PUBLIC INFORMATION

You and the Media

A researcher's guide for dealing successfully with the news media

By

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The current version of this document may be accessed at:
http://www.agu.org/sci_soc/media.html

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Tip Sheet

➢ Photocopy this page, and keep it handy in your office ➣

Prepare Your Message: A Checklist

What are the primary points that you want to communicate?	How do they affect the public's interest, health, safety, and quality of life?	What everyday analogies will help communicate your message?
1)_____	1)_____	1)_____
_____	_____	_____
2)_____	2)_____	2)_____
_____	_____	_____
3)_____	3)_____	3)_____
_____	_____	_____

Two "pithy" phrases that you would like to use to help communicate your message:

1) _____

2) _____

Web site for downloadable graphics, movies, supporting material, and background information:

_____

Quick Tips:

- Return reporter's call immediately! Reporters work under rigid deadlines. Also, a "hot" topic can turn "cold" in less than a day.
- Be enthusiastic! If you are not excited about your own research, then nobody else will be.
- Keep it simple! Assume your audience knows nothing about your message. Talk at the level of your intended audience (no acronyms, technical terms, etc.).
- Be clear and accurate! Take the time to clearly and accurately explain your message, and you will probably not be misquoted. Take cues of misunderstanding from the reporter: Is a question repeated or rephrased? Does a question deviate from your message?
- Educate! Use the opportunity to educate the public on scientific method and scientific debate; avoid personal attacks on other scientists.
- You are On Record! Assume that everything you say will be quoted and attributed to you. Don't say anything, even in obvious jest, that you would not want to read in tomorrow's newspaper. Don't go "off the record" unless you have agreed with the reporter what it means.

Points of Contact:

AGU Public Information Office: Harvey Leifert, (202) 777-7507, hleifert@agu.org
Your Institution's PIO and phone number:_____

One of the AGU's four mission statements is "*to promote the scientific study of Earth and its environment in space and to disseminate the results to the public*." The AGU Public Information staff acts as a liaison with the media, which is a crucial vehicle for carrying out this part of its mission. This guide will assist you in the prompt, successful and accurate delivery of your message to the media, and therefore to the public.

Point of Contact for the AGU Public Information Office:

Harvey Leifert, Public Information Manager

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1. MEETING THE MEDIA

"Eureka!" Bob shrieked. After years of toiling alone in his basement lab, he found the long-postulated solution to an important scientific question. Bob thinks of publicizing his results, but he worries about the perception by his colleagues of grandstanding; after all, a decision on his tenure is due within the next year. So, Bob figures that if his work is really important, people who care will read his paper when it comes out next year in the obscure journal in which he usually publishes. Anyway, there is too much work to do and so little time to deal with trivial chores like dealing with the media. Bob shrinks back to the work that he was paid to do.

"Yikes!" cried Jane. She had just received a call from a reporter asking for an interview on a subject that fell within her area of expertise. Jane panics and wants to pass the buck. Her research is detailed and precise, and she is revulsed when people misquote her. She has seen articles in which comments were obviously taken out of context, and she is afraid of that happening to her; it would embarrass her in front of her colleagues and would violate her acute sense of accuracy and precision. So, she instructs her assistant to say she is out, and she remains aloof until the reporter gives up and looks for another person to feature in the story.

Bob's and Jane's responses to dealing with the media are common, and the results were the same: they missed excellent opportunities to communicate their scientific messages to the public. If Bob and Jane had read this guide, their responses might have been quite different. Bob's errors include:

- worrying about grandstanding *(promotion of significant research is important for a variety of reasons)*
- thinking he had no time to talk to the media *(the return usually greatly exceeds the time invested in talking to reporters)*
- concluding that communicating his results to the public was an unfunded burden *(the public ultimately sponsors most research and is surprisingly interested in a wide range of scientific topics)*

In a session organized by the AGU, four distinguished science writers discuss their profession and tell scientists how they can work more effectively with the media. Left to right: Paul Raeburn, Business Week; David Perlman, San Francisco Chronicle; Charles Petit, U.S. News and World Report; and Jerry Bishop, Wall Street Journal, retired.

Bob should have contacted his Public Information Office (PIO) and worked with it to communicate his message.

Jane erred by:

- assuming that she would be misquoted *(if you communicate your messages and pay attention to the reporter's questions, it is unlikely you will be misquoted, misunderstood, or taken out of context)*
- not responding to the reporter *(reporters work with strict deadlines and will find alternate sources if you are not available)*

Jane is an expert in her field and should have responded to the reporter's inquiry, if not to answer questions, then to refer the reporter to another expert in the field. Also, although being misquoted or taken out of context *can* happen, she shouldn't have allowed her fears to prevent her from communicating her message to the public.

Facing the media can be an experience that ranges from mild anxiety to sheer terror, particularly if you have had no practice. The good news is that practice can make you better.

Whatever your personal feeling about the news business, do not underestimate its importance. You should view public information activities as an opportunity to deliver your message rather than something to avoid. Much of the anxiety felt by scientists in dealing with the media originates from the unknown. Reading this guide will prepare you to meet with the media and help you confidently deliver your message to inform and educate the public.

2. THE MEDIA IS YOUR MESSENGER

The media is a broad term meaning "agency of mass communication" or an entity that communicates information to large groups of people. Reporters, who represent various types of media to communicate information to the public, develop interviewing skills throughout their careers. In order to communicate effectively with the media it is worth investing a little of your time and energy to learn the basics of the media: who they are, how they operate, what is important to them, what are their motivations, and what role they play.

The Media Information Chain

The media information chain consists of an information source, the messenger who communicates the information and the consumer who pays for and uses the information. Here, you (the researcher) are typically the source of the information, a reporter is the messenger, and the public is the consumer. Each participant in the media information chain is driven by different motivations, some of which are described in the table.

Generally, communicating science issues does not trigger the Pavlovian media feeding frenzy that is characteristic of public scandal or politics. You are therefore unlikely to encounter a highly confrontational situation with a reporter. A reporter will want to stick to your message and try to understand it.

Reporters

The main job of a reporter is to obtain information and communicate it to the public.

The Media Information Chain

Participant	*Role*	*Motivation*	*Responsibility*
Researcher	Information Source	Ultimately, the public funds a large fraction of research. Consider communicating with the public as reporting to your ultimate sponsor. Other motivations: ➢ Sense of duty to educate and inform the public ➢ Correct misinformation ➢ Increase the profile of your work ➢ Bring recognition to your immediate sponsor	Provide a clear, accurate message about the topic of interest in their field of expertise.
Reporter	Messenger	Media is a business first, and a reporter is a salesperson who must sell articles of interest to the public. A reporter is NOT in the business of educating the public.	Provide accurate, truthful, and balanced reporting within strict deadlines.
The Public	Consumer	The public will purchase or view news items pertaining to their: ➢ Health and safety ➢ Environment ➢ Quality of life and economic impact ➢ Curiosity (natural disasters, the solar system, etc.) ➢ Infatuation with records (oldest/newest, largest/smallest, fastest/ slowest, etc.) ➢ Infatuation with controversy	Funds R&D of national interest.

