SIPIscope

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Interferon Update page 12

Views of Scientists and Journalists on

How the Media Cover Cancer

VICTOR COHN:

There are only two kinds of medical reporting: New Hope and No Hope. Cancer is both, on alternate days.

JUDY RANDALL:

There tends to be a lot of "breakthroughitis."

SPYROS ANDREOPOULOS:

Coverage seems to increase whenever writers' meetings take place, which inspired Donald Drake of the *Philadelphia Inquirer* to write a piece called "Why Do All the Cancer Cures Occur in March?"

MAX JENNINGS:

The media haven't overcovered cancer, they've undercovered it. We should replace every AIDS story with a cancer story.

DR. GERALD MURPHY:

Too frequently, a reporter doesn't have the background, or he gets the job for six months and then somebody else gets it. Scientific sources are constantly playing catch-up ball trying to give reporters background.

DR. ROBERT WEINBERG:

There is no question that cancer is overexposed. Advances in cancer research are covered much more than equally exciting advances in other fields.

DR. JORDAN GUTTERMAN:

Scientists also are somewhat to blame —many tend to duck their responsibilities in speaking with the press.

EDWARD EDELSON:

It's not in the coverage of cancer itself that cancer phobia is found in the media, but in coverage of other areas: toxic chemicals, the ozone layer, etc. Everything always seems to be defined in terms of cancer.

GEORGE STRAIT:

I reject the notion that TV is doing a worse job in reporting cancer than the print media.

EARL UBELL:

People who scream about oversimplification are just not aware of the way people understand things.

See 'The Hype and the Hope,' page 2.

Editor's Note:

The Hype and the Hope

Maybe it's the mystery surrounding the disease—not knowing where it comes from, or whom it will strike, or how or why it spreads—but cancer continues to inspire in the American public a dread unrivaled by any other illness. Virtually every family has suffered a cancer casualty (one out of every four Americans will eventually develop the disease) but this alone does not explain why cancer is feared even more than, say, heart disease, the nation's #1 killer.

In recent years, real progress has been made in the treatment of some forms of cancer, such as childhood leukemia and Hodgkin's disease. And in the past few months, research has made major gains which offer new hope for cancer control. "So fast and furious is the pace of discovery," reports Harold Schmeck in the Sept. 13 *New York Times*, "that some experts say informally that more has probably been learned in the past few years than in the previous quarter century."

To what extent is the public aware of these recent developments? How much do these advances represent real hope for a fearful population? How much have they been hyped through over-optimistic headlines ("Cancer Cured Again This Week!")?

These questions are not merely academic. Public perception is a major factor affecting policy decisions, and medicine and other areas of science may be particularly vulnerable to popular whims. If, for example, the average American is unaware of the crucial role of basic biomedical research in cancer control, or if cancer therapy is widely perceived to be of greater importance than basic research, what impact might such attitudes have on research funding priorities?

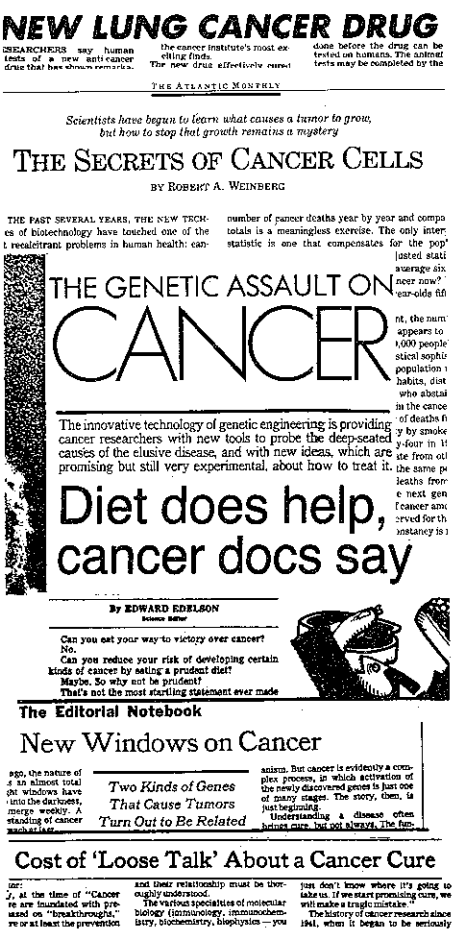
SIPI has consistently stressed the importance of the mass media in shaping public awareness of science issues. Because SIPI serves as a key link between scientists and journalists (most visibly through the operation of our Media Resource Service), SIPIscope is uniquely well placed to provide a continuing forum for an exchange of views on the successes and failures of science journalism.

Our special Winter 1982-83 and Summer 1983 issues on "Science in the Media" received such an unusually large response from readers (see "Comment," page 15) that we have decided to focus at least part of each issue on media coverage of specific scientific, technological, and medical issues.

In the following pages, cancer researchers and science journalists respond from their different vantage points to several questions about the media's handling of the cancer story. The interviews took place in September (in person or by telephone).

(Readers' comments are invited.)

—Fred Jerome



NEW LUNG CANCER DRUG

RESEARCHERS say human tests of a new anti-cancer drug that has shown remarkable... the cancer institute's most exciting finds. The new drug effectively caused... done before the drug can be tested on humans. The animal tests may be completed by the...

THE ATLANTIC MONTHLY

Scientists have begun to learn what causes a tumor to grow, but how to stop that growth remains a mystery

THE SECRETS OF CANCER CELLS

BY ROBERT A. WEINBERG

THE PAST SEVERAL YEARS, THE NEW TECH... es of biotechnology have touched one of the t recalcitrant problems in human health: can... number of cancer deaths year by year and compa... totals is a meaningless exercise. The only inter... statistic is one that compensates for the pop... justed stati... average six... neer now? ... ear-old fifl...

THE GENETIC ASSAULT ON CANCER

The innovative technology of genetic engineering is providing cancer researchers with new tools to probe the deep-seated causes of the elusive disease, and with new ideas, which are promising but still very experimental, about how to treat it.

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Diet does help, cancer docs say

By EDWARD EDELSON
Science Editor

Can you eat your way to victory over cancer?
No.
Can you reduce your risk of developing certain kinds of cancer by eating a prudent diet?
Maybe. So why not be prudent?
That's not the most startling statement ever made...

The Editorial Notebook

New Windows on Cancer

...go, the nature of ... is almost total... ght windows have ... into the darkness, ... merge weekly. A ... standing of cancer ... such at last...

Two Kinds of Genes That Cause Tumors Turn Out to Be Related

...anism. But cancer is evidently a complex process, in which activation of the newly discovered genes is just one of many stages. The story, then, is just beginning.

Understanding a disease often brings cure, but not always. The fun...

Cost of 'Loose Talk' About a Cancer Cure

...ner... ...', at the time of "Cancer ...re are inundated with pre... ...ased on "breakthroughs," ...re or at least the prevention... ...and their relationship must be thoroughly understood.

The various specialties of molecular biology (immunology, immunochemistry, biochemistry, biophysics — you... ...you don't know where it's going to take us. If we start promising cure, we will make a tragic mistake."

The history of cancer research since 1941, when it began to be seriously...

THE PARTICIPANTS

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How the Media Cover Cancer

Question 1: Do you think the general public has a good understanding of the current role of science research in the struggle to overcome cancer? If not, where do you think the mass media have gone wrong in their reporting in this area?

JENNINGS: Based on my own experience in producing the special section on cancer for the *Mesa Tribune,* I'd say the public is not well informed. I think I'm probably better informed by far than the average person because of my profession and education, but before I did that series I was terribly ignorant of the whole area of cancer research. I think the American public doesn't have even a vague idea of what's going on.

The media have underemphasized cancer reporting. They're too caught up in reporting plane crashes, car wrecks and ax murders. The media need to enlighten themselves in their responsibility to include more science stories, particularly medical stories, in their daily news. Readership surveys show increasing interest in medical stories, and I think this will encourage more newspapers to print more stories of this type.

One of the problems is that not many papers have the staff necessary to cover science and medicine, which requires a scientific background. But we're beginning to see the light. I for one, since working on the cancer series, have hired a health and science writer for our staff, and we're a relatively small newspaper. I think we'll see a lot more editors looking for someone with the best training and background in science to cover this beat. We'll see a big change in the media—there'll be a lot more ink given to science and medical stories and less to car wrecks and other spot news.

GUTTERMAN: I don't think the public is well informed. The media must accept some responsibility for this, but I don't think all of the blame can be placed on them. Scientists also are somewhat to blame—many tend to duck their responsibilities in speaking with the press. I have colleagues who will never talk to the press. Part of it is because of fear—they don't know how to talk to the press, and they're fearful that it's going to come out distorted.

The responsibility is really mutual. I

'A Great Disservice'

Nobody can give accurate answers to these questions since nobody knows how the public feels, and nobody has done a scientific study of media coverage.

The opinions are based on nothing more than a few pieces of reporting which the interviewees may have seen. They tell more about the people making the comments than about the public's feelings.

SIPI should not promulgate discussion in the absence of data. If you print these interviews, you will be doing a great public disservice.

My own comments are limited to the one question about which I have first-hand knowledge [see page 8].

—Earl Ubell

Editor's response: This is not an attempt to provide definitive answers or a scientific public-opinion poll. We seek rather to provide a forum for comments from scientists and journalists actively involved in fighting in or reporting on the war against cancer.

Scientific opinion surveys can provide valuable data for social policy discussions. But Gallup, Harris, Roper, et al, are not sufficient to meet the growing concern about the accuracy and responsibility of media coverage of science and technology issues. For one thing, such polls are almost always limited to short answers and do not analyze important issues in any degree of depth. We believe there is a need both for highly structured, scientific polls and for more informal exchanges such as we present here.

If the opinions expressed here are partial or biased or at times contradictory, we have confidence in our readers' ability to draw value from the exchange of views—indeed, to continue the dialogue in classrooms, newsrooms, boardrooms and living rooms around the country (and, we hope, in these pages as well). ■

How the Media Cover Cancer

continued

recognize the tremendous complexity of this subject. But generally, the media don't give enough time or space to science stories. The stories themselves are often not well done; the headlines are often misleading.

EDELSON: You're dealing with several general publics. If you're talking about the average man on the street, he probably thinks basic research in cancer is a good idea. But some people may have the feeling that the cancer establishment is too established, that alternative cures are really on the right road. They're bewildered by the fact that research has been going on for all these years, so they have a built-in distrust.

Where the media have gone wrong in cancer coverage in the past is in reporting accurately the overenthusiastic statements made by scientists. Too many promises were made, and the media erred in taking these at face value. Skilled reporters and scientists have since learned better.

> Over-optimism has been driven chiefly by the necessities of the public relations of cancer fundraising. —**Andreopoulos**

ANDREOPOULOS: Part of the problem is the over-optimism that has surrounded much of the reporting about cancer in the past 20 years. This over-optimism has been driven chiefly by the necessities of the public relations of cancer fundraising, which has caused public expectations to escalate, perhaps beyond the ability of science and medicine to deliver—for example, Nixon's "War on Cancer," which promised a cure within the decade although the basic knowledge needed to carry out this war was not available.

The other part of the problem is the nature of the media and their editors. Most editors are neither trained in science nor nurtured in science reporting. In fact, most editors are nurtured on political reporting, which often is covered from an adversarial stance. By contrast, most good science and medical reporting doesn't employ the adversarial approach, partly because most experienced science reporters regard scientists and physicians as more credible than politicians as information sources.

Although the experienced science writer might have a good understanding of what he wants to do and how he wants to do it, his editors, due to different training and experience, may not. Therefore, we see only the more sensational aspects of cancer research covered, those based on specific events and news pegs. Because most scientific advances occur slowly and almost invisibly, they do not offer a convenient news peg, and they are left out.

MURPHY: The public is better informed today about certain aspects of cancer treatment, and occasionally cancer research, than it was 20 years

Stanford University

ago. Unfortunately, there's too much hype in some media coverage. Cancer is the most dreaded of all diseases. The irony of that is that cancer is curable—we're curing one out of two people today. There ought to be some way we could improve our record, and I think we can. People are frightened about cancer, and these screwball stories don't do any good for them.

WEINBERG: I don't think the general public has a very good idea of the role of science research in overcoming cancer. This is due to multiple factors, one of which is that most people are not interested in the details, but are simply interested in knowing when a cure will arrive—how we get to that cure is of no interest.

Secondly, even among those few who are interested, there are profound and difficult conceptual problems in explaining things to them, and it prevents all but the most talented from really understanding the essence of what is going on.

The mass media have in general not done a terrific job in explaining those few things that are readily explainable. In recent years, this has changed; there's been considerable improvement in science writing in this country. Now, if anything, there's occasionally even an overdose of exposure.

There has been inadequate emphasis on the desirability of pure research. Everything is always couched in terms of what the immediate clinical benefits will be. Science reporters ask me how my work, independent of the nature of my pure research, will immediately affect the treatment of cancer. In the past, they have suggested that certain advances had imminent consequences for treatment, when in fact that was not the case.

One fault of science reporters in this field is that when they talk with a scientist who's responsible for a result, they are not always compulsive about getting countervailing views from other people in the field. This has led on occasion to their reporting results which others might consider trivial, unsubstantiated, or even erroneous. There has not been enough drive by science reporters to get a more balanced view by talking to others who might have a more objective viewpoint than that of the scientist responsible for the result.

RANDALL: There tends to be a lot of "breakthroughitis." There was far too much reporting about the alleged wonders of interferon, for example, before there was any data to support it. While there is clearly a role for interferon in cancer therapy, the data we now have shows that it will not be the magic bullet it was painted to be. [See "Interferon Update," page 12.]

STRAIT: The bulk of the stories in the last 18 months or so have focused more on basic research in trying to understand the process of the disease, rather than on any new cures. The mass media have played the primary role in the public's understanding and I don't think they've gone wrong in their reporting in this area.

COHN: Perhaps the largest issue on the subject of cancer is: Are we doing the right things to defeat cancer, if it is indeed defeatable? Are we conducting the right kinds of research, investigating the right kinds of therapy, taking the right kinds of preventive measures? And because the Federal government is the largest supporter by far of all of these activities, it gets down to this question: How well is the government's much heralded, multi-billion dollar "War on Cancer" working?

