A Longitudinal Study of the New York Times *Science Times Section*

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The weekly science section of the New York Times*, Science Times, is an important and influential entity in science journalism. This article presents the results of an in-depth, longitudinal study of Science Times over twenty years. Sampling every five years from 1980 to 2000, the authors analyzed changes in the size of the section, advertising, and coverage emphasis in terms of disciplines and themes treated. Science Times grew from 1.7 pages per issue, on average (excluding advertising), in 1980 to 5.4 pages per issue in 2000. While the downturn in computer-related advertising is often blamed for the demise of science sections in other newspapers, Science Times was bigger in 2000 than during the boom years of computer-related advertising. Medicine, health, and behavior received the most attention overall, although the proportion varied over time. While research findings were the most frequent theme, explanations, reviews, and profiles were a substantial component. The findings are discussed with regard to the institutional history of Science Times.*

Keywords: *science news; content analysis; Science Times;* New York Times; *longitudinal study*

Science and technology have long played an important role in the lives of Americans, offering both opportunities and risks (see, e.g., Best and Kellner 2001). Yet, as researchers have pointed out, most nonspecialists rely on the media as their major sources of information about these fields and about any possible impacts on their lives (Best and Kellner 2001; Nelkin 1995; Rogers 1999; Scientists' Institute for Public Information 1993; Singer and Endreny 1993). Scientists may also use popular science coverage to keep up with fields outside their immediate specialties (Bucchi and Mazzolini 2003; Kiernan 2003; Lewenstein 1995; Phillips et al. 1991; Willems and Woudstra 1993).

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The science and technology arena is, however, vast, and the media can cover only a fraction of its activities. As with media coverage more generally, science coverage therefore entails the selection of a limited number of topics from a large range of activities being carried out in the "real" world (Gans 1979; Hilgartner and Bosk 1988; Miller 1999; Nelkin 1995; Weigold 2001).

Previous research has indicated that a variety of factors can contribute to this selection process. These factors include the interests, experience levels, and news judgments of journalists and editors; constraints imposed by the news-gathering process; whether a newspaper has a weekly science section; the need to compete successfully for advertising revenues; and the related need to attract the "right sort" of audience (Bader 1990; Dean 2002; Dunwoody 1986; Friedman 1986; Fürsich and Lester 1996; Miller 1999; Miller et al. 1998; Nelkin 1995; Pellechia 1997). Coverage can also be influenced by events, trends, and "bandwagons" within the spheres of science and technology, as well as broader social currents (Fujimura 1988; Fürsich and Lester 1996; Miller 1999; Miller et al. 1998; Nelkin 1995).

Several studies have indicated a preponderance of biomedical news in the mass media (see, e.g., Bucchi and Mazzolini 2003; Pellechia 1997). However, the choices made can vary considerably among publications. For example, Hinkle and Elliott (1989) found that just 38.5 percent of all science-related coverage in the *New York Times* was about medicine and health. In contrast, medicine and health coverage made up 71.4 percent of science coverage in *USA Today* and 88.2 percent of science coverage in *National Enquirer*.

Bader (1990) also found variability in the amount of attention given to different areas of scientific work. Specifically, she found that the addition of a science section to a newspaper was associated with an increase in the range of scientific and technical topics covered. After newspapers in Bader's study added science sections, they carried "significantly more stories in areas outside medicine, space, and the environment, especially stories about basic research and technology. These stories were concentrated in the science sections, while the rest of the paper became more biased toward medicine" (p. 94).

The amount of attention given to particular topics may also vary over time, as shown by a study of science-related content in the leading Italian newspaper, *Il Corriere Della Sera*, over a period of fifty years (Bucchi and Mazzolini 2003). In this newspaper, coverage of the biomedical sector "caught up" with coverage of the physical-mathematical sector in the 1960s and "then overtook it in the past twenty years" (p. 16).

That different media outlets pay more or less attention to different types of scientific and technical work should not be surprising. As Miller (1999) pointed out, different media outlets have different audiences, different interests,

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and different agendas. Media institutions are not static entities either, and audiences, interests, and agendas might also be expected to change over time. From this viewpoint, at any given time, each media outlet can be seen as providing a snapshot of science and technology as seen through a particular "institutional lens," a concept introduced by Lutz and Collins (1993) in their study of *National Geographic* magazine.

Although Lutz and Collins (1993) were interested primarily in visual representations, we believe that the concept of an institutional lens can be applied to media content more generally. In this article, we examine the views of science and technology that have been presented at selected points during the life span of one such lens: Science Times, the weekly science section of the *New York Times*.