Usually they are not experts in a scientific field, so your job often will be both to educate and to explain. Consider yourself fortunate if a reporter interviewing you has had any education or training in your field of expertise.

Reporters have a great desire to get the story first and scoop the competition. If they feel their story cannot wait, reporters will sacrifice accuracy for expediency. That is why your prompt response to a media inquiry will help to keep a story as accurate as possible; otherwise, the story may air without your message presented or with what little information they could include within their deadline.

Newspaper reporters may spend as long as an hour interviewing you, most often over the phone, but may use only one or two comments or none at all. If they interview you in person, they may bring a tape recorder, and a photographer may accompany them. While you may be surprised at how little or how much of what you say actually goes into the story the next day, the interview is your opportunity to make sure they have your message and the necessary background and facts to produce an accurate story.

Television reporters come with crews that often include a cameraperson, sound technician and sometimes a producer. Local television news crews typically have one or two people; crews from the national networks may have up to four people. These reporters will usually spend 10 to 20 minutes interviewing you and often will want to shoot videotapes related to the story in your office, lab, or other suitable location. The result is usually a 30 to 60 second spot on the news. In television, the whole story has to be told in very few words and images. Interviews for science programs and documentaries may be considerably longer.

Radio reporters often interview over the telephone. They will ask you if you mind being taped. Before you respond to any questions or otherwise volunteer information, ask the reporter whether or not the tape is running. The interview usually lasts 5 to 10 minutes and results in a 20 to 30 second story on the air.

Book and magazine writers may need to establish a close rapport with an expert. Be prepared for in-depth interviews that delve into significantly more detail than newspapers. These interviews may be taped and will probably last significantly longer than a newspaper, TV, or radio interview. More than one interview may be required.

The Public: Concerned, But Not Engaged

People have sincere concern about problems that surround them in their daily lives and about the science that can help solve these problems. While the public is concerned, it is also disengaged for several reasons.

First, science can be too technical or too abstract. For example, a nonscientist's view of the global warming may be: "Well, there's a hole in the atmosphere above the North Pole, I think from burning of the rainforests, and this is causing the world to get warmer. But it was really cold last winter, so they may not be right. I recycle anyway, so I'm doing my part to slow global warming." [See also *Waiting for a Signal: Public Attitudes toward Global Warming, the Environment and Geophysical Research*, J. Immerwahr, report by Public Agenda to the American Geophysical Union, 1999.] While the public understands that global warming is an important issue, the cause and effect is not clearly understood. The public therefore remains disengaged and will be wary of participating in a course of action to reduce the causes of global warming. When communicating your message, you should therefore educate when possible. The public interprets scientific issues from the context of their personal experiences, so use clear, everyday analogies. Also, do not speak too technically: talk at the level of a 9th grader.

Second, the public can become frustrated by mixed signals from the scientific community, creating the impression of no clear course of action for science to solve problems. In the case of global warming, some studies have conflicted, and the public receives mixed signals. While the scientific community generally agrees that global warming is occurring, the message is diluted. Mixed signals come from two sources: scientific

debate and "balanced" reporting:

Scientific Debate: While scientific debate is a foundation of the research community, diverse views will frustrate the public due to a lack of credibility, no clear choices and no sense of solutions. Communicating with the public is not a scientific debate but an opportunity to provide clear information and effective solutions. The progress of science is, of course, often confused by conflicting observations or interpretations. You are under no obligation to misrepresent such situations. Explain, as simply as possible, why there is no clear answer to the question.

Balanced Reporting: Reporters attempt to provide balance to a story to ensure fairness to opposing sides. Often, a story with two differing points of view may not mention the consensus view of the scientific community, leaving the public to wonder who is right and how the problem might ever be solved. However, fairness is a foundation of the media, and a researcher usually has little recourse to change it. Nevertheless, if you are asked to respond to research performed by another, remember that it serves the public to try to provide a unified view. Avoid debating the minutiae or attacking other researchers (the media is an ugly arena for peer review); instead, focus on the broad picture and try to find common ground.

The Media: Wired for Speed and Efficiency

Advanced communication technology developed in the 1990s has enabled dissemination of news at lightning speed. Do not be surprised if your interview is quickly distributed over the internet.

The media is also a capitalist economy, and media outlets that did not have the resources to interview you or did not attend your press conference may still pick up on your story. For example, NPR may purchase and air the audio portion of a videotaped interview by your local TV station. Additionally, weekly or monthly media may report on stories that were carried by the daily media.

At a press conference organized by AGU and Woods Hole Oceanographic Institution, a panel of scientists is joined live via teleconference by researchers studying the Galapagos seafloor aboard the R/V Atlantis and the Alvin submersible.

An important benefit of advanced communication is the ability to provide the media with graphics and supporting material in a matter of seconds. Therefore, anticipate what kind a journalist might request, and have it readily available before the interview.

3. YOUR PUBLIC INFORMATION OFFICE

Whether you know it or not, you probably have one or more Public Information Office, or PIO, (also called the News, Media Relations or Communications Office) at your disposal. One is at AGU, which is always interested to learn of research you will publish in an AGU journal or present at an AGU meeting. You may also be able to call on the PIO of your institution, other scientific societies to which you belong, or the funding agency sponsoring your research. Often, PIOs will work together to promote research of interest to both of them. The primary role of the PIO is to promote newsworthy results by initiating and facilitating interactions between a researcher and a reporter- it exists for you.

The PIO can help with this effort, for example by conducting training sessions, arranging interviews, contacting the appropriate experts after media inquiries, writing and

distributing press releases, and organizing press conferences. The PIO works to provide prompt, accurate and broad dissemination of scientific information that is of importance to the public. This covers new research results, expert opinions on events occurring around the world, and complete or balanced information regarding controversial scientific issues. The PIO can help prepare you to explain your work as briefly and effectively as possible.

However, the PIO is **not** the news media. It is on the same team as you, working for the good of science. Also, it is **not** in the business of telling reporters what stories they should or should not print or broadcast. The PIO neither has nor wants that power!

How Can You Help Your PIO to Help You?