This question has not received adequate attention. Several newspapers have run articles about it, and they tend to fall into one category or another—either (A) it's a big waste, all the wrong things are being done by all the wrong people, or (B) here's all this great progress that's being made, reported largely uncritically. Which is right?

Like many things, the answer is mixed. There has not been speedy progress in cancer therapy, except in leukemias and lymphomas, which are a pretty small percentage of all cancers, and many writers have called attention to this fact in rather pessimistic articles. But we just may be on the verge of seeing a change.

> Most people are simply interested in knowing when a cure will arrive—how we get to that cure is of no interest. **—Weinberg**

How the Media Cover Cancer

continued

A lot of people have written articles more or less dumping on the whole national cancer program, and they have completely ignored the fact that a good deal of basic research has been financed by government cancer money—from the National Institutes of Health, including the National Cancer Institute, and some from the National Science Foundation. This money financed the current revolution in molecular biology. For years people were saying that the whole virology program was a big waste—but it laid the groundwork for what are now some pretty interesting advances.

Maybe I'm more conscious of some of the more critical series of articles—*Newsday* ran one, we ran one at the *Washington Post* just a few years ago, and there have been others. Ours was only on one aspect of the cancer program, but still it tended to tar the whole thing.

I don't think the public has a good understanding of the basic research foundation that underlies the current advances. We don't report enough basic science. Physics and chemistry today are badly underreported. After World War II, with the new thrill of atomic energy, we were doing a pretty good job of reporting physics. That lost its charm when people soured on the atom, and soured on technology to an extent, and now we do very little reporting of the basic sciences other than biology.

The *New York Times* science section is a vehicle (which most newspapers don't have) in which they can do a lengthy and beautiful job of reporting basic research. But they're swimming against what is still the general tide.

Question 2: Is cancer any more or less difficult to cover in the news media than are other science and medical topics? Are there any problems peculiar to cancer reporting?

WEINBERG: I think cancer is much less difficult to cover, simply because there's so much more intrinsic interest than in almost any other medical topic.

ANDREOPOULOS: Cancer is very difficult to cover, because it is a cluster of diseases cutting across many specialties. Reporters with the requisite skills are not present in the numbers they need to be. Editors are often unwilling to print serious and lengthy stories. Instead they push for pieces with the most zest and hype, sometimes at the expense of accuracy.

JENNINGS: In my experience with the cancer series, the people I was able to contact were able to explain in very understandable terms what they were doing in cancer research. Cancer is no harder to cover than other diseases. The most complex part is covering genetic engineering research.

STRAIT: Cancer, in the minds of many people, automatically equals death. Therefore, people will listen more acutely to stories about cancer than they will to stories about other diseases, either because they have the disease and are desperate to be cured, or because they are worried about getting the disease. In a perfect world, we would be equally careful in our reporting of all diseases, but in this imperfect world we must take more care in conveying the right impression and tone in news about cancer.

RANDALL: We are constantly dealing with the light at the end of the tunnel. People in the cancer field talk about the increasing rate of cures, and I think there's a lot of public confusion about what this actually means. The improved cure rate for cancers such as leukemia and Hodgkin's really began about 15 to 20 years ago. When the cure rate is said to have increased to five years, it looks like you've cured the disease, but that may not be the case. Most people don't realize that a "cure," with regard to cancer, is defined as five years of disease-free survival. That is not how a cure is defined with respect to other illnesses. For example, mastectomy patients may be living longer after their operations than they did in the past, and there have been other improvements in the treatment of breast cancer as well, but most women who get breast cancer still eventually die of their disease. Dr. Vincent DeVita of the National Cancer Institute has called cancer one of the most curable diseases—I think that's overstating it.

Question 3: Does television pose any special problems for coverage of cancer?

STRAIT: I don't think so, except for logistical problems. TV needs more time, more space, and usually more notice. But if this question implies that TV is doing a worse job in reporting cancer than the print media, then I reject that notion.

JENNINGS: It's extremely difficult for television to do good stories on cancer research, because it's such a visual medium. Cancer doesn't lend itself to good visuals. The print media have an advantage in that they can use charts and graphs; but, except for the few television operations with their own graphics capabilities, most of the time TV can't do this, at least not your local friendly TV station.

GUTTERMAN: Television is the most powerful way of communicating, and it can be abused or it can be exploited positively; it depends on how it's done. To give an example, "20/20" did a show in October of '82 on cancer research, and gave a really terrible presentation of the cancer establishment, particularly the head of the NCI, Dr. Vincent DeVita, and Dr. Frank Rauscher of the ACS. Even the camera angles presented of them were distorted; they almost looked like monsters on television.

The national networks don't do a good job. I've been on the "Today" show and other shows like it for all of three minutes. These shows get people's attention, and they do educate them a little bit, but they just don't have time to discuss anything. I was on a show a few months ago, after interferon resulted in a remission rate for kidney cancer in one out of three patients. Now, it takes a long time to explain to the public what that really means, practically speaking. What does it mean in terms of my aunt's kidney cancer? What does it mean for eventual cure of the disease? You don't have time.

Television has a tremendous opportunity, but I'm not optimistic, other than for PBS. I've been lucky; I was on the "MacNeil/Lehrer Report" in January 1981, when interferon was first cloned, with Dr. Walter Gilbert, who's now head of Biogen, Inc. We had the opportunity, at least for 30 minutes, to explain about interferon, a little bit about clinical cancer research, and about how cloning is done and what its significance is.

COHN: No matter what you say, no matter how critical you are of the print media, the situation is a lot worse when you talk about television, with a few exceptions. Even public television has a hard time going into issues in depth, because you just can't get enough words and ideas into the number of minutes that television has. You're also fighting to hold viewers from switching channels, so you've got to put something interesting in front of them every minute. It's much more difficult to do this with basic science. Part of the problem is just the fact that the 30-minute national news programs are too short, and the local news programs aren't sophisticated enough, even though they are much longer.

MURPHY: Television tries to fit everything into 10 minutes or less, and to cover too much. Maybe that's the generalist approach, but recently, television journalists have found themselves poorly informed and in an adversarial position, and it's backfired.

The impact of TV (versus newsprint) in terms of cancer information is very limited. It'll peak for a few hours, there'll be phone calls for a short period, and then it's gone. In contrast, a well-informed print story, disseminated widely, can have a tremendous impact. I'll give you an example: In 1976, Harold Robinson wrote an article for *Parade* magazine entitled, "Does Your Doctor Know How to Cure Cancer?" It dealt with cancer control and some of the advances. I can't describe the national impact it had—thousands of calls from people who wanted information. A heck of a lot of people were driven to ask about a health question, rather than just sit there.

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The impact of TV (versus newsprint) in terms of cancer information is very limited. It'll peak for a few hours, there'll be phone calls for a short period, and then it's gone. —**Murphy**

The 'Alerting Function' of Television

Earl Ubell

For news reports on national or local television, the amount of time given to a cancer report might range anywhere from one to eight minutes—usually about a minute-and-a-half to two minutes. That seems like an insufficient amount of time to people who are unfamiliar with television, because they mistake the function of that report. They think it has to be comprehensive and exhaustive; otherwise people will not understand what is being presented. That just isn't true. All the evidence we have suggests that people absorb a good deal from two minutes, and probably don't absorb a hell of a lot more from an hour.

In television, what we do is alert people to the presence of a subject. People into whose psychological orbit that subject falls either read more about it (although not necessarily in newspapers), or ask their physicians about it, or find information some other way. This alerting function is a very valuable one in society, and that's what television does best.

All the evidence we have suggests that people absorb a good deal from two minutes, and probably don't absorb a hell of a lot more from an hour.

To those people who ask how you can say anything in two minutes, I often make this comparison: The difference between a television report and, say, a book on the subject is the difference between a sonnet and a novel. One would not downgrade a sonnet, claim that it doesn't say anything of value, just because it's only 14 lines long. A Shakespearean sonnet is 14 lines long and it says a powerful lot. It doesn't say *everything*. I guess that's why some people are upset about television news; they want a report to say everything. These are the kind of people who do not yet understand that the presence of television in society has given people an ability to say things in a very short period of time.

When people who are used to reading long print articles in technical journals see something presented on television in two minutes, with a lot of pictures and 150 words, they assume that an oversimplification has taken place, and that the people watching it will not understand it.

It's a constant charge, usually made by people who have seen one or two cases of what they would call oversimplification, and who have *not* made a thorough study of the materials presented to the public over the range of newspapers, magazines, television and radio. A few people *have* studied it, and have not found that the inaccuracies are as great as claimed. They have found that, by and large, people understand a great deal of what they see on television.

On this point I will quote Warren Weaver, a mathematician who was at various times vice president of the Rockefeller Foundation and president of the Sloan Foundation and who had a great deal to do with shaping American research during the period when the government was gearing up to support it. He and Claude Shannon at MIT invented information theory. He set up a sort of Gedanken experiment: Suppose Mr. John Q. Public listens to Dr. Scientist explain his work in layman terms to an audience. Mr. Public would come away with a certain amount of information, a certain sense of what had been said. He won't understand everything, nor can we hope that he will understand everything; he'll understand only a certain portion.

Now here comes Earl Ubell, and he prepares a television report about Dr. Scientist's talk. Now erase everything in John Q. Public's mind, and sit him in front of a television set to watch my report. He comes away with some amount of information and some sense of what the scientist had intended to communicate. If the results of the two different communications are equal, then I've achieved what Weaver called "communicative accuracy."

A number of experiments have shown that very simplified versions of complicated reports serve the same function in communicating the sense of the report as the entire report itself. So people who scream about oversimplification are just not aware of the way people understand things. ■

How the Media Cover Cancer

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Question 4: Is too much attention given to cancer at the expense of other equally important diseases?

WEINBERG: There is no question that cancer is overexposed. Moreover, there's no question that advances in cancer research are covered much more than equally exciting, important, and subtle advances in other biological fields. Cancer has a particular mystery and attraction for the science writer and for the public, which dreads this more than it dreads other diseases.

ANDREOPOULOS: I think the coverage has been pretty even. We would expect fluctuations in the amount of coverage, especially during the time when the "War on Cancer" was declared and the National Cancer Institute was set up as a separate institute. Right now we are in the midst of AIDS, so coverage has shifted in that direction (though there are some cancer aspects to this as well).

Coverage seems to increase whenever writers' meetings take place, the best example being the Annual Science Writers Seminar sponsored by the American Cancer Society, which inspired Donald Drake of the *Philadelphia Inquirer* to write a piece called "Why Do All the Cancer Cures Occur in March?" Seminars are an effective way to get out information, but most stories which result from them are still based on news pegs.

EDELSON: Approximately 50 percent of deaths are due to heart disease, 25 percent to cancer, and 25 percent to other things. Recent media coverage has roughly approximated those figures.

STRAIT: At least for ABC coverage, if you ranked the number of stories in the past year by disease, #1 would be AIDS, #2 would be heart disease, and #3 would be cancer.

JENNINGS: The media haven't overcovered cancer, they've undercovered it. I think the amount of coverage given AIDS, which affects a relatively insignificant number of people, is totally ridiculous. We should replace every AIDS story with a cancer story.

COHN: We cover what, on newspapers, we call the "sexy diseases." The unsexy diseases, which people haven't heard much about or don't understand, don't get much coverage. Diabetes is not a terribly sexy disease, and it doesn't get much coverage, although advanced juvenile-onset diabetes is a terrible illness. Now, AIDS is a sexy disease; AIDS is a "No Hope." According to what somebody labeled Cohn's First Law, there are only two kinds of medical reporting: New Hope and No Hope. That's all too true; we do not often enough report the news down the middle. Either it's the latest thing, the New Hope, or it's some terrible things like AIDS, a No Hope. Cancer is both, on alternative days.

Hang in there, kids!

Children's Television Workshop's "321 CONTACT," a science and technology series for kids 8-12, begins its second season on PBS in October.

How the Media Cover Cancer

continued

Question 5: Is the amount of attention given to cancer by the mass media related to "cancer phobia"? Does it promote or respond to this fear?

GUTTERMAN: No, I don't think so. The fact that one out of four people get cancer, the fact that over a thousand people die every single day in this country from cancer, is enough to create a phobia. I don't think the media really should be held responsible for perpetuating that.

EDELSON: Oddly enough, it's not in the coverage of cancer itself that cancer phobia is found in the media, but in coverage of other areas: toxic chemicals, the ozone layer, etc. Everything always seems to be defined in terms of cancer: Does dioxin cause cancer? And the main worry with the depletion of the ozone layer is that skin cancer will increase, never mind that it will harm everything else on earth.

STRAIT: I reject the notion that there is a cancer phobia, and I don't think cancer coverage has promoted or responded to any public fears. As a matter of fact, you would find that, especially on TV, there have been more and more stories on ways to beat the disease, and on the progress made against it and in our understanding of it.

CBS recently had a five-part series on cancer; ABC had a three-part series, and both of these were fairly positive in their outlook. I did a piece on "Coping With Cancer," which was mainly a psychological piece on how a person's mental well-being can have an effect, positive as well as negative, on the progress of cancer.

Suggestion Box

Among the recommendations suggested by various contributors to this issue are:

☐ Devote a weekly television show to cancer.

☐ Develop more continuing science education programs for journalists and encourage more editors to attend.