The *New York Times* as a whole is often used as a study population for analyses of science coverage (see, e.g., Evans et al. 1990; Hinkle and Elliott 1989; Pellechia 1997; Shain and Philips 1991). However, with the exception of Fürsich and Lester's (1996) analysis of the section's "Scientist at Work" column, very little attention seems to have been paid to Science Times as an entity in its own right.

We find this lack of research attention surprising. Science Times has established itself as an important, reliable, and influential guide to the world of science, medicine, and technology over the past twenty-five years. As Fürsich and Lester (1996) observed, Science Times seems to receive "unique approbation of its coverage in professional journalistic circles" (p. 27). For example, two articles appearing in Science Times have won Pulitzer Prizes, and the section received the Lasker Foundation Award in 2000 for "sustained, comprehensive and high quality coverage about science, disease and human health," (Wilford 2003, F2).

The section is also widely credited with influencing science coverage at other papers. According to Lewenstein (1987), the section's early successes were used by a "string of newspaper editors . . . to justify their own new science sections" (p. 31). Furthermore, Jerome (1986, 151) noted that when Science Times began to include at least one article a week on "current event topics such as missile technology, science education, nuclear proliferation, and the technology of verification of test-ban treaties," a number of other newspapers with science sections quickly followed suit.

Science Times has also been popular with readers. According to Gelb (2003) and Wilford (2003), the introduction of the science section in 1978 boosted the paper's readership on Tuesdays. And although we have found no information specifically referring to Science Times, the *New York Times* more generally is read by a high percentage of "decisionmakers," "policy leaders," and members of the "attentive" and "interested" publics for science

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(Fürsich and Lester 1996; Scientists' Institute for Public Information 1993). In addition, Science Times articles are syndicated to newspapers that subscribe to the wire service of the *New York Times*, extending their potential reach among newspaper audiences (Rogers 1986). The section has also been widely used as a classroom text by elementary and high school science teachers (Gelb 2003; Wilford 2003).

Thus, to once again borrow words used by Lutz and Collins (1993, xiii) in the context of their study of *National Geographic* magazine, Science Times appears to be "a powerful voice in an ongoing cultural discussion" of science, medicine, and technology. This article is concerned with what this voice has had to say about these topics over the past quarter of a century. Following suggestions made by Evans and Hornig Priest (1995) and Wilcox (2003) that content analyses include stronger links to contextual factors, we begin by presenting an overview of the history of Science Times, drawing together information from previously published sources. We then present the results of our analysis of the scientific disciplines covered within the section's pages for five years: 1980, 1985, 1990, 1995, and 2000. Our findings are presented in the context of the institutional history of Science Times.

A Brief History of Science Times

The early history of Science Times was discussed by Diamond (1994) and also by Fürsich and Lester (1996). A brief recapitulation of this earlier work is provided below, however, to provide the necessary context for the current study. More recent events and developments at Science Times, which have taken place since the publication of these earlier studies, are also included.

Science Times first appeared on Tuesday, November 14, 1978 (Diamond 1994). Although the idea of a science section was at first strongly resisted by the business side of the paper, Science Times proved popular with readers, boosting circulation on Tuesdays (Diamond 1994; Gelb 2003; Wilford 2003). Science Times also became financially self-supporting, largely because of advertising from the emerging home computer industry. In response, Science Times added a column on personal computers to its weekly format (Diamond 1994; Gelb 2003).

The advertising climate at Science Times changed again in the late 1990s, however. Computer manufacturers started selling directly to the customers, and the retail computer industry began to decline. Retailers began to cut

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back on newspaper advertising, a development credited with contributing to the sharp decline in the number of newspaper science sections and science magazines across the nation (Nelkin 1995). Science Times also faced an internal challenge for advertising revenue: competition from Circuits, a new computer and home electronics section launched by the *New York Times* in February 1998. According to Lenihan (1998, 36-37), Circuits quickly "connected with advertisers," outpacing Science Times in advertising volume and creating concerns about the future of the science section.

Lenihan (1998) suggested that this changing advertising environment was an important factor in a decision to redesign Science Times in 1998, almost twenty years after it first appeared. The first issue of this redesigned Science Times was launched on October 13, 1998, and promised "new pages for health, behavior and fitness," including "additional news reports and regular features like The Novice, a periodic column on the personal experience of learning new fitness activities" ("New today" 1998, F1). The section stressed that the new features would be "in addition to Science Times's regular coverage" and reaffirmed its "commitment to articles about the larger world of science" ("New Today" 1998, F1). Coverage of consumer-oriented computer products was moved from Science Times, although the section promised that it was "renewing its coverage of the science of computing and the use of computers in science" ("Where to find Chess" 1998, F2).

