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Journal

Electronic Green Journal, 1(5)

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Publication Date

1996

DOI

10.5070/G31510236

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Newspaper Coverage of Zebra Mussels in North America : A Case of "Afghanistanism"?

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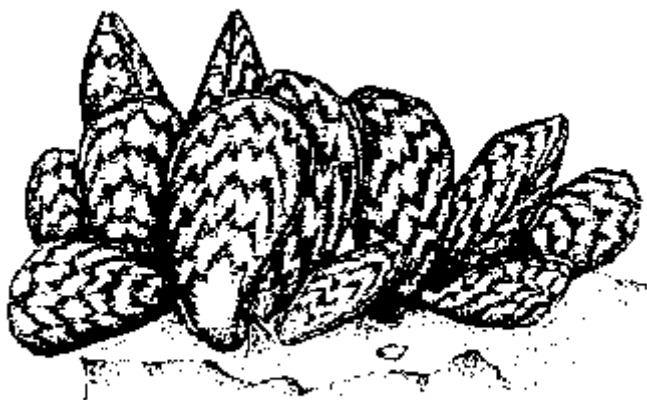
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Introduction

Zebra mussels (*Dreissena polymorpha*) were discovered living in Lake St. Clair, near Detroit, Michigan, on June 1, 1988. Bivalve mollusks native to the Caspian Sea, these mussels spread throughout Lake Erie within a year of discovery and colonized the four other Great Lakes by the end of 1990 (New York Sea Grant, 1990). By the summer of 1993 in North America, the invasive creatures were found throughout the Great Lakes, down the St. Lawrence Seaway to Quebec City, along Ontario's Trent-Severn Waterway, throughout New York's Erie Canal-Hudson River corridor, in the Mississippi River and five of its tributaries, and in at least nine inland lakes and reservoirs (New York Sea Grant, 1993). Much of the North American continent is eventually expected to be colonized (Snyder, Garton, & Brainard, 1992). Up-to-the-minute information about zebra mussels is available on-line at <http://www.great-lakes.net:2200/envt/exotic/zebra/zebra.html>.

Zebra mussels reproduce prodigiously and their colonies can cover nearly any solid surface within a water body. So, any water intake or outlet can be clogged, any docked boat can become fouled, and most aquatic habitats can become covered by dense mats of the 0.5-2.5 cm long, brown-and-white-striped pests. Individually, the thumbnail-sized bivalves appear innocuous (see Figure 1). They are far from harmless, though.

Figure 1 ZEBRA MUSSELS (DREISSENA POLYMORPHA)
ADULT SIZE: 0.5-2.5 cm



Line art courtesy of Ohio Sea Grant College Program

Damage attributable to zebra mussels during the 1990s is estimated to reach \$5 billion (Holloway, 1992). Of this, cleaning encrusted substrates accounts for roughly half. The remainder comes from attempts to approximate and place value on the ecological damage precipitated by the mussels' invasion of the Great Lakes ecosystem and others into which it continues to move.

These creatures are thought to have arrived in North America via ballast water, which is taken up by ocean-going cargo vessels as counterweight on voyages (Hedgpeth, 1990; Locke, Reid, van Leeuwen, Sprules, & Carlton, 1993). Ballast drawn from a European port and infested with the mussels' microscopic, planktonic larvae, called veligers, was apparently carried across the Atlantic, up the St. Lawrence Seaway to Lake St. Clair, where it was released. Some organisms survived the voyage and flourished in the new water body. Once established, breeding adults produced more veligers, which were probably unwittingly transported by boats, both commercial and recreational (Snyder et al., 1992). Both veligers and adults can attach to boats, trailers, fish cages, and bait buckets by means of tough and sticky fibers called byssal threads (*Showing Our Mussel*, 1993). A need for public information on zebra mussels' colonization of North America arises from the economic costs, ecological destructiveness, and human behavioral dimensions. One common provider of information is newspapers.

Environmental Messages in Newspapers

The role of newspapers as popular channels of information on environmental subjects has been repeatedly shown, whereas the utility and effects of the information disseminated is not as yet well understood. Ostman and Parker (1987a) found newspapers to be the most frequently used source for information on environmental topics. A companion study (Ostman & Parker, 1987b) measured the effects of education, age, newspaper reading, and television watching on environmental knowledge, concerns, and behaviors. Newspaper use for environmental information was positively related to environmental concern and, to a lesser extent, subsequent behaviors.