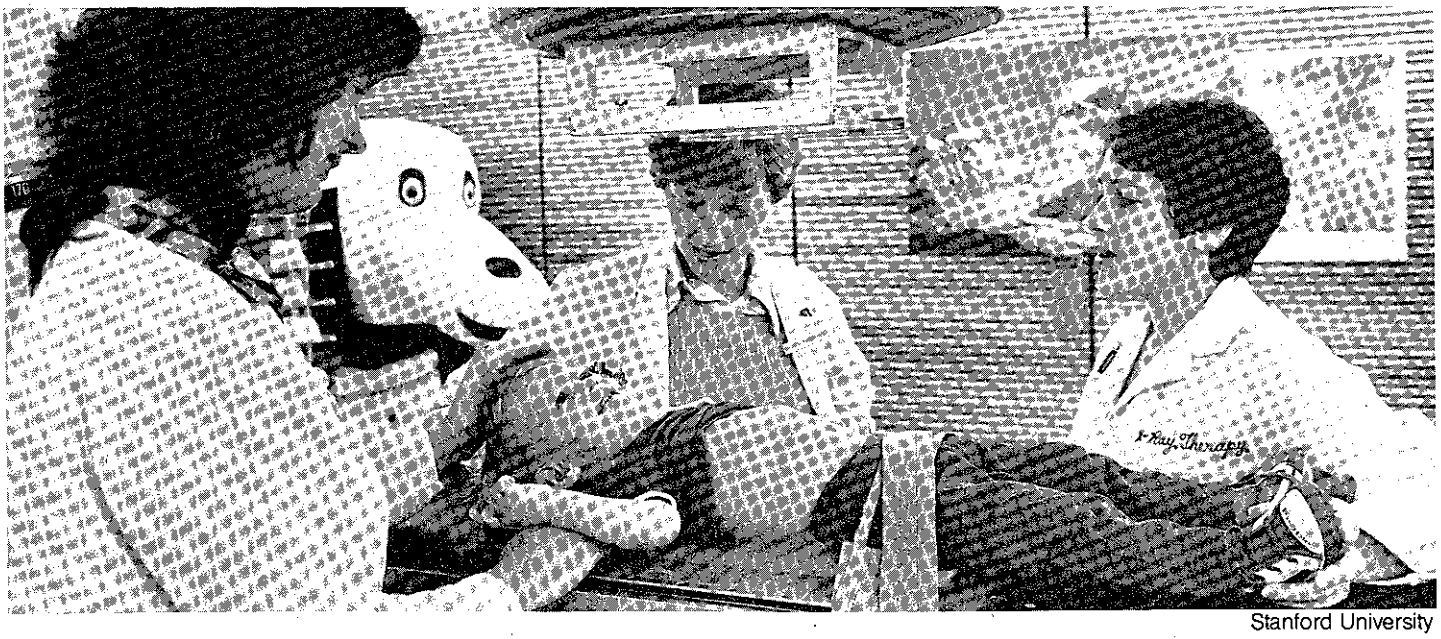
☐ Scientists should allow time to talk with reporters about their work.

☐ Reporters should:

—Be skeptical of new claims, but not to the point where reasonable claims from responsible investigators are ignored.

—Include a balance of viewpoints in stories about new research findings.

—Write for the general public, not for scientists.



Stanford University

Question 6: What suggestions do you have for steps the media might take to improve public understanding of cancer research?

JENNINGS: The first thing I would suggest is for journalists to visit their nearest cancer center and inform themselves about what's going on. I think every editor should do this.

RANDALL: We must explain to the public that improvement in cancer treatment consists less of "cures" and "breakthroughs" than of slow, incremental improvements in therapy that —whatever else they do—improve the quality of life for patients, however long or short their survival may be.

WEINBERG: Most stories are reported in such capsulized form that it's impossible for anyone to understand what's really going on. To the extent that it's possible, the media should make more feature-length presentations, and put them not on the front page but on inside pages, and devote more length to them. The problem, of course, is that much of this is probably not so exciting to the readers.

GUTTERMAN: Certainly, they should give more time to cancer research on commercial television; I don't know if that is at all realistic. It could be encouraged; but I'm not terribly optimistic about commercial TV. With cable networks and PBS there is, perhaps, a somewhat bigger audience.

There is tremendous interest in cancer research in this country. A weekly TV show devoted just to this subject would not be out of the question.

COHN: We should give reporters time to be informed, time to write or to prepare programs, and give them adequate space or air time to tell the story.

My advice for the reporter is to be a *reporter,* not a scientist, and to write for the *public,* not for scientists.

We have to be skeptical of new claims, but not so skeptical that we will not report them if they come from a decent investigator at a decent institution. Even that, of course, doesn't protect us from stuff that sometimes proves to be wrong.

Institutions should do a good job of public relations and publications. More and more scientific and medical institutions are doing an excellent job. It calls for quality, professional work, not for hiring a couple of low-paid people to grind out releases.

ANDREOPOULOS: It is important to determine where the public gets its information about cancer (for example, more from newspapers than television, or vice versa). We might then decide rationally where time and energy should be invested.

One obvious improvement in newspapers might be increasing the presence of full-time science reporters. We would have to go farther with television, since there are now only a handful of full-time science correspondents on the networks and in the whole industry.

Continuing education for science journalists, and especially editors, as presently conducted by the Council for Advancement of Science Writing, might be developed in the form of regional meetings in the areas that need improvement most. The unfortunate thing about the CASW seminars is that many editors, even though invited, don't come, and a special effort needs to be made to encourage them.

Whatever avenues we select to educate reporters, it is clear that medical scientists and cancer specialists must be willing to sacrifice time from their laboratories in order to present their work—which society supports.

STRAIT: My suggestion would be for the basic researchers. I'd suggest that they be more forthcoming with journalists about their work, either on-the-record or off-the-record. A firmer bond should be established between those doing the research and those reporting the research so that public understanding will be based on accurate descriptions of cancer research.

MURPHY: Too frequently, a reporter doesn't have the background, or he gets the job for six months and then someone else gets it. Science sources are constantly playing catch-up ball trying to give reporters background. Whereas a reporter who's given a decent assignment, reasonable support, and a period of time in his post, can formulate his own opinions and become quite a good advocate on behalf of the public by asking the probing and pertinent questions. The other way, it's hopeless. ■

Journalists:

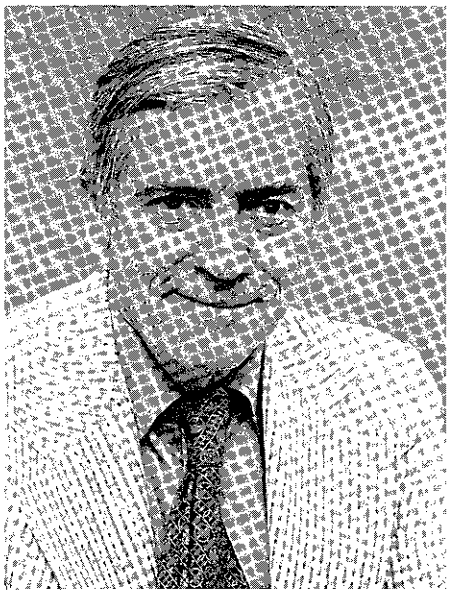
You can call SIPI's Media Resource Service toll-free for the names and phone numbers of experts who represent a cross-section of views on science-related stories you are covering. The MRS maintains a data base of more than 13,000 science/technology experts who have agreed to answer media queries. Call 800/223-1730 (in New York State: 212/661-9110). ■

Interferon Update

Alton Blakeslee

Editor's note: "A lot of excitement was generated over interferon some years ago—perhaps more than was deserved," said Spyros Andreopoulos, Director of Communications at the Stanford Medical Center, during our conversation with him about cancer reporting (see cover story). "Now we're going back to total disappointment, because although some uses have been found for interferon, it hasn't turned out to be as immediately applicable to cancer as was hoped."

The real picture is neither as rosy as painted in many early stories, nor as bleak as some recent reports would suggest. In the following article, the author updates an earlier report in SIPIscope ("Interferon—the Big IF"; Jan./Feb. 1980) briefly noting some of the progress made in clinical trials during the past few years.



Alton Blakeslee is a freelance science writer and consultant to the American Cancer Society. He was formerly Science Editor for the Associated Press and President of the National Association of Science Writers.

Interferons—there are many now—are alive and employed in many directions.

One type of interferon is being called the best available treatment for disseminated kidney cancer, where so many other drugs have failed. Another type is saving numerous children from choking to death from papillomas—wart-like growths—in their throats, and is allowing them to avoid repeated surgery. An interferon is preventing common colds caused by a major type of cold virus. Interferons are proving useful in control of other virus diseases, and trials are starting against still others, including the infamous herpesvirus.

These are some of the more encouraging results of clinical trials, as researchers continue to try to identify where interferons may fit into modern medicine. Not all of the clinical findings have been quite so heartening: Serious side effects have been noted by several investigators.

Interferon, a group of natural antiviral substances, was discovered in England in 1957. In its infancy, interferon research was plagued by shortage. Practically the only supplier of interferon then was Dr. Kari Cantell of Denmark, who produced it from white blood cells—leukocytes—from hundreds of blood donors at tremendous cost. The leukocytes were challenged with a harmless virus to produce interferon.

A handful of scientists stuck with the troublesome research on interferon, however, demonstrating its effectiveness against viruses. An early champion in supporting this research was, and is, Dr. George Galasso, Director of the National Institute for Arthritis and Infectious Diseases (which is now spending about $3 million a year on interferon investigations).

Other researchers observed antineoplastic (anticancer) effects in interferon experiments with animals, and then in humans. Notably, Dr. Hans Strander of Sweden found benefits against osteosarcoma, the bone cancer.

Interferon burst into public attention in September 1978, when the American Cancer Society announced it would purchase $2 million worth of Cantell interferon for initial human trials against four types of cancer—breast, multiple myeloma, melanoma and non-Hodgkin's lymphoma. It was only enough for testing in about 150 people. The huge price tag probably helped inspire a quick public hope that interferon *must* be a magical drug, rather than the object of some early research investigations that couldn't be ignored.

Interferons are now among the most studied natural substances in medicine. Dozens of teams here and abroad are testing them. Pharmaceutical firms and scientific laboratories have invested some $400 million in researching and producing various interferons.

Copious Clones

There are three major types of interferon: leukocyte interferon (also called alpha) from white blood cells; fibroblast (beta) from connective tissue cells, and immune (gamma) from a reaction that occurs when lymphoid cells are challenged with particular agents, such as mutagens, which induce cell division.

All three types can now be cloned, making them available in large quantities of a highly purified form. The cost

of treating a single patient had been as much as $30,000 with natural interferons; now, with cloned leukocyte interferon supplied free of charge by Hoffmann-LaRoche of Nutley, N.J. and Schering-Plough Corporation of Kenilworth, N.J., the cost per patient is as little as $200.

Scientists engaged in recombinant DNA research discovered that leukocyte interferon is not a single substance but a "cocktail" of at least 12 different leukocyte interferons, each produced by a different gene. Now, one question is whether some of the 12 are more potent against viruses or cancers than others, and against which forms of cancers or viruses. A further complication is that there are at least two genes that make fibroblast interferon.

All of this suggests intriguing possibilities for an infinite variety of interferon combinations. Various of the dozen leukocyte interferons could be combined in treatment with other leukocyte interferons, and/or with fibroblast and/or immune interferon. Scientists have already created several hybrid interferons, fusing parts of different leukocyte genes.

In animal and laboratory culture experiments, immune interferon has been found to greatly enhance the anticancer effect of either a leukocyte or fibroblast interferon. Would it have the same effect against human cancers? There is also some evidence that an interferon combined with the antiulcer drug Tagamet (cimetidine) may produce far better results against malignant melanoma than the interferon alone. This apparent synergism has created excitement and spurred a flurry of trials.

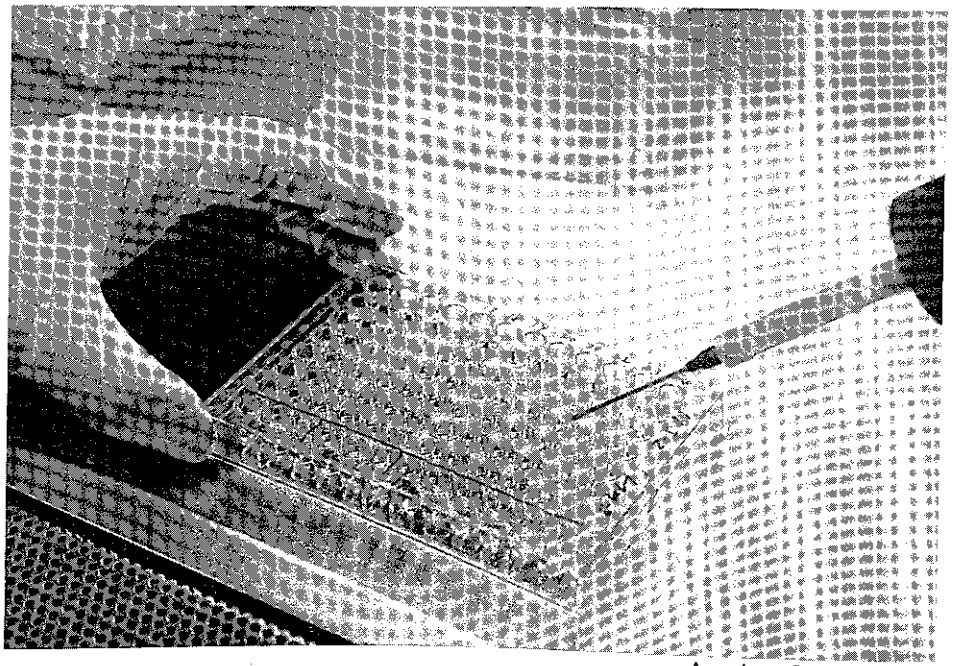
Badly needed is some system of animal or laboratory culture tests to assess the potentials of various combinations of interferons and of interferons combined with other drugs.

Bright Hopes; Some Cloudy Results

The "natural" Cantell-type interferon supplied to researchers by the American Cancer Society showed some effects against breast cancer, multiple myeloma, and non-Hodgkin's lymphoma, but was pretty much a strikeout against malignant melanoma. The main side effects were flu-like symptoms of fatigue, fever, malaise and loss of appetite.

For kidney cancer that has spread in the body (disseminated or metastasized), hitherto more or less intractable to drugs, interferons may provide "a real handle for the first time," says Dr. Jules Harris of the Illinois Cancer Council. Similarly encouraging results, including one complete remission for more than a year, are reported by Dr. Jean deKernian of the University of California at Los Angeles, who has been treating patients with disseminated kidney cancers, and by Dr. Jordan Gutterman of M.D. Anderson Hospital in Houston, Texas. One young man, given fibroblast interferon by Dr. deKernian, has been free of metastatic kidney cancer for about two years. It is an isolated case, but nevertheless seems to indicate something about interferon in cancer treatment.