Research Questions

The brief history of Science Times presented above points to the dynamic nature of the section with respect to size, amount of advertising, the types of topics included under the heading "science," and the themes or angles utilized in the coverage of these topics. To investigate these changes in a systematic way, we carried out a longitudinal analysis of Science Times content from 1980 to 2000. The specific questions addressed in our study were the following:

Research Question 1: Has the size of Science Times changed over the time period examined? If so, how?

Research Question 2: Which disciplines and topics are contained within the broad heading "science," as viewed through the institutional lens of Science Times?

Research Question 3: Has the degree of emphasis given to specific areas of scientific work remained constant, or has it changed over time?

Research Question 4: What angles or themes have been emphasized in items appearing in Science Times?

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Method

To answer these research questions, we examined a long-term and comprehensive sample of Science Times. Analysis combined both quantitative and qualitative techniques.

Sample

The sample used for analysis consisted of one randomly selected issue per month for each of five selected calendar years: 1980, 1985, 1990, 1995, and 2000. A five-year interval was chosen to provide a workable balance between comprehensiveness of coverage and the availability of coding resources. We began sampling in January 1980, rather than in November 1978, to give the new section time to "settle down" after both the initial launch of the section and the 1998 redesign. The copies of Science Times used in this analysis were drawn from the national edition of the *New York Times* and obtained from microfilm.

Previous studies of science coverage have often limited the study population to news stories focusing on the results of completed scientific studies (see, e.g., Evans et al. 1990; Pellechia 1997). In this study, however, we analyzed all science-related content appearing in Science Times, including book reviews, question-and-answer columns, letters from readers, essays, and advertisements. As Bruck (1989) noted, these different types of texts represent "various types of narratives and formats which follow different rules and conventions of composition and subject treatment" (p. 114). As such, they can provide different insights into the world of science. Material related to other topics (such as education, the arts, entertainment, and sports) that also appeared in section C along with Science Times was not coded.

Coding Scheme

Researchers have used a variety of different coding schemes when analyzing science content. For example, Hinkle and Elliott (1989) and Pellechia (1997) used three categories in their analyses of science coverage in selected newspapers: medicine and health, the physical and natural sciences, and technology. In contrast, Evans et al. (1990) classified science coverage using four categories: social, medical, natural, and economic sciences. Bader (1990) used eleven categories, including medical, psychology, space, nuclear, science, biology, and policy.

After examining these coding schemes and carrying out preliminary readings of Science Times, we developed a five-category coding scheme for the present study:

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1. *Health, medicine, and behavior:* stories in this category included a variety of health-related areas, including biomedical research, the development of new drugs, new surgical procedures, disease, environmental threats to health, and nutrition and fitness. Items about psychology and psychiatry were also included in this category, as were items about biotechnology as it relates to human health.
2. *Physical, Earth, and life sciences:* this category included items from the physical sciences (e.g., physics, chemistry, astronomy, and astrophysics), mathematics, the Earth sciences (e.g., geology, geophysics, atmospheric science, and oceanography), and the life sciences other than those focused on human biology (e.g., biology, botany, zoology, ornithology, and ecology).
3. *Technology:* this category encompassed developments in the fields of engineering and technology, including news about the space program, computer technology, and the various branches of engineering. Agricultural uses of biotechnology (e.g., manipulating genes to increase crop yields) were included in this category.
4. *History and culture:* this category included items about anthropology, archeology, linguistics, and history. Articles about the history of a specific science or technology, however, were excluded from this category. Thus, an article about the discovery of magnetism, for example, would be coded under "physical, Earth, and life sciences."
5. *General:* this category encompassed items about science or engineering more generally. Examples included a story about job prospects for graduates of science and education programs and a story about U.S. government funding for science and engineering research. This category also included stories that included substantial discussion of material from two or more of our other categories.

We also noted the subtopics within each broad category by writing brief descriptions of the focus of each item. These descriptions were subsequently examined and postcoded to give more detail about some of the types of science covered.

