

INTRODUCTION

“The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy.”

from the National Weather Service mission statement¹

The preamble to the United States Constitution provides our federal government with the basic authority to “insure domestic Tranquility” and to “promote the general Welfare;”² Article 1, Section 8 (1) of that founding document ensures the authority to tax and spend on programs deemed necessary to these basic goals.³ From that authority has grown the world’s finest weather service, America’s National Weather Service, on whose shoulders rests the good-governance mission quoted at the top of this page.

Perennial weather disasters have impressed on our national character a peculiar and self-preservative weather obsession. The National Weather Service’s strategic plan for years 2000 to 2005 stated, “America has always been interested in, and sensitive to weather, water, and climate events. Since its existence, the well being and prosperity of the Nation have been dependent on the environment. Our history is punctuated with

¹ National Weather Service. *Vision 2005: National Weather Service Strategic Plan for Weather, Water, and Climate Services, 2000-2005*, p. 2. Aug. 2002. 20 Nov. 2002 <<http://www.nws.noaa.gov/sp/>>.

² “Constitution of the United States. Preamble.” *American Historical Documents: 1000-1904*. Ed. Charles Eliot. New York: P. F. Collier & Son. 1938: 180.

³ *Ibid.* Article 1, Sec. 8 (1): 184.

tragedies and triumphs as individual citizens, or entire sections of the country, dealt with the challenges caused by extreme weather phenomena.”⁴ Our literature is so punctuated, too. On stage and screen and printed word, American fiction is shot-through with tornado references and other weather catastrophes of every like. Americans’ interest in the weather involves a huge financial stake as well, and it is no accident the Weather Service falls ultimately under the province of the Commerce Department. The “protection of life and property and the enhancement of the national economy” is serious business in a country where “about \$1 trillion a year” of the national economy “is weather sensitive”⁵ and where natural hazards have “conservatively cost this nation \$12.5 billion annually during the past 24 years.”⁶ This thesis stipulates that a weather-obsessed nation with real money at stake (and in hand) will and must formulate a first-class national response to environmental threats, and that this response properly entails forcing threats to the attention of interests at risk, lest the values of life and property and the national economy (the “general welfare”) suffer needlessly.

It is a response entirely dependent on effective communication, on an information delivery system that can trumpet urgent information while buffering messages of lesser relevance. The warning process in particular depends on communication links that can vie successfully for attention in a popular culture already saturated with media stimuli. Lasswell concluded as early as 1948 that “the communication process in society performs

⁴ National Weather Service. *Ibid.*, p. 3.

⁵ Daley, William M., United States Secretary of Commerce. Quoted in *Vision 2005: National Weather Service Strategic Plan for Weather, Water, and Climate Services, 2000-2005*, p. 3. Aug. 1999. 20 Nov. 2002 <<http://www.nws.noaa.gov/sp/>>.

⁶ Mitchell, Jerry T. and Deborah S. K. Thomas. “Trends in Disaster Losses.” *American Hazardscapes: The Regionalization of Hazards and Disasters*. Susan L. Cutter, ed. Washington, DC: Joseph Henry P. 2001, p. 112.

three functions: (a) surveillance of the environment, disclosing threats and opportunities affecting the value position of the community and the component parts within it; (b) correlation of the components of society in making a response to the environment; (c) transmission of the social inheritance.”⁷ But Simon’s “scarcity of attention” theory teaches us that any warning system must also take into account the risks of over-warning, for he observed that as the quantity of information available to recipients grows, their capacity to attend effectively to that information shrinks.⁸ He asserted that the “information overload” threatened by emerging media would necessitate “information processing systems” that could filter messages and conserve recipients’ finite attention capacities. That filtering process must be used responsibly if the system is to maintain credibility, for as Mileti and Sorensen observed, “The public does have a short attention span. But major emergencies like tsunamis, dam failures, and nuclear power plant accidents are unique in terms of how willing a public is to listen to information. Emergency warnings of impending catastrophes convert an information-adverse public...into a public that is information hungry.”⁹ This paper will describe one part of America’s response to these communication challenges—Lasswell’s a-and-b, surveillance-and-response functions—by reporting on a warning-dissemination system

⁷ Lasswell, Harold. “The Structure and Function of Communication in Society.” *The Communication of Ideas*. Ed. Lyman Bryson. New York: Harper & Brothers, 1948, p. 51.