Promote yourself The perception of a scientist as a recluse rarely spotted outside the basement lab is not entirely inaccurate. Closure of our research is usually reached when it is published, and then our focus is shifted to other pressing research topics. At the AGU and other societies, journal editors or editorial committees try to screen journal submissions for topics of interest and importance to the public and pass this information to the PIO. However, for a variety of reasons an interesting topic may be passed over. AGU publishes, for example, some 50,000 pages each year of peer-reviewed research, and it is impossible for the PIO screen them for the most exciting discoveries. You must take the initiative and contact the PIO. Be proactive!

Often, the media will contact the PIO with a request to interview an appropriate expert for a story about a newsworthy event or for a balanced opinion about a story they are preparing. You should consider calling your PIO and volunteering as an expert in your field to handle such media inquiries. If you are on your PIO's contact list, the PIO will call you when it receives an inquiry and will provide the reporter's name, who the reporter works for, contact information, and any background information that you request. After several interviews, the reporter may directly contact you instead of working through the PIO.

Evaluate your research Do not interpret the preceding "promote yourself" paragraph as a blanket directive to contact your PIO about any and all results of your research. Before contacting the PIO office, consider the importance of your results by asking whether it addresses any of the "motivations" of the public as a media consumer (see the table on page 2). For example, does your research:

- significantly contribute to understanding a controversial issue?
- impact the health or safety of the public or the environment?
- improve or potentially improve the public's quality of life?
- decrease the cost or enhance the capabilities of current technology?
- set a record?
- explain an aspect of a scientific field that captivates the public's interest?

If the answer to any of these questions is "yes," then consider talking to your PIO. If your answer was "maybe," your PIO can help evaluate its importance to the public. If you answer "no," then talk to a colleague to make sure that you have considered all of the issues.

Promptness counts First, the PIO needs time to help prepare your message and arrange interviews, so contact your PIO as far in advance as possible of a deadline, for example, a talk at a conference or publication of a paper. Second, in the news business, *time is absolutely critical.* Reporters' deadlines are most often measured in minutes and hours, not days or weeks. It is *imperative* that you return any calls from the PIO or the media as soon as possible. This is especially critical for journalists who write for continuously-updated web sites. *Respect the journalist by respecting his/her deadline!*

The Press Release

To communicate your research results that may be of interest to the public, you and the PIO will work together to determine the best way to

disseminate your message. Usually, the PIO will write a press release, which is a 1-2 page synopsis of your message. The PIO will edit this with you, emphasizing the accuracy of the material, focus of the message, and appeal to a non-technical reader. AGU does not normally impose embargoes on its press releases and the journal papers to which they refer, but some other journals and institutions do. The embargo date is the date (and sometimes the time of day) when a reporter is allowed to print or air the story. The embargo date may be several days or weeks after the press release, allowing the reporter to develop the story by:

- interviewing you,
- interviewing other experts for a balanced view,
- writing and editing the story, and
- filing the story.

The embargo date and time may correspond to the date of a talk you are giving, the date of a press conference, or the date of publication of an article in a scientific journal. The embargo time may also be used to allow the story to air on TV (e.g., for the evening news) before it is in the print media (e.g., the morning papers). Some magazines have a Thursday deadline for stories that make the issue that goes to the stands the following Monday.

The PIO will fax or email the press release to a list of reporters who may be interested in the story. Interested reporters will contact the PIO, who then contacts you. You may use the PIO to facilitate a meeting with reporters. The PIO can usually provide general information about a news show or a particular reporter, and, possibly, specific examples of a reporter's recent work. The PIO can also arrange meetings between you and an individual reporter. If you are uneasy about these interactions, you can ask a PIO staff member to accompany you to the interview. This may make the reporter suspicious due to the appearance of an interview controlled by your institution, so clearly explain why the PIO staff member is present. The PIO may also arrange a press conference, which is a meeting between one or more researchers and numerous reporters (possibly including TV). A press release for a press conference will contain its date, time, and location.

4. PREPARING FOR THE INTERVIEW

First, you must decide if you want to grant the interview. To help you decide, answer the following questions.

- *Why the interview?*
- *Why me?*
- *Who is the reporter?*
- *Who is the audience?*
- *What general issues will be discussed?*
- *Where will the interview take place?*
- *How long will the interview take?*

The PIO staff is available to help you get answers to any of these questions and to advise you on the desirability of granting the interviewer's request. Once you've decided to do the interview, you should try to do the following:

Outline the Main Points You Want to Make

Prepare 2-3 points that will get your message across as briefly as possible, preferably in 30 seconds or less.

Questions that might help you outline your main points include:

- *What is the issue?*
- *Why is it important or significant?*
- *How does this impact the general public?*
- *How does it relate to what is happening in the rest of the world?*

Anticipate the Tough Questions and Prepare Your Answers

List the 5 most difficult questions about the subject under discussion. Then think about how you would transition from answering those questions into making one of your key points. Since science is generally funded by the taxpayers, make sure to be able to answer “Why does Joe and Jane Public care about my topic? How does it influence their daily lives?”

Graphics and Visualizations

The use of visuals (photographs, graphics, or video clips) to communicate your message is quite important to all forms of the media. Try to provide digital images or video clips to the PIO, who in turn offers them to reporters to accompany the story. Your PIO can work with you to provide these materials by suggesting local graphics studios, providing archived visuals, and assisting in identifying the proper format for a reporter. If you are located at an academic institution, you may find video editing services within the university, for example in the journalism department.

Use the Internet to Provide Information

The Internet offers a fast, efficient medium for exchange of information. Due to rigid time constraints, many journalists prefer to download graphics, digital movies, supporting material (including related scientific articles), and background information, sometimes before the interview takes place. Consider preparing a web page with these materials long before the interview, so that reporters can quickly refer to the web site after an initial contact with you or your PIO. If you do not have a web site for this information, you can promptly email the reporter relevant material and direct him/her to other web sites that provide good background information and material.

Rehearse!

Go over the questions until you are confident you can handle them. You can practice alone or with a colleague.

5. THE INTERVIEW: COMMUNICATING YOUR MESSAGE

The following tips will help you understand what to expect and how to succeed when being interviewed by a reporter. Although your strategy for each interview may vary based on the medium and the reporter, the following tips present basics to keep in mind in any interview situation. You may also wish to use other resources, such as *Communicating Science News*, distributed by the National Association of Science Writers.

Prof. David Goldstein of the University of Texas at Austin and Dr. Allison Macfarlane of Harvard University prepare to participate in NPR's "Science Friday" program from the studios of WBUR Boston during the 1998 Spring Meeting. (With permission of WBUR.)

Have a Message

An interview is neither an inquisition nor a dialectical search for the truth. Go into an interview with 2-3 key points you want to communicate, regardless of the questions. Find opportunities to get your main points across without ignoring the reporter's questions. State them simply, clearly and briefly. Questions that may help you outline your main points include:

- What is the core issue and why is it newsworthy?
- Why is it significant to the general public?
- How does it relate to what is happening in your community or the rest of the world?