Themes or angles were drawn from earlier research and primarily from preliminary readings of Science Times. As previous researchers have noted, a great deal of science news concerns reports of research findings published in scientific journals or presented at conferences (Dunwoody 1986). Event-driven reporting can also play a role, especially for topics such as the space program (Nelkin 1995). However, Jerome (1986) noted that Science Times offers at least some articles that address social and political implications of science topics. The section also carries profiles of scientists on a periodic basis (Fürsich and Lester 1996), but our preliminary readings of Science Times suggested that this concept could be extended to include "profiles" of particular diseases, computer programs, or fields of scientific inquiry. Finally, a small number of items addressed engineering and technological developments that were making certain types of research possible or providing solutions to existing problems or

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limitations. Examples included descriptions of new types of microscopes or of a spacecraft that allows astronomers to collect new types of data.

We therefore coded for five thematic categories:

1. *Research:* this theme included the results of one or more studies published in journals or books, presented at a conference, issued in a press release, and so on. This category also included the analysis of older results and discussions of planned research projects or the launch of a new phase of an existing research project.
2. *Events:* this category included events such as the launch of a space mission, the outbreak of a disease, and the discovery of an important archeological site.
3. *Engineering and technological developments:* this theme concerned the question of how something is done or applied and included the invention or deployment of new tools, tests, processes, and products.
4. *Policy:* this theme concerned questions of how something should be managed or regulated and included discussion of government regulations and actions, such as new rules on food safety or the establishment of a new wildlife reserve, as well as ethical debates about the proper role of science and technology (e.g., should we allow cloning?).
5. *Profiles, explanations, reviews, and recommendations:* this theme covered profiles of scientists, diseases, and fields of inquiry, together with basic explanations of how things work and consumer-oriented reports, reviews, and recommendations.

To be included, approximately one third of an item had to be devoted to discussion of a theme. Hence, no more than three themes were recorded for any item.

Coding was carried out primarily by Clark. A randomly selected subset of issues of Science Times (10 percent of the total) was also coded by Illman to determine the extent to which the authors were aligned on coding. Using Holsti's method of simple percentage agreement, intercoder agreement ranged from 88 percent to 100 percent for the variables measured.[1]

Results and Discussion

Research Question 1: Has the Size of Science Times Changed over the Time Period Examined? If So, How?

The total size of Science Times over the years reflects the amount of both editorial and advertising content. As Figure 1 shows, the total size of the section increased between 1980 and 1990, leveled off in the mid-1990s, and decreased in 2000.

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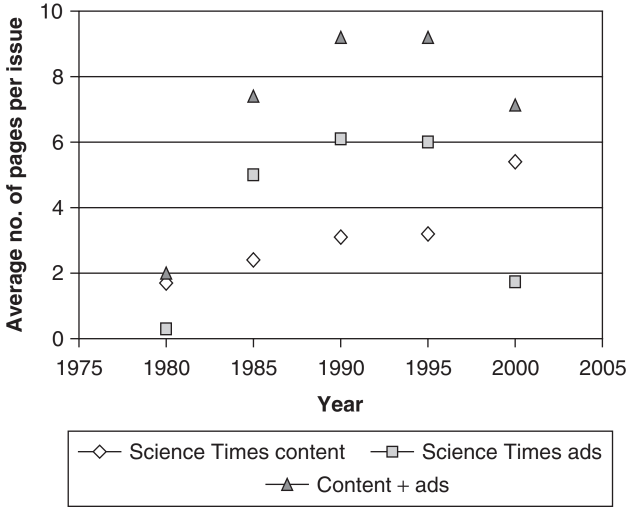

Figure 1: Science Times Content, by Year

The amount of editorial content in Science Times did not, however, show this same downward trend in 2000. In fact, the amount of editorial content increased from an average of 1.7 pages per issue in 1980 to an average of 5.4 pages in 2000. The total quantity of science-related materials made available to readers each week thus increased substantially over the lifetime of the section during that period.

The amount of Science Times–related advertising grew from an average of 0.3 pages per issue in 1980 to 5 or 6 pages per issue in 1985, 1990, and 1995. It then fell to less than 2 pages per issue in 2000. (However, it should be noted these figures refer to the national editions of Science Times and that advertising levels may have been different in the city editions.) Computer-related advertising made up over 95 percent of all advertising in the years 1985, 1990, and 1995. In contrast, in 2000, computer-related ads made up just 50.5 percent of science-related ads, while health-related ads accounted for 46.5 percent.

