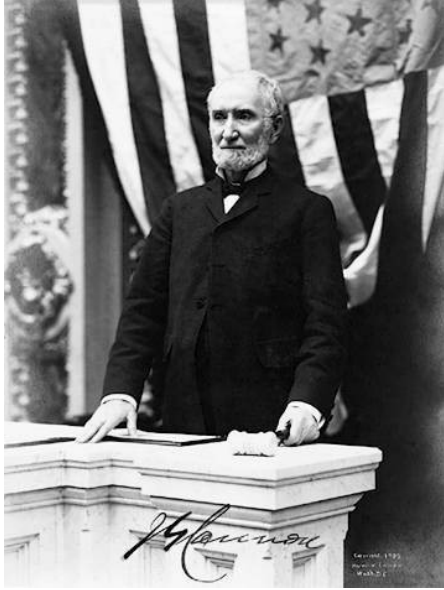
If you spend some time on the upper peninsula of Michigan you may hear the descendants of Finnish loggers say ... "*Tings was yust goin good ...den da axe handle broke.*" That is how people like you and me – advocates of forest conservation – must have felt just about 100 years ago.

By 1907, the writings and admonitions of George Perkins Marsh, John Muir, Franklin Hough, and many community leaders resonated with the observations and personal experiences of people all across the country. Gifford Pinchot returned from graduate studies at the *Ecole Nationale des Eaux et Forêts* (the National School of Water and Forests) in France, 1889-90, and a study tour of Europe. He had many successful models of "scientific forestry" firmly in mind and worked to adapt them to North American conditions during the next decade. Political leaders, most notably President Theodore Roosevelt, took up the cause of forest conservation with great vigor and tenacity. He appointed Pinchot as the first chief of the U.S. Forest Service (1905), designated millions of acres as National Forests on public lands across the west, appointed an Inland Waterways Commission (1907), and continually poked and prodded the Congress to act.

This is not to say that "cut and run" logging had ended and everyone woke up one fine morning to the universal acceptance of forest conservation as the way forward. As Pinchot later wrote of the period 1880 to 1920 ... "*The American Colossus was fiercely at work turning natural resources into money. [It was] a perfect orgy of forest destruction.*" In 1915, William Bullock, an English writer with a worldwide view of forest use, wrote ... "*The treatment of the forest wealth of the United States is one long example of prodigal waste*" while praising long-term conservation efforts in India, Japan, and the French colonies in Africa. But fires, floods, droughts, fish kills, and the sedimentation of rivers and ports were turning the tide of public opinion against exploitive logging and a boom and bust timber economy as the unavoidable price of progress.

Den da axe handle broke ...Taft defeated William Jennings Bryan in the 1908 presidential election, he sacked Pinchot in 1910, and the recommendations of various Roosevelt Era commissions were neglected or ignored. Thankfully, Henry Graves (Pinchot's 40-year-old replacement), Raphael Zon (a U.S. Forest Service scientist), Rep. John Weeks (R-MA), and others renewed the fight by proposing the purchase and reforestation of cutover land in the eastern U.S., principally for the protection of water supplies.

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The most strident and formidable opponent of the Weeks Act was the Speaker of the House, Joseph G. Cannon. A member of Congress for 38 years, Cannon's terse summary comment during the House debate was ..."*Not one cent for scenery.*"

Ultimately, the Weeks Act passed in 1911 (authorizing the establishment of the eastern National Forests) and Cannon was voted out of office in 1912. The advocates of forest conservation prevailed in no small part because of Raphael Zon's scientific treatise ..."*Forests and Water in the Light of Scientific Investigation*"² and the affirmation of its findings by the public and progressive politicians.

(Hon. Joseph G. Cannon, Library of Congress)

The current threat to forests, water, and public health – the permanent conversion of forests to residential, industrial, commercial, and infrastructure uses – is much less obvious *and* more costly than the abuses of the early-1900s. We are spending our forest legacy – one building lot at a time – and unwittingly damaging the essential water resources that Graves, Zon, and Weeks fought so hard to protect.