Fortner, Mayer, Brothers, and Lichtkoppler (1991) linked reliance on newspapers for information with the highest levels of knowledge about the Great Lakes. A general sample of consumers reported television as their main information source; a more specialized sample of customers at a boat show reported using newspapers most. The boat show sample's respondents were able to select more correct answers to multiple-choice questions about the Great Lakes and could properly define more aquatic environmental terms.

Examining information about the association of aspirin use in children suffering from chicken pox or influenza and the incidence of Reye's syndrome, Soumerai, Ross-Degnan, and Kahn (1992) considered newspaper information as one channel among many which amalgamated to change behavior and to lessen a widespread risk. They found coincidental increases in the number of newspaper reports on the aspirin-Reye's syndrome connection and dramatic decreases in incidence of the disease. Johnson and Carlton (1992) noted a similar linkage between behavior and seemingly unrelated consequences found in what they termed "dispersal preventative behavior" and the spread of zebra mussels by boats and fishing equipment.

Non-academics are more straightforward in their assessments of the role of newspapers in providing environmental information. Bud Ward (1991, p. 22), editor of *Environment Writer*, a monthly newsletter for journalists covering environmental issues, stated: "One thing is evident: newspaper, television and radio audiences cannot be expected to understand an issue any better than the reporters do. Indeed, the public depends on effective media coverage for its information on environmental issues."

Environmental Afghanistanism

A fertile area of activity in communications research seeks to describe,

explain, and predict the effects of mass media consumption on audiences. Intended uses of messages are assumed to be made more difficult by bias and distortions within message content. One hypothesized form of distortion to which environmental messages seem especially fraught is Afghanistanism.

Hungerford and Lemert (1973) first transferred the notion of Afghanistanism to environmental communications. They defined the effect as a presumed greater severity of environmental problems afflicting regions outside of a newspaper's home region. The term dates to at least 1948 when Jenkin Lloyd Jones, speaking to the American Society of Newspaper Editors, stated: "many an editorial writer can't hit a short-range target . You can pontificate about the situation in Afghanistan in perfect safety. You have no fanatic Afghans among your readers" (Waldrop, 1967, p. 51). Although the phenomenon has particular implications for environmental communications, it has not been studied using comparable methodology since Hungerford and Lemert's report more than 20 years ago.

In their seminal study, Hungerford and Lemert divided the state of Oregon into three regions and content-analyzed environmental coverage from all 20 daily newspapers operating in the state during an artificial week of randomly selected dates from 1970. Eight of the newspapers were from the Willamette Valley; five papers were located in eastern Oregon; and, the remaining seven publications hailed from southwest and coastal Oregon. All environmental content, defined as any story dealing with human's influence and relationship with the environment, was examined for three hypothesized patterns:

- concentration by all papers on environmental items outside the state;
- a tendency within each region to cover environmental subjects in the other two regions;
- intra-regional coverage focusing on events outside a particular paper's immediate locale.

To provide a baseline against which to measure environmental percentages, a sample of non-environmental items was counted and coded as well.

Their data supported the inter-regional and intra-regional hypotheses, but did not support the out-of-state one. Sixty-three percent of environmental coverage, compared to 86 percent for non-environmental news, was found to be intra-regionally derived. Within regions, they found that more than half of the environmental items originated from

outside the county of origin, whereas only one-sixth of the other news items were so derived. Forty-two percent of the baseline news and 35 percent of the environmental news was from outside of Oregon.

Strength is added to their argument by the additional finding that environmental pieces were more likely to be locally written. While 40.1 percent of the non-environmental items were local products, 54.6 percent of environmental stories were written by newspaper staff members. They captured the essence of their findings by use of the colloquialism "up the road a piece," indicating a propensity of newspaper reporters and editors to be attracted to environmental events outside their immediate coverage area.

Since Hungerford and Lemert, several commentators have called attention to Afghanistanism in their discussions. In a strongly worded criticism, Sleeper (1979) indicted mass media as unable to cope with the complexity of environmental issues. One of the problems he said was Afghanistanism, which he saw as media managers' attempts to cater to regional biases. Editors were accused of failing to question pollution and occupational hazards generated by hometown industries. Sleeper concluded that Afghanistanism leads an audience to believe that environmental degradation only takes place far away.