While the downturn in computer-related ad volume is often blamed for the demise of science sections at other newspapers, the amount of science-related editorial content in Science Times was bigger in 2000 than it was during the boom years of computer-related advertising. Thus, it appears that the commitment of the *New York Times* to Science Times has not been

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TABLE 1
Topic Coverage by Number of Stories and Area

Topic	*Number of Items*	*Percentage (number of items)*	*Percentage (area)*
Health, medicine, and behavior	420	42.6	39.4
Physical, Earth, and life sciences	306	31.1	31.3
Technology and engineering	203	20.6	20.8
History and culture	34	3.5	6.2
Other (general science)	22	2.2	2.3
Total	985	100.0	100.0

solely contingent on the section's abilities to attract science- and technology-related advertising.

Research Question 2: Which Disciplines and Topics Are Contained within the Broad Heading "Science," as Viewed through the Institutional Lens of Science Times?

As shown in Table 1, Science Times clearly takes a broad view of science, including items about health, medicine, and behavior; the physical, Earth, and life sciences; technology and engineering; and, although to a lesser extent, archeology and anthropology (history and culture). The sample issues of Science Times examined for this study also contained a small number of items about the fields of science and technology more generally.

There were differences in the amount of emphasis given to these different areas of science, however. Health, medicine, and behavior received the greatest amount of attention over the total period examined, constituting 42.6 percent of all items, as measured by the number of items, a figure fairly close to the 38.5 percent obtained by Hinkle and Elliott (1989) in their study of science coverage in the *New York Times* as a whole.

The physical, Earth, and life sciences were the subjects of 31 percent of the total number of items analyzed. Technology and engineering items constituted about 21 percent, suggesting that while these topics are included within the definition of "science" used by Science Times, they have been seen as a lower priority.

Items about topics in the area of history and culture (mainly archeology and anthropology) appeared much less frequently and made up only 3.5 percent of the total number of items.

There was little difference in the depth of coverage, as measured by article area, for different topics covered. The only exception was history and

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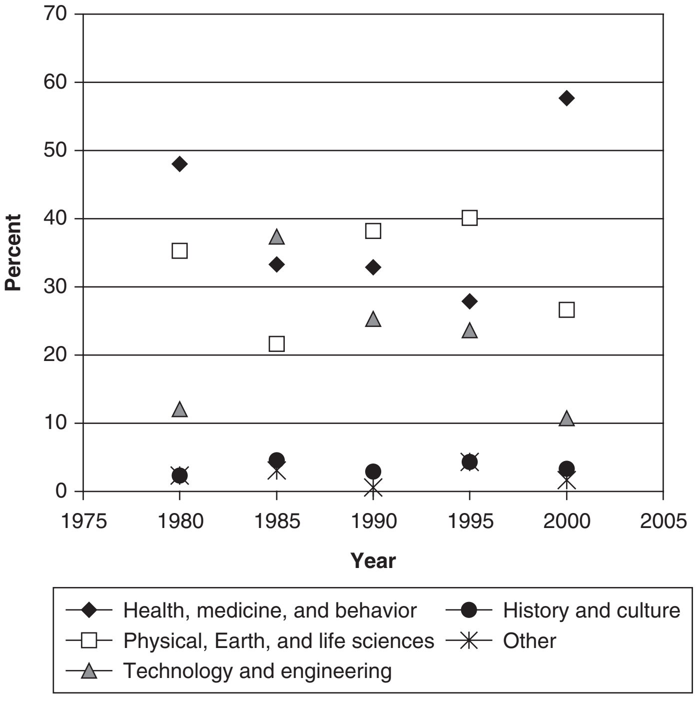

Figure 2: Categorization of Science Times Content by Topic (percentage)
NOTE: Sample sizes: 1980: $n = 173$; 1985: $n = 195$; 1990: $n = 170$; 1995: $n = 140$; 2000: $n = 307$. Chi-square statistic = 104.63, $df = 20$, $p < .001$.

culture items, which were significantly larger in area than items about other topics.[2] Thus, while these items made up only 3.5 percent of the total coverage, as measured by the number of items, they constituted 6.2 percent of the total coverage, as measured by area.

Research Question 3: Has the Degree of Emphasis Given to Specific Areas of Scientific Work Remained Constant, or Has It Changed over Time?

As shown in Figure 2, there have been statistically significant changes in the number of items addressing each scientific topic over the history of Science Times. In other words, the view of science seen through the institutional lens of Science Times has shifted over time.

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In 1980, health, medicine, and behavior were the most visible areas of science as seen through this lens, accounting for 48 percent of all items. Next in prominence were the physical, Earth, and life sciences and technology and engineering, at 35 percent of all items. Together, these two categories accounted for 83 percent of the 173 items coded for this year.