Say It Simply: An Interview is not Peer Review!

From a reporter's perspective, if a scientist cannot communicate simply, then perhaps he or she does not fully understand the topic. Even though you are an expert, avoid talking like one. You are talking to the general public, not being

Dr. Geoffrey Seltzer is interviewed by a reporter at the AGU 2000 Fall meeting.

judged by your peers or the reporter. A good rule is to pretend that you are talking to your grandparent, sibling, or spouse (assuming they are not scientists). Be conversational and use short sentences.

- Do not use jargon
- Do not use long, complex phrases
- Avoid polysyllabic words
- Do not use acronyms, even simple ones

Be Brief

Don't ramble with endless detail. If you ramble, then your message will be diluted, and the reporter will be confused about what is important. Remember to communicate your message (the most important points you want to make) in the shortest, most concise way possible.

Stick to Your Expertise

For questions beyond your area of expertise, refer the reporter to the PIO office, which can recommend an expert in that field, or get back to the reporter with an expert that you know.

Be Friendly and Helpful

Don't treat the reporter as an adversary; remember that the reporter is the vehicle through which you can educate or inform the public. When the topic allows it, a sense of humor is appropriate and desirable.

Don't test a reporter's knowledge. Assume the reporter knows nothing about your subject, start at the beginning, and offer information willingly. This will help the reporter understand the issue and will help communicate your key points.

Do not be offended by questions that reveal the reporter's ignorance. Reporters seldom have time to prepare for interviews. Do not treat them as though they are students who have failed to do their homework.

Be Enthusiastic

A reporter's response to a drab, monotone interview will range from apathy to falling asleep. If you are not excited about your own work, how can anyone else get excited about it? Project yourself enthusiastically during the interview, and make the reporter excited about the both the message and the opportunity to interact with you.

Use Everyday Terms and Analogies

Technical words, concepts, and processes may be difficult to understand for a non-technical person. Try describing them using common terms and analogies. For example, you might refer to thermal imaging with an infrared camera as taking an object's temperature, where the infrared camera is the thermometer. Good analogies are easy fodder for reporters.

Don't be a Spin Doctor

Interviews and answers to questions are the reporter's data. As with scientists, reporters do not want someone handing them data that has already been massaged, censored, or manipulated or someone telling them how to interpret their data. Reporters have extensive experience in this field and are quick to sense if an institution's administration or PIO has steered a scientist and constrained his or her comments. As a scientist, you should treat media inquiries with the same sense of integrity that you would treat a colleague's request for data. Otherwise, you risk being branded a "spin doctor." While you should use your PIO to facilitate interactions

with the media, avoid spoon-feeding the party line; this should be left to your institution's spokesperson.

Be Accurate

The goal of both the researcher and the reporter is to communicate the subject matter as accurately as possible. Inevitably, miscommunication will result in errors, inaccuracies, and misstatements. This may result because you feel rushed to conclude the interview (the reporter seems busy or you are uncomfortable being interviewed and would like it to end quickly), because you are not fully concentrating during the interview, or because either you or the reporter are not communicating well. You are responsible for identifying and correcting these miscommunications. If you realize that you have said something that may not be accurate or can be misinterpreted, then stop what you are saying and clearly identify and explain the miscommunication to the reporter.

6. TIPS FOR SUCCESSFUL PRINT MEDIA INTERVIEWS

An interview for the print media may be held on the phone, where you work, or in the field. Before or after the interview, the PIO may take photographs that can be provided to the reporter. Or, the reporter may bring a photographer for pictures of you or your experiment. You may also provide some graphics to the reporter if it significantly contributes to your message. Here are some more tips for dealing with an interview with the print media:

- Dress as you normally would at work.
- You may have someone else present during the interview, for example a PIO staff member or a colleague who is also involved with the research.
- For a phone interview, you may want to have brief notes on the major points that you want to address and good everyday analogies that the reporter can use. However, do not read directly from the notes; scripted responses give reporters the willies!
- Reporters may repeat questions because your earlier answers were too long, too complex, they didn't understand you, or they are simply trying to get a more pithy response. This may be a clue you're not communicating well enough. It's also a chance to do better. Use the chance to get your message across clearly and succinctly.

7. TIPS FOR SUCCESSFUL TV INTERVIEWS

A television interview may be conducted where you work, at a studio, or in the field. Several people may participate: you, the interviewer, and the camera crew. You may want to have someone from your PIO or a colleague present during the interview who can help with unexpected questions or problems. If the interview is in your lab, you should be aware that you are responsible for the safety of the interviewer and camera crew. Remove any hazards and alert the interviewer and camera crew to any remaining hazards that exist; you should be on the news because of your research, not because a camera crewmember was electrocuted in your lab.

Before the interview, you will meet the interviewer and the camera crew, and the crew will try to find the best location for the interview, such as a laboratory with some instrumentation in the background. While the camera crew will set up lighting for the camera (the lights are necessarily bright), the interviewer will probably ask some general questions about your topic so he or she can formulate some relevant questions. Don't be surprised if there is no time for small talk; you are probably not the only story the crew tapes that day. You may then be fitted with a microphone, which could be threaded underneath your shirt or blouse.

The following guidelines are tips to help you with television interviews. Remember that your primary goal is to communicate your message, which consists of 2-3 main points.

A reporter for a local TV station interviews Dr. Terrance Onsager at an AGU meeting.

You Must Project!

Twenty to 40 percent of the human soul gets lost on television. To compensate, you must be full of energy and push that energy out into the room and onto the camera.

TV is Show Business, so Entertain When Appropriate

Come prepared with several "pithy" lines, especially when interviewing for the evening news. End with a "sparkler"—humor, quote, statistic, one-liner, something that makes the listener chuckle or say "oh wow!" It is dreadful to be boring on TV.

Personal Space

Be prepared for invasion of your personal space: the interviewer may sit uncomfortably close to you (you may bump knees with the interviewer) or a camera will be stuck in your face. This is being done for the camera's sake.

Hands

Gestures are a way of using up stress energy effectively. Don't be afraid to use hand gestures, but make sure you aren't using them to scratch, touch your face or otherwise show stress.

The Sitting Interview

Project authority. Be comfortable, but do not slouch:

- Sit up straight and lean slightly forward.
- Do not lean on the armrest of your chair; you look too casual.
- Do not swivel or rock the chair. If you know you are a "swinger," then before the interview find a chair that doesn't swing or rock.
- At the end of a studio interview, don't jump out of your seat too quickly. The show's credits may still be rolling over the scene. Consider yourself on camera until the show's director says you are finished.