In a broad examination of environmental press coverage as reflective of a social problem, Schoenfeld, Meier, and Griffin (1979) found Afghanistanism to be an accommodation by editors attributable to urban-rural characteristics; it was more likely to be found in smaller communities. They noted others' arguments (for recent works in this area see Dunwoody & Rossow, 1989; Lathrop, 1993; Olien, Donohue, & Tichenor, 1984; and, Olien, Tichenor, & Donohue, 1989) that level of community pluralism determines an acceptable level of conflict which can be presented through the local press. They write: "the press [in small towns] assumes more of a 'boosterism' or cohesion-building role, eschewing reports of local conflict within the social system."

Nelkin (1987) noted the existence of an "Afghanistan syndrome" in her sociological examination of science culture and its portrayal through mass media. She classified the syndrome as an economic constraint protecting circulation by weakening potentially offensive science reporting. In a review of environmental coverage from 1970-1990, Friedman (1991) mentioned Afghanistanism as part of a larger problem of ignoring, mishandling, and downplaying evidence. Such practices contribute to the belief that local environmental problems lack importance.

Afghanistanism in Other Studies

Bearing in mind the similarities in how investigators define Afghanistanism and the presumed conditions under which it may distort coverage, literature was inspected for findings that suggest "presumed greater severity of environmental problems elsewhere," "boosterism," "catering to regional biases," or "protecting circulation by weakening offensive reporting."

Evidence of Afghanistanism's existence was found in seven existing studies: Althoff, Greig, and Stuckey (1973); Hersh (1969); Jensen (1977); Molotch and Lester (1975); Murch (1971); Shapiro and Williams (1983); and Sohn (1984). It is likely that more examples remain fugitive.

Two of these studies in particular illustrate Afghanistanism as a distortion of environmental problems. In a case of Afghanistanism as an economic constraint, Jensen (1977) related the story of pollution from the Bunker Hill Company, a lead and zinc smelter in the northern Idaho town of Kellogg. When 175 children there were found to have dangerously elevated lead concentrations in their blood, the story was covered nationally by two television networks, ABC and NBC, and newspapers throughout the country via wire service reports. In contrast, the local print medium, the *Kellogg Evening News* acted virtually as a mouthpiece for Bunker Hill's corporate views on the matter. Three *Evening News* headlines serve as authentic specimens of Afghanistanism (capitalization in original): "DOCTOR SAYS LEAD SCARE OUT OF PROPORTION," "BUNKER HILL WARNS REGULATION COULD CAUSE SHUTDOWNS," and "LEAD POISONING FEARS LARGELY UNWARRANTED."

In a town economically dependent on mining, Sohn (1984) reported a shared "bright outlook for the future" between the newspaper coverage and individual expectations. Sohn noted: "the local newspaper also set 'positive' agendas about the mine openings. Few, if any, new mine stories contained information about potential problems for the community."

Refining the Definition of Afghanistanism

Hungerford and Lemert (1973) hypothesized that important environmental issues existing within a newspaper's own region would not receive as much attention as problems occurring elsewhere. Their data moderately supported this contention. The Kellogg, Idaho, and unnamed

coal-mining town cases suggest another dimension to Afghanistanism, namely the "boosterism" which Schoenfeld et al. (1979) alleged. Such recasting of local environmental issues and pollution problems is corollary to an impression that the environment is suffering more severe attacks elsewhere.

An explicit definition of environmental Afghanistanism, incorporating the elaboration from above, is offered:

Any portrayal of a newspaper's own circulation area's environmental issues as less severe, less unusual, and/or less negative in impact than those occurring elsewhere; as well as any portrayal of environmental problems outside of a newspaper's coverage area as more serious, more unusual, and/or more negative in scope and effect.

As such, news items exhibiting Afghanistanism have properties running counter to those usually associated with news, most prominently geographic proximity. Thus, an Afghanistanism- influenced piece points away from routine news expectations: that which is far away is imbued with more news value than that which is near at hand.

Methods

A content analysis was conducted. This investigation sought, first, to measure the physical attributes of all stories about zebra mussels appearing in newspapers of five cities and, then, to characterize the role of Afghanistanism in the content of those items. Content analysis is a widely accepted method of gathering data from documents. Burrus-Bammel, Bammel, and Kopitsky (1988) claimed content analysis a fitting, yet underused, tool for assessing environmental communications.