Bright hopes for cloned interferon have not been fulfilled, at least yet. High doses of one genetic type of cloned leukocyte interferon have had only limited effects against some tumors, and little or none against other cancers such as multiple myeloma, advanced breast cancer, colon cancer, or non-small cell lung cancer, according to a summary of recent research in the *Journal of the American Medical Association.* But cloned inter-



American Cancer Society

Interferon Update

continued

feron has shown some good effects against melanoma, where natural interferon was not effective, and some encouraging results in kidney cancers.

On the negative side, high doses of cloned interferon have produced confusion in a few patients, transient but disabling joint pain in at least one patient, and deep fatigue and loss of appetite in a couple of others.

Heart complications have appeared, too. Taking interferon in one study, two patients with a history of heart problems suffered heart attacks, one fatal. Another patient with no previously known heart difficulty also died, perhaps from arrhythmia, after finishing a course of natural leukocyte interferon.

Viruses, including the miserable common cold, are natural targets of interferons. In England, Dr. David A. J. Tyrrell and associates are demonstrating that a nasal spray of cloned leukocyte interferon—Alpha 2 from Schering-Plough Corporation—can prevent colds due to rhinovirus. The interferon, says Dr. Tyrrell, confers "virtually complete protection. We just haven't had a cold among the volunteers" who had the virus placed in the nasal passages.

Interferons are helping to control other viral diseases as well, including hepatitis B, the serious liver disease. They have also shown some effect in preventing chickenpox and cytomegalovirus from taking their toll of leukemia and transplant patients who receive immunosuppressive drugs. Interferons are beginning to be tested against herpesvirus types I and II, which cause cold sores of the mouth and dangerous lesions on sex organs. And they are being tried against some patients with multiple sclerosis on the theory, and some evidence, that a virus may be at the root of this disease.

Clinical Questions

With interferons, "we're just starting out," says Dr. Gutterman of Houston. "Our clinical instincts are developing." Only about 2000 people have received any interferon so far for cancers or viral diseases, and the amount of interferon protein administered to all of them is less than the weight of a sugar cube—so potent is this natural biological agent.

Some researchers think interferons will find their major roles in combination with other drugs, with radiation, or with surgery. They could prove useful in tracking down and eliminating wandering metastatic cancer cells, mopping them up to prevent their taking root and starting metastatic cancers. They are obviously part of an extremely complex immune defense system which is only partly understood thus far.

Dr. Frank J. Rauscher, Jr., Senior Vice President of Research for the American Cancer Society (which has contributed $6 million to purchase interferons), described the progress in interferon research this way:

"Several years ago we started out with (1) a very small amount (2) of impure interferon (3) of one type (4) that had to be ordered from a foreign country (5) that even when available cost up to $30,000 to treat one patient and (6) we had few ideas as to how to use it well. Now in 1983 we have (1) nearly unlimited amounts (2) of virtually pure interferon (3) of many types (4) produced domestically (5) that cost about $200 per patient and (6) we are learning to use it well."

There is a flock of remaining questions: How much interferon to give, and when, on what time schedule? Will tolerance develop? How does a high dose of interferon affect other components of the immune system? Which might be the best combinations of interferons against which cancers or viruses? What boosters might exist, besides the indicated effect of Tagamet and interferon against melanoma?

The evidence today justifies the prediction that, eventually, these new forms of interferon treatment will enter medical practice and bring significant benefits to patients who cannot be treated effectively today. ■

Late Development

'Drug of Choice' for 4 Cancers

Meeting in mid-October, members of the Interferon Committee of the American Cancer Society agreed that if interferon were generally available—it's still an experimental drug—it now would be "the drug of choice" against four types of cancer: kidney, Kaposi's sarcoma, hairy cell leukemia, and chronic myelogenous leukemia. Further, melanoma appears sensitive to high doses of cloned interferon.

Early trials with natural interferon, the committee agreed, have been relatively disappointing against melanoma, and cancers of the breast, colon and lung. Yet a few patients do respond, and the puzzle is to learn why.

Interferons "are as exciting" as were adriamycin and cisplatin at this early stage of their development, said Dr. Jules Harris of Rush Medical College in Chicago. ■

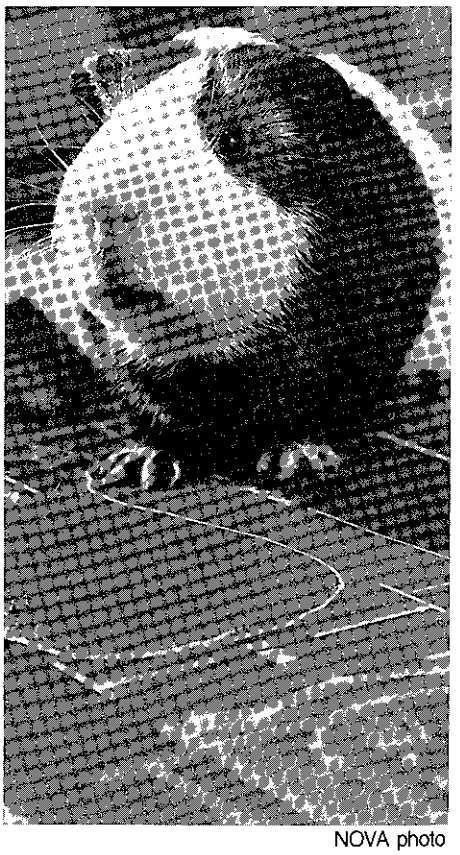
COMMENT

No Optimism for TV Science Series

Editor: We produced for *Discover* magazine the TV specials "Discover: The World of Science," identified by Ellis Rubinstein as one of the two new television science ventures [SIPIscope, Summer 1983, pp. 8-9].

I say "produced" advisedly, because it is becoming apparent that the "Discover" series is soon to join the ranks of discontinued science programs. I see absolutely no grounds for optimism for the future of such programming on U.S. television, and a brief account of our experience with these particular shows will illustrate why.

Of all the new science programs, "Discover" seemed, in theory, to have the greatest chance for continued success. Our ratings were surprisingly good (roughly twice those of "Universe," about four times "Nova"'s); the critical reaction was extremely favorable; we had the support of the Time Inc. organization; distribution was by one of the largest advertising agencies in the world; and we had the services of an attractive, nationally known host. What could possibly be missing? Simple—a reliable sponsor. We have had two so far, both of whom were anxious to point out, even as they withdrew support, their satisfaction with the programs. We are now confronting our failure, after many months of intensive searching, to come up with a third.



NOVA photo

The problem is that, by its nature, corporate sponsorship is a fickle business. We are constantly at the mercy of shifting fortunes in, say, the oil industry or the videogame market. The marketing and public relations executives who decide our fate are not considering whether or not science programming is in the public interest; instead they are calculating, quite properly from their point of view, whether a show appears to fit into their publicity or sales campaigns of the moment. This calculation applies just as much to the corporate underwriter of public television as to the corporate sponsor of commercial television.

There are two ways for science producers to free themselves from these essentially irrelevant corporate criteria. (Actually there are three, the first being to find a corporation that will act out of more than self-interest; if such creatures exist, they are rarities.) The first realistic way is via the marketplace: Produce a show which will draw an audience large enough to be attractive to the networks. Since CBS tried, and failed, with "Universe," that option is now closed, at least for the next several years. We tried the networks with "Discover," with the predictable results: "If Cronkite can't do it, nobody can."

Option two applies to public television, and that is to seek funding through the PBS internal mechanism, the Station Program Cooperative. The SPC has severely limited resources, however, and is notoriously cautious about funding new programs, and in any case has to spend most of its money on established public television staples, like "MacNeil/Lehrer," "Wall Street Week," and "Nova." Even "Nova" depends on corporations in addition, having been forced into frantic

continued on next page

Classroom Aid

Editor: I found your publications "Science in the Media" and "Science in the Media: Continuing the Dialogue" extremely interesting. I wonder if I could have 20 copies to distribute to my next offering of Science Writing, a course I've taught here for more than 15 years.

Benjamin H. Baldwin
Professor of Journalism,
The Medill School of Journalism
Northwestern University

Editor's note: The above is representative of the many letters we've received from science communications professors requesting additional copies of the Winter 1982-83 and Summer 1983 issues of SIPIscope. A limited number of these issues (as well as the current one) is available, on request, for classroom use. ■

COMMENT

continued from page 15

searches for new underwriters at regular intervals since the start; as a result, nobody should feel confident that television's one example of longevity in science programming has a secure future.

'Nova' and the NSF

Ellis Rubinstein reminded us of the achievements of the NSF's Public Understanding of Science program, but he did it less than justice, I believe. For a few brief years, this program injected a rational, if bureaucratic note into decision-making as applied to popular science journalism. I took over as Executive Producer of "Nova" just as the NSF program was becoming established, and it happened to be a crucial period in "Nova"'s history. At that time, our task on the series was to effect a transition from a relatively small-scale production operation, dependent largely on imported British programming and financed by short-term seed money from foundations, to a permanent production center, making at least half its own programs and financed by the SPC and corporate underwriters, as is the case today.

It is greatly to the NSF's credit, in particular to the Program Director, George Tressel, that they had the faith and imagination to propose an unprecedented three-year grant to the series. The financial value of the grant was relatively small, but its symbolic value was immense. Here was a solid demonstration of the worthwhile nature of the series, which made it so much easier for the cautious station manager and uncommitted underwriter to cough up!

In my view, that grant went a long way toward establishing "Nova" in the position which it enjoys today. The NSF did not just back winners, as Rubinstein claims. In those days, "Nova" was just another fledgling, and indeed if the series were a fledgling now, with no NSF program to appeal to (as "Discover" is), I would not bet on its chances of success.

Evidently, the generally depressing state of science on television has no parallel in the print field. Magazines can much more effectively cater to minority tastes than either commercial television, which is forced to program at lowest common denominator levels, or public television, which depends on charity for its existence. A few years ago, it was said that cable television was to be the electronic magazine rack of the future. Why it isn't, and probably won't ever be, is a subject that could fill your pages for many issues to come.

John Angier

The author is President of the Chedd-Angier Production Company, Watertown, Mass.

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Science in the Media: Continuing the Dialogue*

Death of the Universe

A Conversation with Jonathan Ward, Executive Producer, "Walter Cronkite's Universe"

[In August, 1982, CBS announced cancellation of "Walter Cronkite's Universe" after a second summer series. The following interview, which took place on June 20, provides an insider's view of the "Universe" experience.]

SIPI: *Is "Universe" dead?*

WARD: "Walter Cronkite's Universe," as a weekly television science magazine, is dead for now. The time period at 8:00 Tuesday evenings will be filled with two other CBS News projects: "On the Road" with Charles Kuralt and "Our Times" with Bill Moyers. There is a proposal to bring "Universe" back as an irregularly scheduled hour in 1984, but that's still awaiting approval by the network.

SIPI: *What killed "Universe?"*

WARD: It failed to become a commercial success. We thought it would be proton decay or the second law of thermodynamics that would end our "Universe;" instead it was the marketplace. Too many people had other things they wanted to do.

SIPI: *So it turned out to be ratings?*

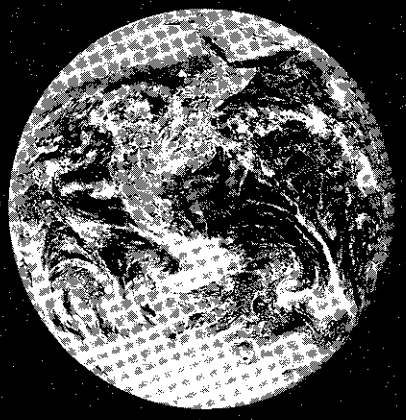
WARD: The ratings were really not awful. In all, we did 30 half hours in the summers of '80, '81, and '82. Something like 14 million people watched each of our shows in 1981 and that fell to an average of 13.1 million in 1982.

SIPI: *And that is a commercial failure?*

WARD: Well, not a success. A rerun of a show like "Alice" averages 18 million viewers over the summer, and a show like that is essentially free if you assume its production cost went into the first airing. "Universe" was all new programming and our cost per segment in many cases was as high as a "60 Minutes" segment.

continued on page two

*See Special Winter 1982-3 SIPIscope: "A Symposium on Science in the Media."



Inside This Issue

Death of the Universe

continued from page one

SIPI: *Doesn't it matter that "Universe" viewers loved the program?*

WARD: They certainly were devoted. We offered a reading list for anyone interested in more information on a subject we covered and we closed asking for story suggestions. During the summer of '81 we received 15,000 letters. In '82 we averaged about a thousand letters a broadcast. At first it was mostly fan mail for Walter, but by the third show a lot of it was thoughtful, reasoned commentary on what we were doing. People made suggestions, enclosed clippings, and seemed to appreciate what we were doing.

SIPI: *Did some subjects get more mail than others?*

WARD: Medical stories were very strong, especially those that contained a mysterious element. A classic example was a report on herbal medicine in China. People seem to think a cure for cancer is hidden out there someplace. But the top segments in viewer mail also included reports on the farming of fish, microsurgical techniques to restore sight, and the home office of the future.

The largest response of 1981 was to a report on a system that recycled a home's water supply. In 1982, the most letters came in after reports on the Better Baby Institute and a treatment for periodontal disease. We suspected medicine would be strong, but so were ecological success stories, and reports on the future. Curious.

SIPI: *Would "Universe" have drawn a greater audience if it had been promoted better? If it had had the kind of promotion PBS gave "Cosmos?"*

> When it's a matter of some concern and urgency, that's when people are in the mood to be educated about science.

WARD: I think a regular, year-round time slot would have helped more. In '82 we were pre-empted three times during the summer. We just never became a habit with the viewing public. I think, in time, "Universe" could have made it. Our show had a sense of adventure, showed some of the excitement of discovery and passed on some useful information.

I think we all have to realize that most people are not out there waiting by their sets for a report on crustal mechanics or the blood chemistry of risk-takers, but they are not necessarily going to turn such reports off once they learn that shear forces in the earth's crust play a part in earthquakes and that a rush of adrenalin can be as addictive as speed.

We were on at 8 p.m. (7 p.m. Central time) which was early enough so the whole family could watch—but during the summer it was still light outside. We were done in by the Fonz on ABC and the charcoal grill in the back yard.