The Standing Interview

- Stand straight up. Beware of slouching or tilted shoulders.
- Do not put your hands in your pockets or cross them over your chest.
- Do not rock forward and back nor sway side to side. Rather, refocus that energy and use it to project more of your soul and voice to the audience.

The Remote Interview

Some interviews occur in which the interviewer is located at a studio, and the researcher is in the field or in another part of the country or world from the interviewer. For these interviews, you generally are wired with an earphone to listen to the interviewer. Always look directly at the camera, and concentrate fully on what the interviewer is saying. Avoid the natural tendency of turning your head in the direction of the interviewer's voice (toward the earphone).

Eye Contact

TV cameras focus directly on your face, so eye movement is critical.

- Concentrate on the interviewer: look at him or her 100% of the time. Look at the bridge of the interviewer's nose if you get tired of staring into the eyes (it looks the same on camera).
- Pay attention to what is happening, or you may be very embarrassed when the camera

A scientist tells an audience about his recent work. The interview takes place in the Press Room at an AGU meeting.

catches you.
- Do not look at the camera.
- Do not look up at the ceiling ("God help me!")
- Do not look down at the floor ("Let us pray!")
- Do not shift your eyes from side to side ("Shifty character")
- Wear eyeglasses if you need them to see. However, do not wear "photo gray" lenses that darken when exposed to light.

Be prepared for and try to ignore distractions such as movement or noise by one of the crew.

Voice

When asked by the sound engineer for a voice level, use this as an opportunity to set the stage. The engineer wants to know your voice's normal speaking level and will ask your name, title and what you'll talk about.

- Radio/TV/Press Conference: Beware of leaning to and then away from a stationary microphone while you're talking because this will cause your voice to become louder and softer.
- Radio: the voice is all you have to communicate with, so beware of speaking in a dull monotone. Project more and you will come across better.
- Smiling helps animate the voice.

Makeup and Hair

When on television, makeup is appropriate, even for men. It also helps control perspiration, especially on foreheads and bald heads. Your hair should not cover your face, especially your eyes.

Clothing

Wear clothes similar to those worn by the reporter or talk-show host if you're going to their studio. Wear your typical work clothes if they're coming to your office.

Do wear:
- Clothes that are comfortable.
- Solid colors, pastels or soft shades.
- Lightweight summer suits which are less likely to cause you to perspire under hot TV studio lights.
- Burgundy tie or scarf. It reflects color in the face. A blue shirt or blouse, burgundy tie or scarf, and navy blazer is considered a desirable uniform for a TV interview.
- Socks that are long enough to avoid a bare leg gap between your pants leg and the top of your sock.
- Make sure your tie or scarf is straightened, and your shirttail is tucked in.
- A jacket or vest isn't necessary; but if you do wear one, button it if you are standing and unbutton it if you are sitting.

Do not wear:
- Clothes that are flashy, wild or loud.
- High contrasts like black or white. Red also is a difficult color for the camera.
- Large pieces of jewelry.
- Horizontal stripes.
- Seersucker or hound tooth jackets.

Stress

Most people get butterflies in their stomachs at the idea of a TV interview. Be aware of how you show stress and control it. Some examples of unusual gestures:

- Pulling at your hair.
- Touching your face frequently.
- Swinging a foot.
- Rocking or swinging your chair.
- Chewing gum.

You may want to avoid eating just before an interview to avoid nervous indigestion. Your nervousness, though, will vanish as you participate in and become familiar with the routine of interviews. As you do more interviews, you'll do them better.

Be Aware: The Tape May be Rolling

In broadcast situations, it is wise to assume that everything is being recorded, whether or not you have specifically been told that recording is under way. When a television cameraperson enters the room, there is a chance the camera is on, even if the only meaningful material it records is your spoken word (for example, President Reagan's "Bomb the Russians" comment as a sound check at a White House press conference). Also, even if the reporter informs you that the interview has ended, the camera could still be rolling. Be alert and do not offer information during these situations that you would not want to hear and see on the evening news!

8. TIPS FOR SUCCESSFUL PRESS CONFERENCES

A press conference is a meeting between a researcher, perhaps with some colleagues, and reporters. It is usually organized by the PIO of your institution or professional society, which alerts reporters through a press release. It allows wide dissemination of important research. AGU organizes 10-15 press conferences at its Fall and Spring meetings that cover a wide range of topics in geophysics. Additionally, AGU organizes several press conferences throughout the year on special topics of immediate concern to the public.

At scientific meetings, press conferences are usually given by panels of scientists who discuss specific aspects of a general, newsworthy topic and then field questions. In the photo above, scientists at the AGU 2002 Spring meeting discuss the application of innovative LIDAR technologies to study the Earth's surface.

It is, however, difficult in many cases to tell from the abstracts which presentations might be most interesting to the media and might therefore warrant a press conference. If you believe your research may be of interest beyond the Section itself, you can assist the Program Committee by plainly stating so in the "Special Instructions" box of your abstract submission. If this is not possible. an email message to the AGU PIO would alert the office to the presentation. A press conference provides a special forum for delivery of your message. The participants in the press conference include a panel, which consists of one or more experts (the panel may include a group of collaborators
or a group of experts in several different fields that cover a broad topic); the moderator, who is generally the PIO staff member responsible for the press conference and who sets the rules and runs the press conference; and a group of reporters who are interested in the topic. The reporters may represent both print and broadcast media.

The format of a press conference is as

A press conference on a "hot" scientific topic will draw a large number of attentive journalists. At the AGU 2001 Fall meeting (above), journalists gathered to hear the latest research findings on abrupt climate change.

follows:

- Before the press conference, a media packet, which consists of material on the topic of interest and is prepared by the PIO, may be distributed to the reporters who are attending.
- The press conference starts when the moderator introduces the topic, and either the moderator introduces the panel to the reporters or panel members introduce themselves.
- One or more of the panelists may then provide an introductory talk on the topic using a few general viewgraphs, videotape, slides, or computer audio-visuals. This is an extremely important part of the press conference: these materials should focus on communicating YOUR MESSAGE. During this time, the reporters may not be allowed to interject questions.
- After the brief presentation, the reporters are selected by the moderator to ask questions to specific individuals on the panel or to the panel as a whole. Before asking a question, a reporter will identify himself/herself by name and affiliation.
- The press conference will continue until all questions have been answered or until a prescribed time. Remember to be brief with the introductory talk and subsequent answers: long explanations filled with excessive detail will lose the audience and will waste valuable time that should be used to communicate your message.