The study was designed to census all news items containing the words zebra mussel or zebra mussels in five large metropolitan newspapers between June 1, 1988, and May 31, 1993. The cities of Cleveland, Columbus, and Cincinnati, Ohio; Louisville, Kentucky; and Memphis, Tennessee, were selected to form a rough line away from Lake Erie, the site of the worst infestation of zebra mussels, and along the route of inland migration (Roberts, 1990). Each city, except Cincinnati, has one major daily newspaper. These were the publications used: the Cleveland *Plain Dealer*, the Columbus *Dispatch*, the Louisville *Courier-Journal*, and the Memphis *Commercial Appeal*. Of Cincinnati's two daily newspapers, the *Enquirer* was selected for use in this study since its circulation is nearly twice that of its competitor. [1] All cities had infestation within their circulation areas by the end of the study period.

The predominant means of locating articles was on-line computer searching. All five newspapers have some full-text on-line availability. For dates where no full-text on-line service was available, key words such as mussels, Great Lakes, environment, and water, were searched in available indexes. The text of all zebra mussel articles was retrieved, from on-line services in most cases. [2]

In the absence of evidence on zebra mussel information mediated by newspapers, save for that presented by Todt (1990 & 1991), and believing that proper explanation is grounded in adequate description, much of this content analysis focused on counting and measuring. In exploring another environmental issue, similar in its regionality and migratory spread via indirect transport, Kauffeld and Fortner (1987) described newspaper coverage of acid rain, leaving explanatory research for others to pursue. That study's descriptors were adapted for use here. Items tallied include number and dates of articles and number of words per article.

More explanatory analysis was based on further coding decisions. One placed articles into one of three mutually exclusive categories. The other two sought to determine if an item offered remedies and stated urgency. Operational definitions of terms and categories were:

Non-thematic Mention: The use of the term "zebra mussel" in an article without it being directly related to the major topic. Items were judged to be non-thematic mentions if text directly related to zebra mussels constituted 10 percent or less of the new items words.

Offering of Remedies: Any discussion of methods of mitigating zebra mussels adverse effects or means of thwarting their spread was counted as offering remedies.

Type of Article: Items were placed into one of three categories non-thematic mention, no news peg, or with news peg. An article's theme or main assertion was used as the determinant in categorization. News peg refers to an event, either just past or in the near future, on which a story conceptually hangs.

Urgency: The use of words in an article to express pressing importance was called the statement of urgency. A single urgent word in a headline or three uses of words in the text of a piece was considered the positive threshold for this coding decision. Examples of words considered to convey urgency were eradicate, fear, horror, infest, inevitable, invasion, menace, and threat.

From these questions came much of the evidence for the primary research question: Is this coverage a case of Afghanistanism in action?

Population Limitations

Though the five groups of stories are complete enough to be called populations, the set of newspapers must legitimately be termed a sample. The purposive selection of cities in this study, therefore, raises questions about sampling validity (Krippendorff, 1980). Numerous other cities could have been selected Buffalo, Chicago, Detroit, Nashville, St. Louis, Toronto, etc. Also, no attempt is made to evaluate the community plurality of the cities. Because of these potential weaknesses, the term statistics is retained when referring to the study's data, rather than calling them parameters.

Reliability

Intercoder reliability was tested through the training of an additional coder, who was not familiar with the study prior to training and had no content analysis coding experience. For all non-factual coding decisions, the coefficient of reliability (Holsti, 1969) was .845.

Results

A grand total of 218 news items were located. [Table 1](#) displays yearly counts for all stories. Cleveland's overall number of articles is the greatest at 88. No coverage of the initial discovery of zebra mussels in Lake St. Clair was found; the earliest coverage appeared on June 11, 1989, in the *Plain Dealer*. The numbers exhibit a distinct break between Cleveland and Columbus and the other three cities. Columbus was site of the most coverage during 1989 and 1990, both in terms of actual numbers and percentages. Based just on percentages, Louisville had the most coverage during 1990.

On average, stories found in Cleveland were the longest, where the population's mean length was 637.91 words; the shortest, in Cincinnati, at 396.00 words. Articles were of similar lengths in Columbus, where stories averaged 572.32 words, and in Louisville, with 579.62 words. Memphis saw stories which averaged 450.29 words. If information presented can be assumed to be closely related to number of words presented, readers in Cleveland had the richest information milieu from which to learn about zebra mussels, as they were presented 56,136 words over the study period. In Columbus, 41,207 words were printed. The remaining cities do not follow the expectations of proximity,

however. Louisville readers, by means of longer stories containing 12,172 words, had more information available on this issue than Cincinnatians, whose newspaper published 9,108 words on zebra mussels. In Memphis, 6,304 words appeared. Across the 660 miles from Lake Erie's shores to the banks of the lower Mississippi River, there was nearly a nine-fold decrease in information via the newspaper channel.