Anyway, according to a paper delivered at the AAAS [American Association for the Advancement of Science] convention this year (by Jon D. Miller of Northern Illinois University), the best predictor of who watches science on television is interest in science. That sounds simplistic but it implies that those who are "attentive" to science will find the science programs, wherever and whenever they are on. Promotion won't help that very much.

SIPI: *But that same paper said that CBS dropped the program too soon. I quote: "Although CBS appears to have dropped "Walter Cronkite's Universe" because it did not reach the expected level of prime time viewership, these data suggest that there is a substantial potential market available and that the expectations of network programmers—especially in a summer period—may have been too high." Miller concluded: "The market is there, but it will require some cultivation."*

WARD: But there's another problem. Television networks are less interested in presenting a single program, no matter how big the audience, than they are in presenting an attractive package of programs. Each show is planned to turn over an audience to the next show. A broadcast like "Universe" may attract the science folk but they didn't seem to stay around for the rest of the evening's fare. To the programmer, "Universe" sat in the prime time schedule like a rock in a plum pudding. It may have been a wonderful rock, maybe even a gem, but it didn't belong in a pudding.

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SIPI: *Do you believe that?*

WARD: I try to. I do think "Universe" would make a fine lead-in to "60 Minutes" as a half-hour weekly magazine. If the networks are ever allowed to program in the half-hour after the "Evening News" a science magazine could fit in there nicely.

SIPI: *Do you agree with those who have suggested that the reason CBS did not schedule "Universe" in a better time slot was a lack of commitment to science programming on the part of the top people at the network?*

WARD: Executives in television are not usually trained in the hard sciences. They're businessmen, or journalists —ex-students of the liberal arts. It's often hard to convince them that the perennial "another-step-on-the-road-to-a-better-understanding-of-cancer" story is what science is all about.

SIPI: *Does this mean science is now relegated to public television?*

WARD: Not really. Every weekday the CBS News Division turns out seven and a half hours of news programming.

CBS Photo

A "Universe" segment on the making of a neon sign.

It could be argued that quick coverage of the day's news is what television does best and that that's an important place, maybe the most important place, for good science reporting. When it's a matter of some concern and urgency, that's when people are in the mood to be educated about science. It took the problems at TMI [Three Mile Island] to inspire a widespread interest in the engineering behind a pressurized water reactor.

That's one reason something like the SIPI service is so important. Since most of the people in broadcast news are not trained in the hard sciences, it's important they find the right people to talk to when science news breaks. [See "SIPI's Media Resource Service," p. 10.]

SIPI: *Is science reporting still in your plans now?*

WARD: I'm still producing Cronkite broadcasts. We just finished an hour documentary on Orwell's vision of the future and how close 1984 will be to *1984*. We looked at mind control and the technology of surveillance. It was another way of getting at science policy questions. There are two more Cronkite specials planned in 1984.

In the shorter range, my next assignment will be to expand the science and medicine component of the venerable Sunday morning broadcast "Face the Nation." I'm keeping busy.

SIPI: *And the rest of the "Universe" staff?*

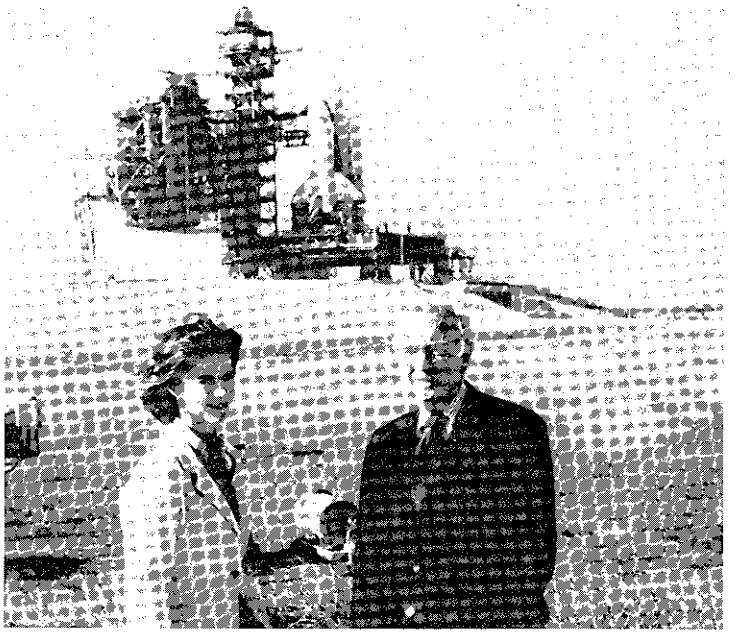
WARD: We've infiltrated the "CBS Morning News," "Nightwatch," and we even have a mole in the "Evening News." The work goes on. ■

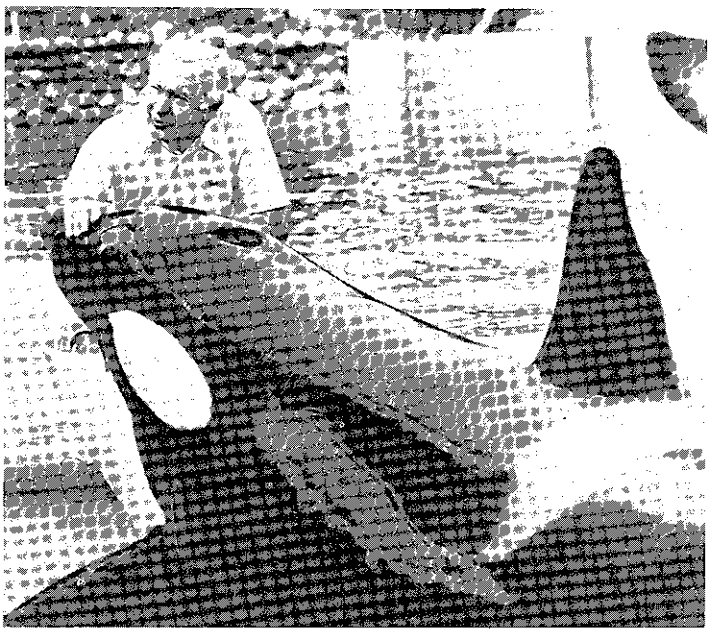
'Walter Cronkite's Universe'

BROADCAST	DESCRIPTION	RATING/SHARE
6/27/79 (pilot)		
M.S. and DuPre	Famous cellist deals with multiple sclerosis.	
Late News of 1178 A.D.	Ancient description of the birth of a crater.	
The Next Earthquake	Earthquake forecasting in California.	10.3/22
(7/12/80)		
Nadia	Autistic child artist.	
Campaign 1984	A computer that writes campaign speeches.	
EPA Mileage	A test of the EPA test.	
Tears	Why we cry; the makeup of a tear.	
(7/19/80)		
Tall Ships	Tall sailing ships—an answer to high fuel costs.	
Crunch	Sound—a critical ingredient in fast food business.	
Magnetic Bacteria	Micro-organisms which move with magnetic pull.	
Ancient Olympics	Commercialism and terrorism even then.	
(7/26/80)		
Secrets of Star Wars	Sophisticated technology behind sci-fi movies.	
The Seal Lady	Seals singing below the frozen sea in Antarctica.	
Queasy Rider	Motion sickness.	
(8/2/80)		
Interferon	A wonder drug?	
Ark	Biomedical scientists breeding endangered species.	
Stradivarius	Why Stradivari made such perfect violins.	9.0/23
(6/21/81)		
Bioluminescence	A look at fish that glow and why.	
Art/Science	Evaluation and preservation of art treasures.	
Crystallization	Beauty of crystallization.	16.3/34
(6/23/81)		
Herbal Medicine	New drugs from Chinese herbs-cancer cure?	
Quakecast	Earthquake prediction (Peru).	
Pandas	Pandas—can they survive?	12 /26
(6/30/81)		
Simulator	Use of computer simulators to train pilots.	
Hearing	Detection of hearing loss in babies.	
Dusky Sparrows	Five male birds remain. What to do?	10.8/23
(7/7/81)		
Vitamin C	Cancer and Vitamin C.	
Whales	The songs of these extraordinary creatures.	
Schlieren Photography	Process makes invisible currents visible.	10.9/23
(7/14/81)		
Magic Bullets	Synthetic antibodies to treat cancer.	
Arthur C. Clarke	Famed science fiction writer.	
Faces	Physiology of the human face.	10.2/22
(7/21/81)		
TV Technology	Revolutionizing our electronic future.	
SETI	Search for extraterrestrial intelligence.	
Powers of Ten	The size of the universe.	9.4/19
(7/28/81)		
Gene Factory	Human growth hormones.	
Transglobe Expedition	Around the world the hard way.	
Quakecast Update	Update of quakecast in Peru.	10.1/19
(8/4/81)		
CO_2 buildup	Its effect on climate and rainfall shifts.	
Saturn Preview	Computer-generated pictures of outer space.	
Midnight Menagerie	The scanning electron microscope.	10.1/21

BROADCAST	DESCRIPTION	RATING/SHARE
(8/11/81)		
Homework	Home computers.	
Perennial Corn	Corn that isn't replanted each year.	
Water Saver	Closed water system.	9.5/19
(8/18/81)		
Nuclear Waste	French nuclear waste is recycled into glass.	
Sleep	Our internal clock.	
Warning Signs	Search for a nuclear waste dump alarm.	12.4/24
(8/25/81)		
Fish Farm	Aquaculture farms in China.	
Victrectomy	Surgery which corrects diabetic retinopathy.	
Papa Flash	Harold Edgerton—father of the strobe.	12.8/24
(9/1/81)		
Hypnosis	Hypnosis—scientific and legal aspects.	
Garbage Recycling	Sophisticated garbage dump in Japan.	
Organism	NYC days seen in a few seconds.	12.1/22
(9/8/81)		
Lucy	Evolutionary creatures between ape and man.	
Econometrics	Mathematical models of the U.S. economy.	
Future Animals	Dougal Dixon's imaginative book, *After Man*.	10.6/19
(6/8/82)		
Chimps	Human-raised chimp released in Africa.	
Demolition	One company levels a building in 11 seconds.	
Super Star	Supernova explosion expected in 10,000 years.	9.9/19
(6/15/82)		
Aurora	The aurora borealis from an airborne lab.	
Better Babies	Does early training improve a child's IQ?	
Neon	The making of a neon sign.	9.4/19
(6/29/82)		
Seafloor	Strange creatures in the Mexican sea.	
Adventurers	What makes a thrillseeker tick.	
Blood Chemistry	How the human body responds to fear.	11.8/24
(7/6/82)		
Rain Forest	Disappearing forests threaten plants and animals.	
Trees	Applications for computer graphics of trees.	
Stranded	Why do whales beach themselves?	10.4/22
(7/13/82)		
Blimps	Renewed popularity of lighter-than-air ships.	
SST	Supersonic transport—caught in the recession.	
Mars	Viking Lander photos of the red planet.	8.5/17
(7/20/82)		
Oil Rigs	Construction, problems, and promises.	
Alternate Technology	Cheaper, more energy-efficient tools and processes.	
'TRON'	Computers produce novel visual effects.	10.5/23
(8/3/82)		
Computer Horse	Computer mating to produce more derby winners.	
Fast Track	Special bouncy tracks help runners break records.	
Singing Genes	Piano and computer play around with DNA.	7.9/17
(8/10/82)		
Medicine Men	Witch doctors and Western-trained MDs in Africa.	
Gums	Treatment for gum disease, a major U.S. health problem.	
Target Snowflake	Snowflakes foul laser defense instruments.	10.2/21
(8/17/82)		
Space Cadet	Interview with career astronaut Bonnie Dunbar.	
Ants in Space	Students design a Space Shuttle experiment.	6.3/12

—from Beginning to End





CBS Photos

Cronkite's universe encompassed astronaut Bonnie Dunbar (upper left), beached whales (upper right), the complex construction of oil rigs (lower right), and an expedition to the Arctic to view the Aurora Borealis (lower left).

BROADCAST	DESCRIPTION	RATING/SHARE
(8/24/82)		
Risk Hour:	An hour on risk in everyday activities features:	
Ballpark Tease	At Shea Stadium, some data about everyday risk.	
Risk Montage	Warnings we see and hear every day about risks.	
Obesity	Factors that influence weight loss or gain.	
Animal Testing	Controversial Experiments reveal risks to humans.	
Failure Analysis	"Forensic engineering" investigates accident causes.	
Safe Car	Many safety features but no manufacturer yet.	
Numbers Interview	Statistics professor on risk assessment.	10.0/18

BROADCAST	DESCRIPTION	RATING/SHARE
(8/31/82)		
Fading Films	Wanted: Preservation technique for films, photos.	
Twins	Comparisons of identical twins raised apart.	
Prince Philip	World Wildlife Fund's new president.	10.6/21
(9/14/82)		
Maps	Impact of computers on map making.	
Map Folding	Help from the Japanese art of paper folding.	
Spilhaus	Unusual map perspectives of the earth.	10.2/18

Limits of the Medium

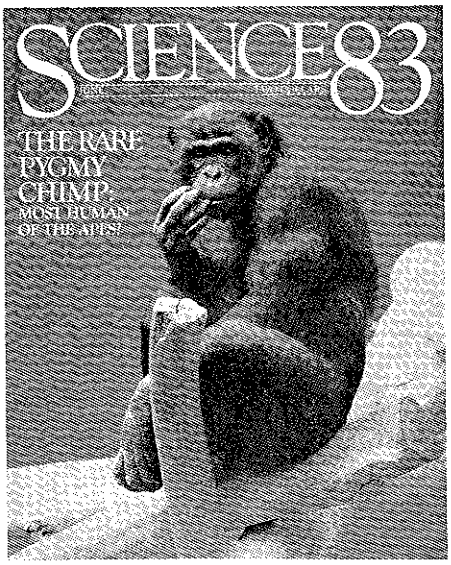
Allen Hammond

It's fashionable these days to criticize the new attempts to popularize science on television, in magazines, and in books. And there is plenty to criticize, for originality of format or thought is as rare a commodity in these ventures as it is in most walks of life.