Preparations

As with other types of press contacts, the initial burden of identifying research of interest to the public is yours. Take the initiative and contact the PIO if you have exciting results that you believe are newsworthy. The PIO may then send out a press release, organize the press conference, and may enlist your help to prepare a media packet that is distributed at the press conference. These preparations take time, so do not wait until the last minute!

The media packet is designed to provide background information that will help communicate and support your message. It may include a brief technical summary with definitions of terms or acronyms or a copy of

A field tour is a remote press conference. At a tour organized by AGU and USGS at AGU's 1998 Fall Meeting, reporters standing on the Hayward Fault in Hayward, Calif., are briefed on earthquake hazards by U.S. Geological Survey geologist Dr. David Schwartz (left, with back to camera).

your presentation that. It may also include photographs that could accompany the article in the print media or a video clip for the evening news (ask your PIO for the acceptable video formats; at an academic institution, you may find editing services in the journalism department). Be aware, however, that reporters do not have time to glean the information they need from a stack of papers, so brevity is important.

At the Press Conference

For a press conference, you should follow the tips provided in the previous section for TV interviews: dress appropriately, do not use jargon, do not delve too deeply into the details unless asked, and have some pithy quotes at the ready. Also, set the tone for the press conference: take the initiative to make it exciting!

The first real interaction with the reporters is the presentation by a panel member. As with the media packet, keep the presentation focused on your message. While the subtleties and details of the topic may be most interesting to you, they may leave the reporters confused, bored, and looking forward to their next cup of coffee. Here are some tips to help get your message across during a press conference:

- Be brief. A press conference is neither peer review nor a debate. Focus on a short, but sweet, delivery of your message.
- If you use viewgraphs or charts, use no more than 3-4 of them to make your points.
- If you use a graph, make sure that the data and the graph axes are easily understood by a nonscientist.
- Rewinding videotape takes time. If you use a video clip, have it run over and over in a loop tape so you don't need to rewind. If you show two or more video clips, use separate tapes for each clip during your presentation so that starting and stopping the clips are easily communicated to the person running the VCR.
- A reporter may direct a question to the wrong expert. You can redirect the question to the correct expert. Also, any panel member can and should intercede to clarify or correct. Remember, your job is to com-

municate an accurate and clear message.

- If a reporter asks the same question again or in another way, then take the hint that your message was not communicated clearly enough. Answer the question more thoroughly, perhaps using a different approach.
- Minimize technical jargon and use analogies to communicate your message.
- Do not in any way imply disrespect of the question or the reporter.

After the Press Conference

After the press conference, do not make a quick exit to stage left. This is another opportunity to further communicate your message and to clarify and correct inaccuracies. Expect the following:

- follow-up questions for clarification or more background
- follow-up questions for more detail, especially for reporters from trade journals
- a TV reporter wanting a one-on-one interview (for the broadcast media, the press conference may simply be used to obtain background information on the topic)

Remember that an informal chat with reporters after the press conference is still "on the record." In these situations, do not say anything that you would not have said during the formal press conference. You might still be quoted and would probably not want to wake up and read that "Moe (you) said that the findings of Larry and Curly (colleagues) are specious and should never have passed peer review."

As with any interactions with the media, do not be disappointed if your story is not aired or published; time and space in the media devoted to science is limited.

After a press conference, journalists will often seek clarification of points raised or ask additional questions. They may want to record the interview to help with accuracy. Here, Associated Press reporter Andrew Bridges talks with Dr. Elizabeth Turtle following a press conference at the AGU 2001 Fall meeting.

9. OTHER INTERVIEWING TIPS

Here are some other tips that apply to all types of interviews.

Respect the Reporter's Deadline

Return phone calls as soon as possible, within minutes, not hours or days. Reporters generally work under extremely rigid deadlines, and delaying the story even one day may mean that it doesn't run at all.

Be Confident

You are the expert. You have a message to deliver, so use your own words and make your case. Act confidently, and you'll become confident. However, be aware that reporters may be intimidated because of your expertise, and you may want to put them at ease.

Admit When You Don't Know an Answer

Do not hesitate to admit you don't know the answer to a question. You are not expected to be the expert on all things just because the cameras are rolling. It is much better to say, "I don't know, but I'll try to find out for you," than to attempt to answer a question and do so erroneously. You can offer to help the reporter get the answer or refer them to your PIO staff, who can contact an appropriate expert.

Never Read from a Paper

This is especially true when you are on camera. You are the expert and should know your field. No scripted responses and, in particular, no scripts are allowed.

During phone interviews, you may find it helpful to jot down your main points and have those in front of you. This will help you remember all the points you wish to make with the reporter. Just don't make it sound as if you are reading a scripted response.

Avoid Libel and Slander

Do not say (slander) or write (libel) anything that isn't true and that can hurt or injure another person or institution.

If It Can't Stand Alone, Don't Say It

Always be aware how your response would sound if it were your only comment quoted in the news story. For example, if a response of "yes" or "no" requires a qualifying sentence to be accurate, avoid the "yes" or "no" and simply make the qualifying statement instead.

Going Off The Record

Going "off the record" can be quite valuable for a reporter to obtain realistic guidance and enhanced understanding from experts, for example, on a topic's importance, applicability, or accuracy. This is especially true for breaking stories in which the reporter wants a balanced perspective. However, exercise care in "off the record" circumstances: "off the record" means different things to different reporters. For example, your comments may never be written down, or your quotes may be attributed to "a source." If you want to talk "off the record," clearly state when it applies and what it means. Otherwise, follow this general rule: assume that everything that you tell a reporter could be used and may have your name associated with it.

Concentrate

Concentrate 100 percent on what you are doing and saying and what is being done or said by others.

Interviews are Informal Affairs

Interactions with the press are casual rather than formal. Address the reporter by his or her first name. Avoid the formality of "sir" and "ma'am", as in "yes sir" or "no ma'am."

Encourage Junior Researchers to Respond to the Media

Pithy quotes and expert advice are not the exclusive domain of senior researchers. Communicating with the media is part of professional growth, and senior researchers should encourage junior researchers to respond to media inquiries. All scientists should develop skills for communicating their science to the public.

10. CONFLICT & DIFFICULT SITUATIONS

Conflict sells. A primary source of conflict arises from public ignorance of the scientific method and scientific debate, in which the same data might tell a different story to different researchers. Scientific debate is generally kept at a professional level within the cloistered settings of a conference or a journal's peer review process, but public airing of scientific debate can be sensationalized into a conflict of primal screams. Several examples: cold fusion; the origin of global warming; a Martian meteorite, possibly containing evidence of life; and icy comets that may continuously pound the Earth. During these exchanges, scientific method and the scientific debate can be lost in the noise, and the public perception may range from apathy (an esoteric debate among intellectuals), to mistrust (two or more "experts" with completely opposite views), to anger (why pay taxes for research that gives no answers?). Nevertheless, a small fraction of reporters may look for and exploit such conflict. In these situations, you must remember to:

- Focus on YOUR MESSAGE and take

advantage of the interview's opportunities to get it across.
- Avoid acerbic attacks on colleagues or other institutions.
- Use this as an opportunity to educate the public on scientific method and scientific debate.