In 1985, however, technology and engineering had been moved into the foreground, constituting 37 percent of all items. The proportion of items about health, medicine, and behavior fell to 33 percent, and items about the physical, Earth, and life sciences had dropped to 22 percent. Closer examination of the texts showed that this spike in engineering and technology items was due mainly to the addition of the two weekly home computer columns.

By 1990, the picture had shifted again. The physical, Earth, and life sciences were predominant, covered in 38 percent of the items analyzed for that year. Health, medicine and behavior received 33 percent of coverage, as in 1985. Technology and engineering were the major focus of 25 percent of the items.

The relative degree of prominence given to the different areas of scientific work was similar in 1995. Once again, the physical, Earth, and life sciences received most attention (40.1 percent), followed by health, medicine, and behavior (27.9 percent) and technology and engineering (23.6 percent).

By 2000, after the 1998 redesign of Science Times, the picture had changed considerably. Health, medicine, and behavior accounted for 58 percent of all items analyzed. Items about the physical, Earth, and life sciences constituted 27 percent of the total, and the proportion of items about technology and engineering fell to just 11 percent. However, it should also be remembered that the size of Science Times also increased considerably after the redesign, with most of the additional space devoted to health coverage. The decrease in prominence of engineering and technology can be traced to the loss of the consumer-oriented columns.

Additional analyses also pointed to differences of emphasis within the broader topic categories over the history of Science Times. For example, the life sciences dominated the category of physical, Earth, and life sciences in each year analyzed except 1985. The majority of these life sciences stories focused on wildlife biology or conservation.

Technology and engineering coverage was even more variable. While a wide range of technological and engineering topics received at least some attention over the time period covered by this study, only three topics were found in all of the five years sampled: the space program, computers, and agriculture (Table 2). Computer-related topics received the most attention in 1985, 1990, and 1995. Virtually all these items were about home computers; but in 2000, after this type of material had moved to Circuits, computing received very little attention.

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TABLE 2
Range of Technology and Engineering Topics Appearing in Science Times

Topic	*1980*	*1985*	*1990*	*1995*	*2000*
Aeronautics	X	X	—	—	X
Agricultural and food	X	X	X	X	X
Automotive	X	—	—	—	—
Chemical	X	X	—	X	—
Civil	—	X	—	—	X
Computer	X	X	X	X	X
Electrical	X	—	—	X	—
Engineering (general)	X	—	—	—	—
Materials	—	X	X	—	X
Mining	—	—	—	X	—
Military	—	X	—	—	X
Nuclear	—	—	—	—	X
Nonnuclear power generation	—	X	X	—	—
Optics	X	—	—	X	—
Robotics	—	X	—	—	X
Space	X	X	X	X	X

NOTE: Topics marked with an X were the major focus of at least one item in the year indicated.

Research Question 4: What Angles or Themes Have Been Emphasized in Items Appearing in Science Times?

As shown in Table 3, Science Times has addressed scientific topics from a variety of perspectives. While the section has included a high proportion of news and feature items based on research findings announced in major scientific publications and conferences, it has also provided substantial amounts of background and contextual information in the form of profiles of researchers, diseases, or therapies; reviews of books, computer software, and diets; and answers to questions such as why fish smells rotten so quickly or how weapons-grade plutonium can be destroyed. A smaller numbers of items included events, policy issues, or technological developments as major themes (i.e., these themes constituted at least one third of the item).

As Table 3 also shows, this pattern of emphasis was broadly similar for health, medicine, and behavior and the physical, Earth, and life sciences. For these topics, the most commonly encountered major theme was that of major research findings, followed by reviews, profiles, and explanations; policy; events; and technological developments.

The area of technology and engineering appears to have been treated quite differently, however. In this area, we found relatively little attention to research

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TABLE 3

Prominence of Selected Themes in Science Times Coverage for All Years, by Topic, (in percentage)

Theme	*Health, Medicine, and Behavior*	*Physical, Earth, and Life Sciences*	*Technology and Engineering*	*History and Culture*	*General Science*
Research findings	58.8	56.9	15.3	81.8	6.7
Explanations, reviews, and profiles	20.7	24.1	48.5	6.1	26.7
Policy	12.2	11.5	6.6	9.1	33.3
Events	7.0	8.5	17.3	12.1	0
Technological developments	6.5	5.8	20.4	0	0
n	386	295	196	33	15

NOTE: Letters to the editor were excluded. Percentages may add to more than 100 percent because up to three themes were coded for each item. Chi-square tests of all relationships between topic and the presence or absence of each theme were all significant at $p < .05$ or lower.