But it makes no sense to undertake such criticism without a clear sense of the possibilities and limits of these disparate media. In an age in which the headlines tell us simultaneously of the information explosion and of the decline of education, there are real limits to be heeded: Attention spans are short, and reading is a fading pastime. Scientists in particular are often guilty of committing criticism in blissful ignorance of these constraints.

It is my purpose here to propose a simple model of the media that asserts an inverse relationship between audience size and information transfer, in order to draw attention to limits.

If you really want to know something about a subject, you read a book. But



books only reach audiences of about 10,000 people, or perhaps 100,000 if they are very successful. Magazines typically reach an audience ten to a hundred times as large (around a million people); but a magazine article contains a lot less information than a book. Television reaches an audience in the tens of millions, but transmits very little information at all. Clearly, the same things that work at one level of media won't at another, because the process and even the nature of what is being communicated is different.

What I'm suggesting is that the natural medium for dealing with the content of science—facts, natural laws, mechanisms, qualifications, careful explanations—is books. Magazines, too, can convey some content; but what may be equally important for magazines is giving some perspective on a subject (its history, its impact on our society, the people and institutions involved, even the style of thinking) and simply alerting people to the fact that the subject exists. Television, in this model, cannot really deal with content at all—it has primarily an alerting role.

> Television...cannot really deal with content at all—it has primarily an alerting role.

In my experience, scientists and sometimes science journalists are fixated on scientific content to a fault; they tend to judge a medium or an individual program or article by how much scientific content it conveys. But detailed content may be beyond the limits of the medium to communicate well. More importantly, it may not speak to the real interests of either the intended audience or the scientific and journalistic communities.

Let me give an example. In editing articles for *Science 83*, we take out some of the content whenever it gets

> ...what most people carry away from a popular magazine article is a rough sense of the subject, not the details.

in the way of the story-telling. We stress readability and the quality and freshness of the writing over content because we think the first imperative is that people actually *read* the article—not a trivial task when you are trying to interest two million very different people in the complexities of cosmology or molecular biology. We also think that what most people carry away from a popular magazine article is a rough sense of the subject, not the details. So we emphasize the cultural context, the human impact, the anecdotal example, precisely because they contribute more to that lingering impression and are often more important to the lives of our readers than the detailed physics or the viral mechanisms, however scientifically elegant.

It seems to work. *Science 83* recently won the National Magazine Award for general excellence, the magazine equivalent of an Oscar or a Pulitzer, for the second year in a row. And our surveys find that our readers spend considerably more time with each issue of *Science 83* than is typical for consumer magazines.

Nor is *Science 83* alone in this regard. Circulation is up at both *Discover* and *Science Digest*. The "Discover" television specials attracted excellent ratings. There is a real hunger for more information about science—provided it's presented in a way that respects the limits of the medium at hand. That those limits are severe with respect to what scientists find most interesting—namely the core material of science itself—is perhaps frustrating. To ignore them, however, is simply unrealistic. ■

Dr. Hammond is Editor of *Science 83*.

COMMENT

A BETTER UNDERSTANDING

Editor: First, let me say, without any reservation, that SIPI's panel discussion on "High-Level Nuclear Waste" [at the March 17 meeting of the New England Newspaper Assn.] was one of the best and most informative I have ever attended. It was a rare opportunity to hear respected scientists discuss this subject. It brought the problem into much better perspective as far as my own thinking goes.

Obviously, I feel I have a better understanding of the high-level waste issue. The bit of information that stuck in my mind most is that our system of nuclear waste is, like much of our life in America, rather wasteful. Recycling the waste, from what I heard, would seem to me much more efficient.

The problem of covering science and science policy in newspapers the size of *The News-Times* is complex. Most of the editorial staff's training is in the liberal arts field. Our newspaper is not large enough to go out and hire a separate science reporter. In fact, I feel that good science reporters and writers are a rare commodity. *The News-Times* has been using the Media Resource Service. Your phone number is on the newsroom bulletin board. I know that several reporters have received valuable help in backgrounding stories on the environment. Please keep up the good work.

Forrest C. Palmer

The author is Publisher of *The News—Times*, Danbury Conn.

GREATER ROLE FOR INDUSTRY IN SCIENCE COMMUNICATION

Editor: No one seems really to understand why television has so miserably fallen short of its promise to deliver on science communication and education. Don Herbert, one of the most successful "old timers," seems to have some valuable points on this issue, however.

The writers and editors of books and magazines will, I hope, heed the suggestions of some of those you polled. We know from past successes such as Freeman Dyson's *Disturbing the Universe* that books full of good science can sell.

One aspect you miss—as do many who pick over shortcomings in science communication—is the responsibility of industry, particularly high technology industry, to contribute to solutions. Perhaps the computer industry is less guilty than others. But people in areas like mine, biomedical technology, need to play a greater role in using the media to advantage in conveying both the substance and the process of science.

Kenneth A. Klivington

The author is Vice President of Research and Development at Electro-Biology, Inc. Fairfield, N.J.

Readers are invited to submit comments on previous SIPIscope *articles for publication in this section.*

Corporate Attitudes Toward TV Science

Ellis Rubinstein

For all the optimism voiced in your Winter 1982-83 issue about the health of science journalism in the U.S. today, the fact is that any hoped-for growth in science journalism on television is being stunted by a largely unrecognized combination of corporate and government policies.

I may have missed something in your pages of articles by top science journalists, editors and television producers, but did anyone mention the Reagan administration's obliteration of the media funding arm of the National Science Foundation and the ramifications of that White House directive? In its halcyon days this NSF program poured millions of dollars into science programming for both television and radio. To some it appeared better at backing winners ("Nova" principally) than at launching fledgling efforts. But thanks to that government program, Don Herbert and the American Institute of Physics' David Kalson brought science and technology to millions of local news viewers. And, of course, "Nova" thrived and proved that serious science journalism could win large television audiences.

Then came Ronald Reagan. One of the great contributions of his administration to our nation was the concept that the taxpayer shouldn't pay for programs private industry would support. Without speculating on the wisdom of actions taken elsewhere in our economy in the pursuit of this principle, I will note that "Nova" has survived without NSF money, but David Kalson's program is at death's door after months of starvation. Perhaps for some reason unbeknownst to me it should be left to die.

Meanwhile, how many other proposals for quality science journalism have gone unfunded in the wake of the government freeze? I don't know, but I spent three years trying to follow the Reagan directive and secure private industry backing for one such proposal, and I'm willing to bet that my frustrating experiences were typical.

I work for *Spectrum* magazine of the Institute of Electrical and Electronics Engineers, the world's largest technical professional society. IEEE members include some of the captains of industry, who, I thought, as technical people themselves might have personal visions of the value of science programming to American society. I possessed the foolish notion that I could act as an honest broker between some of these influential corporate figures and a team of television journalists wishing to mount a science/technology magazine show on the Public Broadcasting System.

Millions of dollars, I observed, were going from corporate coffers into opera, ballet, and theater projects. Millions more were going to underwrite public affairs efforts. How easy it would be, I thought, to put together a consortium of, say, three high technology companies to back at only $300,000 each a quality effort in their own areas of greatest concern, science and technology!

With this thought, I quickly secured the backing of the IEEE's Board of Directors who were, and are, worried about science and technology illiteracy among the lay public. I also found a team of adept PBS science producers, who were greatly excited by my offer to make corporate contacts that could help them. But these accomplishments may have been my last.

When one top executive of a huge multinational firm that annually pours millions into public television arts programming told me he wouldn't help because he didn't like one of the scientists included on a list of potential members of an editorial advisory board, I thought I'd encountered an aberration. But when several vice presidents of public information told me that they would not recommend a project that might have controversy in its content (unlike ballet, presumably) I began to recognize that I might have a harder time than I had anticipated.

My new strategy, then, was to go over the heads of the public relations vice presidents to executives who had technical backgrounds. In one instance, the chairman of the board of a major corporation was sufficiently interested to assign a three-man team to study our proposal. There followed a prolonged set of meetings with an

Many corporate advertising and public relations directors will sooner spend $750,000 on a one-minute Super Bowl advertisement or $5 million on a PBS art series than $300,000 for a PBS science series.

eminent retired engineer, a representative of the corporation's foundation, and the top corporate public relations officer. All three were soon enthusiastic, and after six months of discussions, the foundation board actually voted to fund the project. Unfortunately, the corporate president surprised everyone by vetoing it.

SCIENCE VS. SUPER BOWL

After three years of negative responses, I have concluded that anyone interested in raising money for serious science programming is pitting himself against a myriad of obstacles. Top administration officials and corporate executives spew out reams of words on the need to counter science illiteracy in the U.S., but the personal commitments aren't really there. Many corporate advertising and public relations directors will sooner spend $750,000 on a one-minute Super Bowl advertisement or $5 million on a PBS art series than $300,000 for a PBS science series. Unfortunately, even when the top executives of the corporation are scientists and engineers, no one rises to challenge or overturn such decisions.

In your Winter issue, "Nova" Executive Producer John Mansfield places the lion's share of the blame for the poor quality of U.S. television science on the "moguls who control our television networks." But he doesn't mention that for years his own station has toyed with producing such a science magazine show, only to shy away from it for fear of competing with "Nova" for funding. Some ex-"Nova" producers claim to have become fed up with this timidity and have left WGBH to start independent science projects.

Cranial reconstruction examined on the "Discover" TV special.

But they may themselves not realize the frigidity of the funding climate they will face. In the end WGBH's caution may prove prescient.

Perhaps I'm masochistic. For the past year I've been pursuing an additional project: trying to convince representatives of aerospace corporations that a PBS special examining the direction of the U.S. space program in its twenty-fifth year would be riveting, of major social benefit, and good for the industry that makes its living on space projects. Will it surprise anyone but me that only some visionary executives of IBM have perceived the value of the show, while one after another of the aerospace public information directors turn down the proposal as "Too hard to sell" or "outside normal corporate policy" or "of no benefit to a company that doesn't sell products to the public"?

Is the underlying reason for this negativity a fear in the hearts of corporate officers that honest science journalism, with its willingness to examine sociotechnical controversy, could do them harm? Not always, because they will also turn down proposals that would never generate public debate. WNET Arts and Sciences Director George Page points out that not a dollar of corporate money has been contributed to support that station's proposed blockbuster series on the brain, nor even to underwrite last year's "Nature" series, which was hardly controversial and got the highest audience ratings of any series on PBS in 1982.

In an article in your Winter issue Steven J. Marcus, then Managing Editor of *Technology Review* and now on the staff of the *New York Times,* characterized TV science shows as "Visually or conceptually brilliant but politically safe and editorially bland."

Marcus concluded by saying that "there is plenty of interest out there, and a willingness—even a hunger—to tackle difficult issues." It is up to journalists to develop science-based stories, and produce publications and programs devoted to the full range of science, technology, and their implications..."

That invocation is stirring. I couldn't agree more with Steve's sentiments. But where on television can we journalists do such work? The only new ventures I'm aware of are the occasional "Discover" specials (at $1 million a shot!) and a one-hour show just produced by the *New York Times.* These alone will not still the hunger Steve Marcus refers to.

The money—and the willingness—to buy the educational food to sate that psychic hunger remains in the hands of this nation's corporate executives. Recognizing this, what hope do we journalists—and citizens—have? ■

Mr. Rubinstein is Senior News Editor at IEEE *Spectrum.*

Questions and Answers About

Since its establishment in 1980, SIPI's Media Resource Service (MRS) has referred thousands of journalists to expert sources of information on science and technology issues.

Most people who are acquainted with the MRS know that it is a free telephone referral service available to all media outlets, with a data base of thousands of scientists (currently more than 12,000) who have agreed to answer media questions within their areas of expertise.

Yet few people are familiar with the day-to-day operations of the Service. Following are the answers to some of the most frequently asked questions about how the MRS works.

How are scientists solicited for participation in the Media Resource Service?

Scientists are enlisted in the following ways:

☐ Through letters and questionnaires to members of groups such as the National Academy of Sciences/National Academy of Engineering and committees of the American Association for the Advancement of Science.

☐ By contacting the public information offices at leading research centers, universities, hospitals, and government agencies (although frequently they contact us first), who then circulate MRS questionnaires among their scientists.

☐ Through the cooperation of professional science and engineering societies, public interest groups, trade associations, and some corporations. Often, these groups will print brief articles about the MRS in their newsletters and urge their scientists to participate.

☐ Through the recommendations of other scientists, either in their questionnaires or on the phone. We average about two new names suggested per questionnaire received.

MRS Advisory Committee

How do you ensure that you're getting the best people, or at least people qualified to speak on a subject?

This question usually carries with it a second, often unexpressed question: How do you screen out the nuts, crazies, and off-the-wall self-proclaimed authorities?

First, we do not exclude anyone from our files. After much discussion with our Board, we realized that to set ourselves up as the authority on who qualifies as a scientific expert would cause infinitely more problems than it might solve.

However, our questionnaire asks all participating scientists to list their professional affiliations, committees, and boards, etc., as well as recent publications. Scientists generally send a complete resume and often a bibliography with the questionnaire. Also, we check each scientist's name in the Science Citation Index to see how frequently his or her work has been cited by contemporaries. In this way, we are able to provide journalists with a scientist's standing within the scientific community, among his or her peers.

Thus, we don't offer our own view that such-and-such a scientist is top-notch—the journalist is really not interested in our view—but simply inform the journalist that the scientist is chairman of a department at a university, is a member of the National Academy, heads a commission of the American Institute of Physics, has been cited frequently (or infrequently) in the science literature during the past year, etc.

How do you decide which scientists to refer to a journalist?

There are many factors:

☐ We ask journalists to be very specific about what they are really looking for. This often involves getting the journalist to explain the article or program being planned. The more specific the question, the easier it is to narrow

SIPI's Media Resource Service

down the number of appropriate scientists.

☐ Sometimes a caller will place geographic restrictions on the request. ("I need someone who can get to the TV studio in New York, Washington, or San Francisco.") Our records are cross-referenced geographically for just such purposes. We also receive occasional requests for experts who can be interviewed on camera for a television broadcast, and in most cases, we can arrange such interviews.

☐ On controversial issues, we are committed to introducing scientists whose views reflect both sides—or more frequently, many sides—of the question. (The scientists provide their own descriptions of their views on our questionnaires.)