When types of articles were categorized, non-thematic mentions of zebra mussels were found to be much more common in Cleveland and Columbus than the remaining three cities (see [Table 2](#)). A preponderance of the use of "zebra mussel(s)" in passing was observed in the *Plain Dealer* items from 1992 and 1993, when 62.7% of stories carried non-thematic mentions, compared to 42.0% in the whole population. Zebra mussel coverage was dominated by actual news usage in Cincinnati, where 73.9% of items hung on news pegs; in Louisville, with 81.0%; and, in Memphis, with 57.1%. That is, zebra mussel information presented in the cities more distant from Lake Erie was more likely to be reported as actual news, as opposed to feature material or simply as a term used incidentally.

Afghanistanism is operationalized as the degree to which the constituents of severity, negativity, and unusualness vary in relation to geographic proximity. The dichotomous questions included in this study on offering of remedies and stating urgency were designed to find nuances within zebra mussel coverage from which inferences about Afghanistanism could be drawn. Based on conventional news values, the text of a story about close-at-hand zebra mussels should exhibit more severity, more negativity, and more unusualness than another about a far-off infestation. Those stories categorized as non-thematic mentions were dropped from this analysis, since by definition they contained little information about zebra mussels past mere mention of the creatures.

The stating of urgency across the populations was significantly distributed (see [Table 3](#)). Stories with tones proclaiming a critical situation were most alike in the middle three cities, with Columbus at 62.5%, Cincinnati at 68.4%, and Louisville at 61.1%. Such a sense was not as often produced by copy in Cleveland, with 49.0%, and especially in Memphis, with 18.2%.

A split-half comparison was conducted on the largest population, that of the *Plain Dealer*, as means of observing shifts in tone of coverage over time. The population was arranged in chronological order and then divided in two. [Table 4](#) shows a significant shift with the *Plain Dealer's* stories becoming less likely to offer remedies and state urgency over

time.

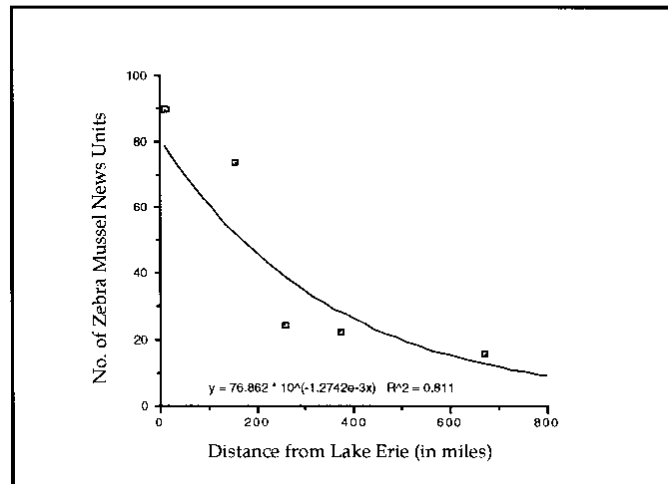
Conclusions

Not surprisingly, the appearance of zebra mussel information was found to be most closely related to geographic proximity. Figure 2 graphically represents a broad interpretation of the relationship between distance from the problem of interest and amount of coverage it was granted. An exponential fit produces an r^2 value of 0.811 in the admittedly simple depiction. Accordingly, if 81 percent of coverage is so related to proximity, 19 percent can be determined by non-proximate factors, including the one tested here Afghanistanism.

If Afghanistanism has a role in newspaper coverage of zebra mussels, the tenor of the coverage within a circulation area can be expected to shift over time as the species closes in on that specific metropolitan area. Coverage of the problem will focus, with noticeable urgency, on damage and remedies initially, while the mussels are found elsewhere. A sense of reconciliation would then be expected to filter into the text of news accounts, even as the mussels arrive and the problem escalates locally.