There are 449 public water supply systems that serve a total of 11,400,000 people in New England (the other 2,600,000 people are served by household wells). In virtually every system, large or small, the faucet is connected to a forest. In fact, the development of public water supply systems was enabled by the conservation of forests. Unfortunately, most people are but vaguely aware of this connection, this dependence. Although our demand for wood fiber and global biodiversity may be met by forests in other parts of the U.S., Canada, and around the world, *our* forests must supply *our* water ...in perpetuity.

My article in the winter 2006 issue of *New England Forests* ("Why Forests Provide the Best Protection for Water Resources") compared the hydrological structure and function of forests with developed land. It provides the scientific context for your review of the forest area, population, and water use data summarized in Table 1. At a glance, you can see that population growth has outpaced the increase in forest area between 1900 and 2000. At the same time, per capita water use has increased from less than 10 to more than 75 gallons per day. Columns "G" and "H" in Table 1 show that water demand per acre of forest has increased by 5- to 20-fold during the last 100 years. In other words, forests are more important to our individual, regional, national, and global health and welfare than ever before. (It also should be noted that forest area has been declining since the 1970s in Connecticut, Massachusetts, New Hampshire, and Maine and since the 1940s in Rhode Island.)

² Zon, R. 1927. *Forests and water in the light of scientific investigation*. Appendix V, Final Report of the National Waterways Commission. U.S. Senate Document 469, 62nd Congress, 2nd Session, reprinted by the U.S. Government Printing Office, Washington, DC, 1927, 106 pp.

TABLE 1 — A comparison of forest area, population, and the approximate daily volume of water required by people from forest land in New England, 1900 and 2000.

A State & Year	B Forest area (acres)	C Population	D <u>Acres</u> Person	E <u>People</u> Acre	F** Water demand	G *** <u>Water demand</u> Forested acre	H 2000 ÷ 1900
Connecticut							
1900	1,276,000	908,420	1.4	0.7	10	7	20
2000	1,859,000	3,405,565	0.5	1.8	75	137	
Maine							
1900	15,187,000	694,466	21.9	0.05	10	0.5	10
2000	17,689,000	1,274,923	13.9	0.07	75	5	
Massachusetts							
1900	2,249,000	2,805,346	0.8	1.2	10	12	13
2000	3,126,000	6,349,097	0.5	2.0	75	152	
New Hampshire							
1900	3,435,000	411,588	8.3	0.1	10	1	19
2000	4,824,000	1,235,786	3.9	0.3	75	19	
Rhode Island							
1900	291,000	428,556	0.7	1.5	10	15	13
2000	393,000	1,048,319	0.4	2.7	75	200	
Vermont							
1900	2,188,000	343,641	6.4	0.2	10	2	5
2000	4,629,000	608,827	7.6	0.1	75	10	
New England region							
1900	22,438,000	5,592,017	4.0	0.2	10	2	16
2000	32,520,000	13,922,517	2.3	0.4	75	32	

Source: (Columns A, B, and C): Harvard Forest Data Archive (HF 013), D.R. Foster, compiled from the USDA Forest Service Forest Inventory and Analysis, US Census Bureau, and other state-level data.

Notes:

* (gallons/day)/person [this does **not** include water used for agriculture and electric power generation]

** Column E x Column F = $\frac{\text{person(s)}}{\text{forested acre}} \times \frac{(\text{gallons/day})}{\text{person}} = \frac{\sim \text{water demand}}{\text{forested acre}}$



In the introduction to his seminal report, Raphael Zon wrote...

"A national policy which, though considering the direct value of forests as a source of timber, fails to take full account also of their influence upon erosion, the flow of streams, and climate, may easily endanger the well-being of the whole people."

A century later, these Lincoln-esque words from a young Russian émigré should be ringing in our ears. They should inspire us to honor our obligations to posterity and conserve forests and water with all deliberate speed.

(Raphael Zon, ca. 1910, U.S. Forest Service photo)