☐ Another factor is frequency. We record each referral in the scientist's file and try not to refer anyone to the media more than two or three times a year. (Of course, we cannot be responsible for second and third calls from the same journalist.)

☐ Finally, we almost always call scientists before giving their names out to the press—even though they have already sent in the questionnaires and agreed to answer media questions. (Once in a rare while, if a journalist has a very short deadline, say 15 minutes, we might make a referral without calling the scientist.) These calls serve as a double check for us—to ascertain that the scientist is still at the same location and phone number, is familiar with the specific issue in question, and will be available when the journalist calls.

To evaluate the selection of experts, we solicit feedback from both journalists and scientists. We keep a log of every call received, and make regular reports to the SIPI Board of Trustees and the MRS Advisory Committee [see box], from whom we receive valuable advice and criticism.

What hours is the Media Resource Service open?

Monday through Friday, our office is staffed from 8:30 a.m. to 7:00 p.m., Eastern time. During the remainder of the weekday and round-the-clock on weekends, we maintain an answering service which receives calls and a radio beeper system by which the Director or Associate Director of the MRS is beeped when a call is received. We can then return the call and, when necessary, come into the office (our building is always open), search our computer files and provide the journalist with the appropriate scientists' names and phone numbers.

How are you funded?

Most of the funding during the start-up period of the Media Resource Service has come from major foundations (the Ford, MacArthur, Andrew W. Mellon, C.S. Mott, Eleanor Patterson, and Sloan foundations, for example.) Recently, however, we have established a Media Sponsor Council, through which the media contribute financial support to the Service [see box]. It is our projection that within five years, this Sponsor Council will provide the bulk of the MRS budget.

Journalists can call the Media Resource Service at its toll-free number, 800/223-1730. (In New York State call 212/661-9110.)

Media Sponsor Council

(To Date)

Baltimore Sun
Boardroom Reports
CBS, Inc.
Chicago Sun-Times
Christian Science Monitor
Cowles Charitable Trust
Cox Newspapers
Daniels Charitable Trust
(Raleigh Times/News Observer)
Dow Jones & Co. (Wall Street Journal and Ottaway Newspapers)
Gannett Foundation
Philip L. Graham Fund
Hartford Courant Foundation
Houston Chronicle Publishing Co.
Los Angeles Times
McClatchy Newspapers
McGraw-Hill Foundation
Newsday
New York Times Company Foundation
Providence Journal
Reader's Digest
Scripps-Howard Broadcasting Co.
Time Inc.
Times Mirror Foundation
Westinghouse Broadcasting & Cable Co.
Whitney Communications

LENDING A HAND: SEMINARS FOR JOURNALISTS

Like the weather, media coverage of science has been the subject of much talk lately, but nobody seems to be doing much about it.

Among reporters for the popular press, few have the scientific background needed to cover complex issues in science and technology thoroughly and effectively. At the same time, science news is gaining a large public following, and the number and complexity of issues continue to grow.

Recently, however, a few universities and other institutions around the country have organized seminars on science reporting to help journalists increase their understanding of particular issues and develop their reporting abilities in the areas of science and technology generally.

Descriptions of three such seminars and excerpts from another follow.

MAKING THE CONNECTIONS IN ENVIRONMENTAL NEWS
by Joye Patterson

Reporters who cover environmental issues came to St. Louis March 27-28 for a seminar on "Public Health and the Environment: The Journalist's Dilemma." The sessions were co-sponsored by the Council for the Advancement of Science Writing and the University of Missouri, and were supported by a grant from McNeil Consumer Products Company.

Victor Cohn, Health and Science Writer of the *Washington Post*, presided. He fretted that "we write too many 'she said/he said' stories." Reporters marshall contradictory statements for stories that cry out for explanation, he said. The public needs a clear picture of a problem in order to make decisions.

But data from epidemiology studies —and statistical material generally— is often confusing to reporters who long ago gave up math in favor of writing. Because math is the common language of scientists, communicating with them poses problems.

Michael R. Greenberg, Professor of Environmental Planning at Rutgers University, encouraged reporters to get past their math anxiety. In his remarks, entitled "The Numbers Game: Basic Statistics for Working Newsmen," he suggested several basic questions reporters can ask to help them evaluate studies pertinent to environmental topics. Sample size, time period, methodology and scale of the research can indicate a lot about its quality.

Many environmental problems are so complex, however, that the evidence is seldom overwhelming for any particular result. Scientists can live with that uncertainty—and continue the search for more evidence. But the public—and editors—look for neat, confident conclusions. When three scientists with comparable credentials can't agree, one reporter worried, what can I report?

"All of it," Victor Cohn urged. "Let readers know which way the wind is blowing." Ultimately, if the problem seems serious enough, someone will make a decision about what is acceptable and something will be done, whether the evidence is definitive or not.

Marvin A. Schneiderman, former Associate Director of Science Policy at the National Cancer Institute, agreed. Despite all the studies, he said, often no one really knows which levels of a substance are "safe." "There is rarely enough time and never enough data."

Peter Montague, Project Administrator of the Hazardous Waste Research Program at Princeton University, put a heavy load on the journalists. Working journalists, he said, constitute at least half of the regulatory apparatus that protects the public from waste hazards. They are the observers who are in touch with their own communities and who can help regulatory officials figure out what they should be focusing on.

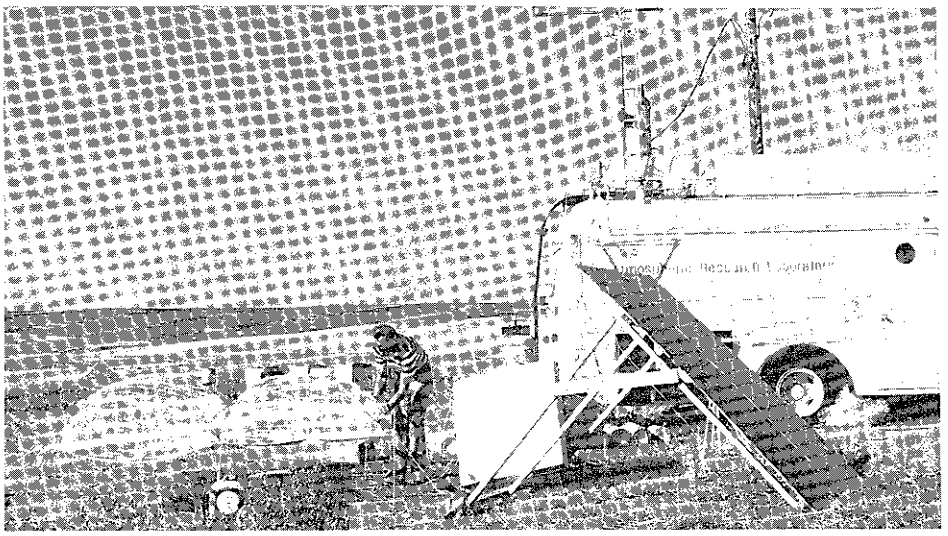
He, too, suggested questions that journalists should be asking when writing about a possible hazard in the environment: Is it a natural substance,

or an exotic chemical? Is it soluble in water and thus likely to pollute water supplies? Is it soluble in fatty tissue? Where can it be found in the food chain? Is it likely to be airborne?

What do scientists or engineers or company officials mean when they say a power plant poses "no *immediate* hazard"? When safety mechanisms are claimed to be "state of the art," does this mean they are adequate to protect public health and the environment? Are human errors likely to be caught before they do any harm?

When a company spokesman says a potential hazard at his plant is "not a big problem," would he be willing to raise his children in the vicinity? In the case of a hazardous substance, would he be willing to put it in his vegetable garden? Would he eat or drink it? Would it bother him to know his children were breathing it?

John Ullmann, Executive Director of Investigative Reporters and Editors, pointed to ways that paper trails can be followed in making sure regulatory agencies are performing their assigned jobs. He urged reporters to tap national data bases for lists of studies and reports to obtain background and to suggest questions they can then follow up through interviews. Computer searches are relatively inexpensive, he said, and local libraries can provide prompt printouts of pertinent materials.



Jim Detjen, Science and Energy Writer for the *Philadelphia Inquirer*, peppered his talk with examples of story sources, including low-level inspectors who may have an ax to grind, labor union officials, and environmental hotline telephone logs which can help pinpoint problems that are disturbing people in certain locales. He suggested that reporters ask to see agency files which may be relevant to local stories, and, if necessary, to request these under the Freedom of Information Act.

When three scientists with comparable credentials can't agree, one reporter worried, what can I report?

Earl Ubell, Health and Science Editor at WCBS-TV in New York, suggested that the most important thing science and environmental reporters do for their audiences "is not just to gather information, but to make those connections with the larger world in an interesting way." For television this is easy to do. "You tag along, asking questions along the way, and show the viewer the process as it unfolds... We need to give people a sense of being there, a feeling for what is happening."

Peter Montague concluded that we can no longer rely on government to do the job of protecting our health and environment. "We need to look for creative ways to self-regulate." To do so, the media must alert the public and catch its attention. That need underscores the important social role of the media, he said.

Dr. Patterson is an
Associate Professor of Journalism
at the University of Missouri.

LENDING A HAND: SEMINARS FOR JOURNALISTS

continued

BACK TO BASICS: ACID RAIN AND TOXIC WASTE

by Sharon M. Friedman

On March 1-2, the Science and Environmental Writing Program at Lehigh University held a workshop on environmental reporting, underwritten by a grant from the Pennsylvania Power & Light Company. This workshop was the second in a series aimed at helping general assignment reporters cover scientific and technical topics more effectively. Its goal was not to turn out polished environmental writers, but to make general reporters more knowledgeable and comfortable when dealing with these topics.

The two-day workshop sought to clarify some scientific complexities as well as look at environmental reporting problems and strategies. Two topics were chosen to serve as case studies —acid rain and toxic waste.

To start the first morning, I reviewed the constraints imposed by the mass media on environmental reporting and what can be done about them. This was followed by a general discussion of environmental problems facing Pennsylvania today by Franklin L. Kury, a former state senator who sponsored a number of Pennsylvania's environmental laws.

Acid rain was the topic of discussion in the afternoon session. Risk assessment, current aquatic and terrestrial situations, and ongoing research were discussed by speakers from the Office of Technology Assessment, Lehigh University, the University of Pennsylvania and the Electric Power Research Institute. Then Ross Howard, national reporter for the *Toronto Star* and co-author of *Acid Rain: The North American Forecast,* spoke about acid rain reporting problems and led a spirited discussion.

One point that became clear at this time was that the scientists were uncomfortable with some of the language the reporters wanted to use. For example, one scientist complained that his studies had not shown that acid rain was "killing" a forest, as a reporter had previously written, but that it was *affecting* the forest—there is a big difference, he said. However, several participants felt he was being too cautious, that his data did show a very harmful effect they could rightfully label a "killing" effect.

The second morning was spent learning about the basics of toxic wastes, with a toxicologist reviewing what is meant by "toxic" and what implications toxic wastes have for human health. This was followed by a presentation from an environmental recovery specialist on the scientific constraints imposed on cleaning up toxic wastes and the legislative complexities involved. Then Jim Detjen and Bob Drogin, science and environmental writers, respectively, for the *Philadelphia Inquirer,* discussed how they covered various toxic waste stories and gave tips on what to look for and how to get information.

A round-table discussion of general environmental reporting concerns during the afternoon session focused on two major constraints: the need for a hard news peg in order to get environmental stories into newspapers and the lack of time available to fully investigate environmental issues. Most of the reporters felt they could effectively cover these stories if they were given more time and if coverage were allowed to focus on issues rather than incidents. Said one participant, "I don't think I'll be able to convince my editor that acid rain is a local issue until I can show him a dead fish—then he'll let me cover it."

At the end of the workshop, participants were given information kits that included glossaries, lists of scientific experts or hotlines (including a regional list developed by Lehigh and SIPI's Media Resource Service), reading lists and several booklets.

The way reporters cover controversial problems such as acid rain and toxic waste helps to determine whether

Said one participant, "I don't think I'll be able to convince my editor that acid rain is a local issue until I can show him a dead fish..."

readers will respond to these problems with intelligent decisions or with purely emotional reactions. Thus, it is important that all journalists, not just science writers, have at least a rudimentary understanding of the crucial issues facing us today in science and technology.

In all, 21 reporters representing 14 small- and medium-sized newspapers attended the Lehigh workshop. Although their participation might not make a dent in the total number of writers facing environmental reporting problems today, it is at least a step in the right direction.

Dr. Friedman is an
Associate Professor of Journalism
and Director of Lehigh University's
Science and Environmental
Writing Program.

THE STATE-OF-THE-ART IN LIFE SCIENCES
by Michela Reichman

One day, one of the country's most respected science journalists called the news office at the University of California, San Francisco. "Can you find me someone on your campus who can explain immunology to me?" he asked. "It's moving so fast, I don't even know the alphabet."

Out of that conversation came a program at UCSF that has been equally rewarding to the Bay Area science writing community and to the campus scientists and physicians.

The cost: coffee and sweet rolls, plus one mailing and a few phone calls.

For the second year in a row, UCSF has played host to a series of monthly, Saturday morning, graduate-seminar briefings on subjects in the life sciences, given by world famous researchers and clinicians.

A small committee (Dave Perlman, *San Francisco Chronicle;* Richard Saltus,*San Francisco Examiner;* John Douglas, then President of the Northern California Science Writers Association, and myself) picked out the subjects we thought would be of interest to science writers in the area. I then worked out the choice of scientist/physician to lead these discussions, selecting UCSF faculty members who, I knew, were doing exciting work and had both breadth of knowledge and the ability to make a subject come alive for their students.

In order to encourage maximum dialogue, we agreed that we would keep the number of participants small, that they would sit around a table, and that we should not show slides in a darkened room.

Each speaker was asked to discuss state-of-the-art knowledge of the subject at hand, then project the possibilities for the future, referring to work of other scientists at other institutions as well as his/her own. No attempt would be made to give the reporters a story they could write up for the Monday papers.

The first series consisted of six sessions, one Saturday morning a month, from January to June, 1981. Topics were: Fetal Research and the Future of In Utero Intervention; Immunology; Genetics (Classical and New); Neurosciences; Cell Biology; and Tumor Virology. Between one and three scientists/physicians took part in each briefing.