If you feel that the reporter is fishing for conflict, for example by baiting you for a derogatory statement about another person or institution, you may want to terminate the interview immediately.

Also, be alert for the following situations:

The Loaded Preface

The reporter lists three to five items to build a case, then asks a "loaded question." In building the case, the reporter may have used items that are erroneous, misinterpreted, or paint an incomplete picture. Respond by countering what the reporter said, then bridge to your message. For example: "You've raised a lot of questions, and made a number of statements, not all of which are correct, but I think... (your message)".

Unacceptable Alternatives

The reporter asks you to choose between one extreme or another, neither being acceptable. A proper response to this it: "Neither of these is acceptable but what I think is... (your message)."

Comment on a Research Performed by Another

Debate is a healthy and essential facet of scientific discourse. A reporter will often seek other scientists for a balanced view, similar to peer review in science. For example, some journals (e.g., *Nature*, *Science*, and *New England Journal of Medicine*) provide advance copies to reporters, who may contact an expert to comment on research described in an article. Or, a reporter may want opposing views for a balanced story based on a press release from a PIO. Beware: through this process the public may perceive a spirited scientific debate as a spat between research groups or as evidence of the inability of science to solve important issues that affect them.

Generally, you will have little time to prepare for these types of inquiries. Nevertheless, you must communicate your message.

- Clearly understand the work on which you are asked to comment; you may want the reporter to fax a copy of the article for your review.
- Take the time to prepare 3-5 points that you would like to communicate.
- A negative review of someone else's work should clearly explain the contradictory evidence. Provide background information so that the reporter fully understands the contradictions in the points of view of the different researchers.
- Maintain a professional atmosphere; remember that aggressive or acerbic sound bites may be used without context and will likely be publicly associated with your name.

A False Conclusion

Reporters may paraphrase your answer incorrectly or may use "charged" or inflammatory words in the paraphrase. If you are uncomfortable interviewing, you may be inclined to use a simple "yes" or "no" answer to speed up the interview. Unfortunately, the resulting story that airs may use the reporter's incorrect or inflammatory paraphrase with your agreement or disagreement.

In these situations, respond by restating and qualifying your comments. For example: "To make sure the public doesn't misunderstand, let me restate..." and bridge to your message. Remember that you are responsible for correcting errors, misstatements, and inaccuracies during the interview.

An Awkward Silence

Beware of the reporter who remains silent, encouraging you to ramble on, dilute your original

message, or say something that you don't want to say. Once you feel you've answered the question, stop. If you become uncomfortable with a long period of silence, you can:

- ask the reporter if you've answered the question,
- ask if the reporter has any more questions or
- stay silent—silence is OK!

When Asked A Tough Question…

- Pause; take time to prepare your response.
- Rephrase the question using your own words, e.g., "If I understand your question..." This ensures that the reporter knows the context of your answer and, for the broadcast media, that the audience heard it.
- In all cases, if you disagree with a reporter, you must counter it. If you don't, the audience will assume you agree with what the reporter has said.
- Transition and state your message.

11. AFTER THE INTERVIEW

Realize that while you may spend an hour with a reporter, the story may air for 30 seconds and your comment may be only six seconds long. Or you may spend half a day being interviewed by a reporter, then be quoted only once in a 20-inch story. Or, you may be interviewed over the telephone for 10 minutes and not be quoted at all. All of these are typical situations.

Do not be disappointed if you don't get in the news every time you talk to a reporter. In the media the space or time devoted to science is limited. Also, an editor decides what stories to air or publish based on what will sell, and your topic may not be the biggest story of the day. Nevertheless, interviews are generally time well-spent: having a reporter consider you an expert in your field helps you establish a solid relationship with the reporter that can serve as a basis for future interactions.

Follow-up Questions

Make sure that the reporter knows how to contact you soon after the interview for follow-up questions or clarifications. Promptly return any follow-up phone calls!

Never Ask a Reporter to Preview a Story

This offends a reporter's professionalism, just as you would be offended if a reporter asks to review your data. Remember, a reporter's job is to gather the facts and tell the story as accurately as possible. However, to ensure accuracy, you can:

- Listen carefully during an interview. Be aware of when the reporter doesn't understand something, then try to explain it another way, possibly using an analogy or more detail. Be aware of when the reporter gets off track. Asking a question that doesn't make sense is a signal of confusion. Back up the conversation and explain again.
- Be available if or when a reporter calls back after an interview to ask other questions or check facts. Such reporters are making a sincere attempt to tell an accurate story.

Compliment

If the story was reported well, consider complimenting the reporter or the reporter's editor.

Corrections

If the story was inaccurate, it should be corrected.

- The PIO staff is available to help you get a story corrected.
- Work with the PIO to determine if it's worth calling the reporter and clearing up the inaccuracies. This is especially important if future stories on this topic are likely.
- Avoid going over the reporter's head to his/her supervisor unless the reporter is totally unresponsive.
- The reporter has little or no control over follow-up corrections to specific stories. The decision to publish a correction and the

wording of the correction will likely be the domain of an editor or another person not associated with the article.

The Headline

The headline of a news article in the print media is written after the submission deadline by a headline writer or copy editor, not the reporter. In fact, the reporter rarely provides any input for writing the headline. It also may be rewritten, possibly by another person, if a breaking story or late deletion changes the number of columns of space allotted to the article. Therefore, do not be surprised if the headline is misleading or inaccurate. Try shrinking your research paper title into four non-technical words!

12. SURPRISE! THE UNEXPECTED INTERVIEW

You may be called out of the blue for one of many reasons. For example, an earthquake in California may prompt a quick inquiry about the magnitude, expectation of aftershocks, background information on earthquakes, or the probability of an earthquake in your area. Or, you may be contacted to comment on a "hot" research study published in an upcoming issue of *Science* or *Nature*.

In these cases, you have probably not had time to prepare a message. It is helpful if you do the following:

- Always be aware of the primary issues in your field that are important to the health, safety, quality of life, and interest of the public. One of these will generally be a reporter's topic of inquiry. As a policy, always be prepared to respond to questions related to these issues.
- Clearly understand the issues that the reporter is trying to address. If you comment on someone else's research, make sure that you understand the research clearly before commenting.
- Take 30 seconds to jot down 2-4 messages that you would like to communicate.
- An interruption in the middle of scientific work often results in speaking too technically. Speak at the audience's level.
- Always have 2-3 pithy sound bites in your bag.