⁸ Simon, Herbert A. “Designing Organizations for an Information-rich World.” *Computers, Communications, and the Public Interest*. Baltimore: Johns Hopkins P. 1971, pp. 40, 41.

⁹ Mileti, Dennis S. and John H. Sorensen. “Communication of Emergency Public Warnings: A Social Science Perspective and State-of-the-art Assessment.” Oak Ridge National Laboratory. Aug. 1990: (3) 8.

that also employs Simon's filtering task: the National Oceanic and Atmospheric Administration's Weather Radio broadcast network.

The pages that follow will include a brief history of warning dissemination from the earliest days of our national weather services, and will consider some possible designs and uses for 21st-century warning-dissemination systems. But those references are intended as context, as book-end sections to the kernel of the thing: a record for posterity of who built the NOAA Weather Radio system, why and how it was built, and when. From these pages the interested community, especially its younger members, can acquire a fuller context of knowledge of the Weather Radio system than is easily found elsewhere. It is hoped this thesis can thus constructively inform the actions of Weather Radio professionals—those who operate the system and those who make decisions about its future—and in so doing, contribute to the literature in a manner of which Lasswell would have approved. His third communication function was, after all, “transmission of the social inheritance;” and Lasswell also observed, “in democratic societies, rational choices depend on enlightenment, which in turn depends upon communication; and especially upon the equivalence of attention among leaders, experts, and rank and file.”

Why, from a journalism student, a thesis that tends so heavily to the historical? The answer is submitted in three parts:

First, this paper draws on the lessons of a School of Journalism *and Mass Communication*, and it describes in detail how NOAA Weather Radio serves a mass-communication need—warning dissemination—in a distinct manner, with proven, life-saving results. Even as work on this thesis reached its final stages, evidence of Weather

Radio's efficacy made news. The Associated Press reported on 12 November 2002¹⁰ that two days previous, when a tornado struck a movie theater in Van Wert, Ohio, the theater manager moved all of his patrons out of the soon-to-be-destroyed viewing auditoriums and into the safety of restrooms and a brick hallway, just five minutes before the storm struck. He had acted on a warning he picked up on a NOAA Weather Radio receiver, and not one life was lost in his business as a result of that warning, that dissemination device, and that recipient's actions. The National Weather Service's files detailing similar Weather Radio success stories continue to grow every year: they are, in fact, mass-communication success stories.

Second—and taking a more journalistic perspective—this thesis answers the call of press historian Theodore Peterson, who listed among the foremost functions of the press, “servicing the political system by providing information, discussion, and debate on public affairs,” and “enlightening the public so as to make it capable of self-government.”¹¹ In that, the following pages describe a topical problem of public policy, one of under-utilization and under-appreciation of a dissemination system whose life-saving potential extends, in an age of waxing terrorist threats, beyond weather events. NOAA Weather Radio provides a communications conduit, straight from government to citizen, and it is used to warn people about disparate hazards. And yet, the National Weather Service's fattening file of Weather Radio success stories notwithstanding, the existence of NOAA Weather Radio appears to be lost on the vast majority of citizens,

¹⁰ Seewer, John. “Quick Thinking Saves Lives as Tornado Strikes Theater: Manager Gathers Patrons Just Before Walls, Roof Fly Off.” *Washington Post*, p. A9.

¹¹ Peterson, Theodore. “The Social Responsibility Theory of the Press.” *Four Theories of the Press: The Authoritarian, Libertarian, Social Responsibility, and Soviet Communist Concepts of What the Press Should Be and Do*. Urbana: University of Illinois P.: 1956, p. 74.

even after decades of continuous dissemination service and sporadic government advertising. That is itself a story.

Third and finally, despite a seeming neglect of the Weather Radio service by academia and society at large, this paper asserts that the story of NOAA Weather Radio deserves detailed treatment simply on its face-value merits. Presumably, at least, the movie patrons of Van Wert, Ohio would agree.