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findings and a much higher proportion of items providing explanations, profiles, and reviews. The high proportion of items containing the latter theme can be largely accounted for by "Peripherals" and "Home Computer," two weekly consumer-oriented computer columns that appeared in Science Times during 1985, 1990, and 1995. Event-driven reporting was also more prominent in this category, a finding that appears to be largely due to coverage of space program events such as space shuttle launches.

Conclusions

We began this article by arguing that media outlets present a view of the world, or some aspect of the world, as seen through a particular institutional lens. We also argued that the weekly science section of the *New York Times*, Science Times, represents a particularly important lens in this respect because of the high status of the section within the world of science journalism.

Science Times grew considerably over the time period studied, from an average of just 1.7 pages per issue (excluding advertising) in 1980 to 5.4 pages per issue (also excluding advertising) in 2000. While the downturn in computer-related ad volume is often blamed for the demise of science sections at other newspapers, Science Times was bigger in 2000 than it was during the boom years of computer-related advertising. Thus, it appears that the institutional role played by Science Times at the *New York Times* goes beyond a simple ability to attract science- and technology-related advertising.

For Science Times, science is clearly a broad-ranging enterprise, including medical, health, and behavior; physical, Earth, and life sciences, technology and engineering; and also archeology, anthropology, and even some history. Of these, medicine, health, and behavior received the greatest amount of attention overall. But the picture was quite different in some years than in others. In the first year we examined, 1980, health, medicine, and behavior stories were most prominent. In our 1985 sample, however, technology and engineering stories received proportionately more attention. Then, in the 1990s, the physical, Earth, and life sciences were most prominent. In 2000, after the redesign and the decision to focus more on medicine and health again, these topics had regained predominance. A more fine-tuned analysis, sampling every other year, or even every year, would allow the boundaries of topic prominence to be determined more exactly. It would also allow topic coverage to be more readily placed in the context of real world events or trends or "bandwagons" among scientific researchers.

According to John Noble Wilford (2003, F2), the first editor of Science Times, the science staff of the *New York Times* had been moving "beyond the

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daily fare of research news to write more comprehensive articles putting scientific advances into perspective and portraying scientists at their work" for several years before the section was first established. Our findings show that while reports on new research findings are the most commonly seen theme, Science Times still appears to view the provision of basic explanations, reviews, profiles, and recommendations as an important part of its mission.

Notes

1. While Holsti's formula does not correct for chance, there are also drawbacks with other commonly used methods of calculating intercoder reliability. For example, as Potter and Levine-Donnerstein (1999) argued,

> Scott's pi makes the assumption that values that are selected often by coders (even if they are the valid choices) constitute error and therefore should be subjected to the largest correction. It makes no allowance of the possibility that the characteristics in the content being coded are themselves unbalanced across coding values [which is the case in our study]. This bias toward balance is a serious limitation, because it ignores the concern for validity. (P. 279)

2. While a one-way analysis of variance for item size by topic was significant ($F = 4.58$, $df = 4$, $p < .01$), post hoc Scheffé tests (using $p < .05$) revealed that the only topic for which the average item length was significantly different was history and culture.

References

Bader, R. 1990. How science news sections influence newspaper science coverage: A case study. *Journalism Quarterly* 67 (1): 88-96.

Best, S., and D. Kellner. 2001. *The postmodern adventure: Science, technology, and cultural studies at the third millennium*. New York: Guilford.

Bruck, P. 1989. Strategies for peace, strategies for news research. *Journal of Communication* 39 (1): 108-29.

Bucchi, M., and R. G. Mazzolini. 2003. Big science, little news: Science coverage in the Italian daily press, 1946-1997. *Public Understanding of Science* 12:7-14.

Dean, C. 2002. New complications in reporting science. *Nieman Reports* Fall:25-26.

Diamond, E. 1994. *Behind the* Times*: Inside the* New York Times. New York: Villard.

Dunwoody, S. 1986. The science writing inner club: A communication link between science and the lay public. In *Scientists and journalists: Reporting science as news*, edited by S. M. Friedman, S. Dunwoody, and C. L. Rogers, 155-169. New York: Free Press.

Evans, W., and S. Hornig Priest. 1995. Science content and social context. *Public Understanding of Science* 4:327-40.

Evans, W. A., M. Krippendorf, J. H.Yoon, P. Posluszny, and S. Thomas. 1990. Science in the prestige and national tabloid presses. *Social Science Quarterly* 71:105-17.

Friedman, S. M. 1986. The journalist's world. In *Scientists and journalists: Reporting science as news*, edited by S. M. Friedman, S. Dunwoody, and C. L. Rogers, 17-41. New York: Free Press.