We taped the sessions and had them transcribed. Twenty-five local science writers and editors, including some freelancers, signed up for one or all of these sessions. Each Saturday morning there were about 10-15 people attending the session, which began at 9 a.m. with coffee and sweet rolls; by noon or 12:30 it (reluctantly) broke up.

Comments were highly favorable from both press participants and our faculty volunteers. Although no news stories came out of these sessions directly, many of the reporters picked up ideas from the discussions which they used in stories later and, perhaps more important, began to use the speakers as resource experts in checking out stories in their field.

The second year, 1982, we decided to try a short, intense course in biostatistics, a subject in which many science writers feel insecure.

This time I turned the curriculum over to Wallace Epstein, a Professor of Medicine who heads our Clinical Scholars Program. He brought in two others, a biostatistician specializing in cancer and a mathematician. They

LENDING A HAND: SEMINARS FOR JOURNALISTS

continued

pulled together preliminary materials—a series of 15 articles published by the Mayo Clinic called "Statistics for Clinicians," and some newspaper and journal articles illustrating the kinds of research science and medical writers usually cover. Some of these were stories written by the participants, and in some cases they were matched with the original journal article.

We scheduled three sessions on Saturday mornings in April and May. This time we charged $5 for the Mayo Clinic booklet; coffee and sweet rolls were provided by my department. NCSWA sent out the mailing. Ten people signed up.

The three faculty members presented basic definitions and concepts in the first session; in the second they used the sample journal and press articles to critique. In the third session the group was given an assignment to review one journal article, write an article about it, and then critique both.

No attempt was made to turn these science writers into biostatisticians. Rather, we tried to give them enough sophistication to be able to assess critically the quality of research and ask the right kinds of questions.

The remarkable thing about this course was that it met the needs of senior and very knowledgeable science writers as well as graduate students at the UCSF School of Journalism—which is quite a range.

Now the Bay Area science writers are asking for more!

Dr. Reichman is Assistant Chancellor of Communications at the University of California, San Francisco.

'Scaring the Scared':

"Comprehensive Reporting of Environmental Issues" was the subject of a seminar for journalists sponsored by Michigan State University last Dec. 9. Part of the afternoon program was a panel discussion entitled "Scaring the Scared: Problems of Environmental Reporting." Following are excerpts from the remarks of two reporters on that panel.

David Everett
Detroit Free Press

I became aware of the environment, as a lot of people did, at college. I read *Silent Spring,* and it affected me, as it did a lot of people. I wrote a little about the environment when I became a reporter for a small newspaper in Columbus, a small city in southern Georgia. I was astounded by the lack of environmental consciousness within the community, and among the people in the whole state, from state officials to small-town residents.

I moved to Michigan and was hired to write primarily about the environment. It was culture shock in terms of the environmental consciousness of the public—it was a big change for me to talk to people who understood many of the problems and, I think, weren't as ignorant as people in some other parts of the country. Of course, there was a good reason for that: They went through their own environmental nightmare in the mid-Seventies—the PBB contamination incident.

All of us have had experiences with stories on which we wished we might have done better. I want to talk about one I thought I did pretty well on, but which changed my whole perception of environmental writing.

It began with the Berlin & Farro liquid incineration site near Flint. It's now abandoned, but a lot of waste was left on-site. It was in the news more last year than it had been in previous years when the Toxic Substances Control Commission had declared it an emergency site. I wrote about it, as many of you did, and we covered it continuously.

The primary contamination at the site was C-56, a compound that was produced at Hooker Chemical and other plants. A lot of the wastes were brought over from Hooker and stored on-site, awaiting incineration. They were never incinerated. Some of them were buried in the ground, others were just left in lagoons. I wrote a lot of stories, as others did, about how it got to be that way, what the dangers were of leaving it that way, and who was to blame.

> ...a lot of citizens congratulated me for my victory in keeping the waste out of Wayne County. I hadn't known that was the purpose of my story.

Two Views

Chemical waste dump in Chicago. David M. Doody/*Black Star*

Many months later the long process was begun of deciding what to do with all the waste on the site. There were a lot of possibilities: incineration, landfilling, chemical destruction. They talked about bringing it back to Hooker where it had been produced in the first place. They talked about shipping it out of state.

One of the possibilities they talked about was shipping the waste to a landfill within the state. I wrote a lot about this plan, including how the stuff would be transported and the safety aspects of what they were planning. Late one afternoon, I found out through the TSCC that one of the major plans for disposal was to ship a lot of the C-56 contaminated soils to the Wayne Disposal landfill in Wayne County. That's my home county, so I felt obligated to write about it.

A ROUTINE MATTER

I checked into the Wayne Disposal landfill—I knew a lot about it from previous stories. It's one of the largest in the nation, and supposedly one of the best-run operations in the state; it has a national reputation for its operation. It had interim permits from the state and federal governments and is now going through the permanent permit process. I found out that Wayne Disposal had accepted C-56 contaminated soils from the Berlin & Farro site in previous years, so they had actually already done what the state was proposing to do. They had even accepted C-56 contaminated waste directly from the Hooker Chemical plant. Furthermore, Wayne Disposal takes in hundreds of cubic yards of hazardous waste every day. Some of it's very dangerous, perhaps even more dangerous than the C-56 contaminated soils they were planning to ship there.

So—I knew the stuff was going to Wayne County, I knew it had gone there before, I knew the landfill was permitted and had a good reputation. I knew the place had taken a lot of similar stuff on a daily basis. I figured people would be used to that sort of routine matter. I wrote my story.

The first inkling I got that maybe I didn't really understand what I was doing was the play of that story. It was given an eight-column headline across page A3 of the *Free Press,* a rarity on that page. A little map showed with an arrow where the waste was going to go.

When I'd talked with my editor the day before, I'd detected a little bit of an "Everett's got another sensational story!" attitude, so I was careful to put a lot into my story about the history of Wayne Disposal, the history of how this stuff is handled, and even a little bit about how a landfill works.

UNEXPECTED RESPONSES

Well, none of it worked. By 11:00 on the day the story ran, the stuff was barred from going to Wayne Disposal. Two of the most powerful people in Lansing—Bill Faust, majority leader of the Senate, and Gary Owen, a state representative (who is now House

'Scaring the Scared': Two Views

continued

Speaker)—got involved because it's their district and the local officials and citizens were upset. The local police chief even wanted to put a roadblock in front of the landfill to prevent the trucks from coming in. It was just incredible. I got all sorts of phone calls—about a hundred of them.

One of the people I talked to was Gary Owen, the most vocal objector. I told him the whole history of Wayne Disposal—but he knew all about it. He knew the history of C-56 shipments to the place. This is what he told me: "I don't care about anything like that. I just don't want that stuff coming into my district, and it's not going to." Well, it didn't.

I wrote my story the next day saying that the landfill had refused shipment of the waste. After that story, some of my colleagues in the press, some of my editors, some of my friends, and a lot of citizens congratulated me for my victory in keeping the waste out of Wayne County. I hadn't known that that was the purpose of my story.

I've learned a few things from that story. One of them is: Politics is politics—you can't ever get away from that. Another is that my editors and some of my fellow reporters really don't understand the difference between scaring the public and informing them.

I also learned a lot about the people who lived around the landfill site. I talked to many of them in the weeks after the story ran, and tried to understand why they were so upset. Believe it or not, the reason they gave me was: "We know that stuff comes in there every day—the trucks go past our homes, sometimes we smell it, sometimes we see the dust—we know it's a big landfill. *But the* Free Press *doesn't write about it every day.*" So I was completely involved in the events, just by writing the story.

REPORTER'S DUTIES

This experience really woke me up to some of the responsibilities we reporters have when we write about these issues. The NIMBY concept—"Not In My Back Yard"—is alive and well in Michigan. And if you people haven't run into it yet, you will.

In a couple of years the state government is going to begin planning for the cleanup of most of the major waste contamination sites in Michigan. A lot of them are going to be in your communities; I know many of you are already writing about it.

If you just write that the site is there and it's terrible, you're only going half way. You're going to have to go the rest of the way, and tell people that hazardous waste must be dealt with and how it can be done. You're going to have to write stories about the public's responsibility in production of the waste. You're going to have to write stories saying that landfills have to go somewhere, that we need incinerators and that we can't keep sending the stuff out of state.

You have a big responsibility, and you have the capacity to terrify some people who are already terrified. You also have the capacity to take steps to deal with the problems—and if that means trying to convince your editors to print or broadcast some dull, mundane stories about procedures and methods, I think you ought to do it. It's an important issue and it's just going to get worse.

Henry Erb
WOTV, Grand Rapids

I have a certain grudging admiration for the fact that you were able to get an instant reaction to your story. I covered PBBs [polybrominated biphenyls] for years without anything happening.

I was very naive about the PBB issue originally. I got into it after everybody else had been there. The first PBB scare was in 1974, and while other reporters were covering that, I was interested in sand dunes and landfills.

About a year later, I got a call from some guy in a phone booth in Newark who said, "You gotta be in Lansing tomorrow, some guy's gonna talk to Al Bosta's committee." I didn't know who Al Bosta was. I finally looked it up in the legislative directory and realized he meant U.S. Representative Donald Albosta.

I went to Lansing and someone was showing horrendous slides of mice with their brains growing out of their skulls. I knew nothing about PBBs—the story had been dead for about six months and the only thing I could remember about it was seeing some really grody-looking cows on television...but I thought there might be a story here.

Very skeptically at first, I began talking to farmers. I found out that they did in fact have some very serious problems about which they were deeply concerned. They were scared, and I was getting scared. I also talked to some scientists—non-government people—and learned some things about PBBs.

I started writing stories on the scientific aspects of PBBs: what they are, what they can do. There had been a lot more research done on PCBs [polychlorinated biphenyls] and other chemicals closely related to PBBs. I traveled around the country talking to people about PBBs, and I started looking at the question of what the government was or was not doing about them. It turned into an investigative story when we found out that the Food and Drug Administration had blown it.

THE POWER OF THE PRESS

Nobody was listening to the farmers at first. When I started writing stories, the farmers' group became larger and stronger because somebody was listening. Soon other reporters began calling me from all over the country asking about PBBs. Farmers were shooting their cows, which got more reporters interested. After a while, I didn't feel like the Lone Ranger anymore.

The stories we printed fed the farmers' movement, which in turn put pressure on the political structure. This eventually resulted in some good scientific work done by people at Michigan State, by Dr. Selikoff's health researchers, and by a number of other people around the country.

I think the fact that people got scared was good in this case – they were scared because something very real was happening to them. I don't think scaring the scared is necessarily bad if you present the information intelligently and include enough background. People also need to have some place to go with their knowledge and with their fear. In this case, they did; they were able to apply both political and economic pressure.

> ...the fact that people got scared was good in this case – they were scared because something very real was happening to them.

Granted, there were some people who were afraid to drink milk or eat meat when they probably shouldn't have been. But in the long run, from a journalistic standpoint, I think it turned out okay.

The only criticism I have is that dummies like me shouldn't have to ask who the hell Al Bosta is. I shouldn't have been sticking my nose in a sand dune when this very important issue was going on. I should have been on to this, and so should've all the rest of you who were in Michigan at the time. We covered the initial developments, but as soon as the state stopped making pronouncements, we dropped it. Bad move.

THE CRUCIAL BACKGROUND

My situation was almost opposite from Dave Everett's. In the PBBs case, the public knew the background of the story, but reacted very slowly. In the hazardous waste case, the people didn't have the background information, and they acted precipitously, very quickly. So if what you want is to get fast results from a story, it probably doesn't help to give a lot of background information. But we must give the background if we don't want to scare people unnecessarily.

I suspect that PBB can happen again. There are certain mechanisms in place now which probably should prevent that, but I'm not sure they're going to work. And I'm not sure we reporters are prepared to deal with this story now any better than we were before.

There are fewer and fewer reporters around who are interested in the environment and who know something about the background. I quit the environment beat three years ago; nobody replaced me at WOTV. We end up doing sudden, last-minute stories; a reporter goes out who doesn't know a damn thing about the issue, and what happens to the story? It's not good.

Unfortunately, in this business too many of us have just ignored the environment. Our editors have decided: Drop it, it's too complex now; you can't see the thick black smoke pouring out of smokestacks. I figure we reporters are the only ones who can do something about it because we're here and we're interested. ■

Grunwald, Glover Join SIPI Board

Henry Grunwald

Charles Glover

Two leading members of the media community have been named to SIPI's Board of Trustees. Henry A. Grunwald, editor-in-chief of all Time Inc. publications, and Charles E. Glover, president of Cox Enterprises Inc., were elected in a mail ballot following their nomination at the Board's May meeting.

Grunwald started at *Time* in 1944, while still in college, as a part-time copy boy. He subsequently worked as a writer in the foreign news department, senior editor, editor of the Essay section, assistant managing editor, and managing editor. In 1979, he was named editor-in-chief of all Time Inc. publications and elected to the company's Board of Directors.

Time Inc. currently publishes *Time, Life, Fortune, Sports Illustrated, People, Money, Discover,* and Time-Life Books. The company also owns major cable TV and pay cable systems.

Grunwald is also a director of the World Press Freedom Committee, a director of the Metropolitan Opera Guild, and a member of the Metropolitan Opera Association and Council on Foreign Relations. During the past year, he has served on the Advisory Committee to SIPI's Media Resource Service.

Glover also worked his way up the journalism ladder, beginning as a general assignment reporter in Ohio for the *Dayton Journal Herald* in 1949 and going on to a number of editorial assignments at Cox newspapers, including managing editor of the *Dayton Daily News.* In 1977, he was named president of the Atlanta-based Cox Enterprises, which currently publishes 19 daily newspapers in Georgia, Ohio, Florida, Texas, Arizona, and Colorado. He also teaches journalism at Clark College in Atlanta, and has been a frequent discussion leader at the American Press Institute.

"Mr. Grunwald and Mr. Glover add an important dimension to our Board, and will greatly strengthen the role of SIPI and our Media Resource Service as a bridge between the scientific community and the public," declared SIPI president Alan McGowan. SIPI's Board is chaired by scientist/author Lewis Thomas. A complete list of Board members appears below.

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