Indications of such modes of expression and alterations over time were found in the data. There was more early coverage in Columbus and Louisville than in Cleveland. Zebra mussels were seen as a hard news topic more often in Cincinnati, Louisville, and Memphis. The percentage of stories stating urgency decreased over time, with the greatest change in Cleveland and Louisville. The most pervasive use of urgent words was found in Columbus, Cincinnati, and Louisville. In Cleveland and Columbus, these exotic shellfish became a term in the reporter's lexicon acceptable for use without an appositional identifier, while concurrently receding from the news agenda. For example, a Columbus sports columnist suggested in passing that Zebra Mussels would be a fitting name for a new professional football team in Ohio.

Figure 2 RELATIONSHIP OF NUMBER OF ZEBRA MUSSEL NEWS ARTICLES AND DISTANCE FROM LAKE ERIE



Our favorite illustration of Afghanistanism in zebra mussel coverage was an attempt by *the Plain Dealer* headline writers to put an optimistic sheen on the problem. Their headline "Experts say zebra mussel fear unwarranted" is strikingly similar in verbiage, and perhaps intent, to the Kellogg, Idaho's *Evening News* s "Lead poisoning fears largely unwarranted."

The role of Afghanistanism in this particular case can be typified as moderate at its strongest. In comparison with proximity, the factor's ability to produce deviations environmental news is, in rare occasions, considerable; at most times more than negligible; and yet, at others, nonexistent. Like the earlier findings of Hungerford and Lemert (1973), this study generated patchy support for the effect. Afghanistanism's patchiness suggests that predicting its occurrence will be difficult.

That is not to say that Afghanistanism is not potentially damaging to perceptions of environmental problems. Our findings fit best with the commentary of Friedman (1991), in that the coverage we studied probably reflects a news system that favors novelty and operates hastily. Evidence of environmental problems that have been reported previously, perhaps from a location far away, loses importance regardless of the current local impacts. We suspect that such coverage leads audiences to believe local environmental repercussions of human society are negligible. In this, we agree with Sleeper (1979).

An absence of Afghanistanism results in news free from one of many sources of distortion. That signs of it can be found at all discloses a subtle way in which messages about environmental problems, both near and far from a publication's home, are distorted.

Notes

1. In 1990, the cities ranged in human population from nearly 1 million to about 1.8 million (Velez, 1992). Cleveland sits on Lake Erie's shores. Its metropolitan population is estimated at 1.8 million. Columbus is located 145 miles southwest of Cleveland; 1.4 million people live there. An additional 100 miles southwest, Cincinnati is home to 1.5 million. All three of these cities are in Ohio. Louisville, Kentucky, with a population of nearly 1 million, is another 115 miles to the southwest. Memphis, Tennessee, is 300 miles southeast of Louisville. Its metropolitan area has a population of 1 million. Memphis is 660 miles from Cleveland. Just as the five metropolitan areas had similar populations, so the circulation rates of the newspapers fall into a confined range. Velez (1992) reports the following figures for March 31, 1991, from the middle of the study

period:

- *Plain Dealer* 430,612 (Monday-Saturday), 561,421 (Sunday);
 - *Dispatch* 264,058 (Monday-Saturday), 399,108 (Sunday);
 - *Enquirer* 203,033 (Monday-Saturday), 351,163 (Sunday);
 - *Courier-Journal* 238,080 (Monday-Saturday), 328,901 (Sunday);
- and,
- *Commercial-Appeal* 229,544 (Monday-Saturday), 289,444 (Sunday).

The additional daily in Cincinnati, the *Post*, has an average daily circulation of 105,469, with no Sunday publication.

2. All *Courier-Journal* and *Dispatch* copy for the entire study period was available on-line. For the other three papers, the study period dates covered by the computer searches were: *Plain Dealer*, July 1991 through May 1993; *Enquirer*, May 1990 through May 1993; and, *Commercial Appeal*, May 1990 through May 1993. For dates where no full-text on-line service was available, other indexes were used instead. For the *Plain Dealer*, this was the Cleveland Public Library's *Cleveland News Index*. The *Enquirer* was searched using the Cincinnati Public Library's "CINCH" computer index. *Memphis Chronology* was checked at the Memphis and Shelby County Public Library, the source of the index.

The text of articles was retrieved, from on-line services in most cases. To allow examination of the stories' graphic qualities, 203 of the 218 news units, or 93.1%, were copied from microfilm. Those pieces not found appeared in editions not preserved on microfilm.

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