Downloaded from http://scx.sagepub.com at UNIV WASHINGTON LIBRARIES on September 19, 2008

Fujimura, J. 1988. The molecular biological bandwagon in cancer research: Where social worlds meet. *Social Problems* 35:261-83.

Fürsich, E., and E. P. Lester. 1996. Science journalism under scrutiny: A textual analysis of Science Times. *Critical Studies in Mass Communication* 13:24-43.

Gans, H. J. 1979. *Deciding what's news*. New York: Pantheon.

Gelb, A. 2003. *City room*. New York: Marion Wood.

Hilgartner, S., and C. L. Bosk. 1988. The rise and fall of social problems: A public arenas model. *American Journal of Sociology* 94:53-78.

Hinkle, G., and W. R. Elliott. 1989. Science coverage in three newspapers and three supermarket tabloids. *Journalism Quarterly* 66:353-58.

Jerome, F. 1986. Gee whiz! Is that all there is? In *Scientists and journalists: Reporting science as news*, edited by S. M. Friedman, S. Dunwoody, and C. L. Rogers, 147-154. New York: Free Press.

Kiernan, V. 2003. Diffusion of news about research. *Science Communication* 25:3-13.

Lenihan, R. 1998. *New York Times* launches revamped science section. *Editor & Publisher* October 17:36-37.

Lewenstein, B. V. 1987. Was there really a popular science boom? *Science, Technology, & Human Values* 12:29-41.

———. 1995. From fax to facts: Communication in the cold fusion saga. *Social Studies of Science* 25:403-36.

Lutz, C. A., and J. L. Collins. 1993. *Reading* National Geographic. Chicago: University of Chicago Press.

Miller, D. 1999. Mediating science: Promotional strategies, media coverage, public belief, and decision making. In *Communicating science: Contexts and channels*, edited by E. Scanlon, E. Whitelegg, and S. Yates, 206-26. London: Routledge.

Miller, D., J. Kitzinger, K. Williams, and P. Beharrell. 1998. *The circuit of mass communication: Media strategies, representation, and audience reception in the AIDS crisis*. London: Sage Ltd.

Nelkin, D. 1995. *Selling science: How the press covers science and technology*. Rev. ed. New York: W. H. Freeman.

New today: An expanded Science Times. 1998. *The New York Times* October 13:F1.

Pellechia, M. G. 1997. Trends in newspaper coverage: A content analysis of three US newspapers. *Public Understanding of Science* 6 (1): 49-68.

Phillips, D. P., E. J. Kanter, B. Bednarczyk, and P. L. Tastad. 1991. Importance of the lay press in the transmission of medical knowledge to the scientific community. *New England Journal of Medicine* 325 (16): 1180-83.

Potter, J., and D. Levine-Donnerstein. 1999. Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research* 27:258-84.

Rogers, C. L. 1986. Appendix F: Science in the mass media: A selected guide. In *Scientists and journalists: Reporting science as news*, edited by S. M. Friedman, S. Dunwoody, and C. L. Rogers, 313-22. New York: Free Press.

———. 1999. The importance of understanding audiences. In *Communicating uncertainty: Media coverage of new and controversial science*, edited by S. M. Friedman, S. Dunwoody, and C. L. Rogers, 179-200. Mahwah, NJ: Lawrence Erlbaum.

Scientists' Institute for Public Information. 1993. Science news: What does the public want? *SIPIscope* 20 (2): 1-10.

Shain, R. E., and J. Philips. 1991. The stigma of mental illness: Labeling and stereotyping in the news. In *Risky business: Communicating issues of science, risk, and public policy*, edited by L. Wilkins and P. Paterson, 61-74. New York: Greenwood.

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Singer, E., and P. M. Endreny. 1993. *Reporting on risk*. New York: Russell Sage.

Weigold, M. F. 2001. Communicating science: A review of the literature. *Science Communication* 23:164-93.

Where to find chess and the computer column. 1998. *The New York Times* October 13:F2.

Wilcox, S.A. 2003. Cultural context and the conventions of science journalism: Drama and contradiction in media coverage of biological ideas about sexuality. *Critical Studies in Media Communication* 20 (3): 225-47.

Willems, J., and E. Woudstra. 1993. The use by biologists and engineers of non-specialist information sources and its relation to their social involvement. *Scientometrics* 28:205-16.

Wilford, J. N. 2003. The birth of Science Times: A surprise, but no accident. *The New York Times* November 11:F2.

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