13. FOR FURTHER READING

Other resources for to assist the researcher in understanding and interacting with the media:

Communicating Science News, The National Association of Science Writers, refer to http://nasw.org/csn

A Field Guide for Science Writers: The Official Guide of the National Association of Science Writers, editors: D. Blum, M. Knudson, (Oxford Univ. Press, 1997) 288 pages.

Selling Science: How the Press Covers Science and Technology, D. Nelkin, (W.H. Freeman & Co., 1995) 217 pages.

The New Science Journalists, T. Anton and R. McCourt (Ballantine Books, 1995) 340 pages.

Science in Public: Communication, Culture, and Credibility, J. Gregory and S. Miller (Plenum Press, May 1998) 300 pages.

Presenting Science to the Public, B. Gastel (Philadelphia: ISI Press, 1983).

Media Guide for Academics, J.E. Rodgers and W.C. Adams, (Los Angeles: Foundation for American Communications, 1994).

Preparing for Radio & Television Interviews, (Washington, DC: American Chemical Society, 1994).

Worlds Apart: How the Distance Between Science and Journalism Threatens America's Future, J. Hartz and R. Chappell (Nashville: First Amendment Center, 1997).

14. APPENDIX A: YOUR BILL OF RIGHTS

You have the right:

- *To know who is interviewing you—and what newspaper, magazine, television or radio station they represent.*
- *To be treated courteously. The questions can be tough, but the reporter's demeanor should not be abusive.*
- *To physical comfort during the filming or taping of the interview. You should have the appropriate setting, chair, make-up, as well as the cooperation of the director and the floor manager.*
- *To make your own recording of the interview, should you so desire. You must tell the reporter you are doing so.*
- *To be heard, or allowed to answer without the constant harassment of interruptions. However, it's your responsibility to answer briefly and to the point.*
- *To get some of your points across in the interview. Don't just answer the reporter's questions. Be sure you also make the transition into your message.*
- *To have an accurate on-air introduction that will put the interview into proper perspective. If that doesn't happen, you have a responsibility to correct the introduction.*
- *To have the basic intent and flavor of your answers come through in the final story.*
- *To be quoted accurately. Remember, you also have a responsibility to communicate clearly.*
- *To establish ground rules, even for a spontaneous interview.*
- *To terminate the interview if any of the above rights have been violated.*

15. APPENDIX B: SCIENCE REPORTING THROUGH THE EYES OF SCIENTISTS

Each year, the AGU sponsors an advanced student in the geophysical sciences under the AAAS Mass Media Science and Engineering Fellows Program, in which the student spends a year as a science reporter under a mentor at a media institution. The following articles from *Eos Trans. AGU*, which describe the experience of recent AAAS/AGU Mass Media Fellows, provide unique insights from scientists who have spent a summmer learning to be messengers. Their experiences illustrate the false expectations and challenges in communicating a message that are faced by novice scientists in addition to pointers for improving communication.

Mixing It Up Right With the Media

By Victoria Bruce
Reprinted from *Eos Trans. AGU, 75*(1), 1, 1998.

This summer, AGU sponsored my tightrope walk between scientists and media. I am a graduate student from the University of California, Riverside, in geochemistry and an American Association for the Advancement of Science (AAAS) 1997 Mass Media Science and Engineering fellow. The fellowship program partners science grad students with news organizations all over the country, with the goal of shaking up the oil and water mixture of the two vastly different, but symbiotic disciplines. Instead of looking down a microscope as a scientist, I had the chance to look back up at scientists themselves. In the end, I came away with a journalist's perspective of scientists, and a few ideas to improve the relationship from the scientific side.

My fellowship took me to Portland and its only daily newspaper, *The Oregonian*. Northwesterners are very aware of Portland's amazing regional geology, which made it a great place for me and *The Oregonian*, an easy sell for earth science stories. In the news room, I'd endlessly enlighten my fellow journalists on the nuances of rocks and minerals and the temperament of their neighboring nemesis, Mount Hood.

Mass Media Fellow Victoria Bruce autographs a copy of her book, *No Apparent Danger*, at the AGU 2001 Spring meeting.

After spending the first two weeks at *The Oregonian* phone interviewing and creating stories without ever leaving the building, my editors sent me to Crater Lake for three days. I was hooked. "This is what it's all about," I thought. "This is the life. A day on the lake interviewing park limnologist Mark Buktennica and soaking up rays in a magnificent volcanic caldera, another day spent in the forest, on a guided tour of Crater Lake National Park's protected beauty." In the evening, photographer Rose Howerter and I dined on salmon entrees at the Crater Lake Lodge. Days later, back in the news room, I stared at a blank computer screen, cursing my left brain's impotence. "Why, this is no fun at all," I thought....

Diametrical Perception

Asking scientists to be savvy media specialists is no easy task. I know from personal experience that many geologists are far more at home in the lab or in the field than at a cocktail party discussing current international events. My master's field work took me to a fairly isolated basin on the flank of the Mount Rainier volcano in Washington. Occasionally, a train of climbers

would trudge by my camp on their way to the volcano's summit. "Don't you get lonely?" I'd often be asked. "Lonely?" I'd say, annoyed by their disturbance. "With all these rocks?" It is a rare journalist who understands the attachment scientists feel to their work. But at *The Oregonian* I found–contrary to what some scientists think–news editors don't just pull people off the street and call them science writers. Actually, the science, health, and environmental writers are usually the brightest in the news room. Faced with the daunting task of covering Top Quarks one day and monkey cloning the next, most often they succeed.

In fact, here's an insider note: a group of *Washington Post* science journalists offered this advice to a group of gathered AAAS fellows: Play dumb. Often, they said, it's the only way to get a scientist to explain a subject in a way that will fit into news copy. I was fortunate to be mentored by Richard Hill, *The Oregonian's* science writer, who has a stellar reputation with scientists all over the Northwest and beyond. It was somewhat intimidating to hear scientists rave about Hill, with more than a hint of doubt in their voices about my own ability. But in the end, I don't think I lost any sources for him.

Once I got over the fear of dealing with "experts," I sat back and analyzed how the scientists were dealing with me. Some scientists were quite clever, feeding me excellent quotes that fit right into news copy. Others made me want to run and hide. For scientists who find themselves in the throes of a Mars media blitz, or simply defining earthquake magnitude to a local journalist, here are some helpful hints that I garnered from my stint as a science writer.

How To Be a Media-Friendly Scientist

Simplify. I once interviewed a fluid dynamic specialist who rambled high-speed about Stokes flow. The name Stokes tripped a neuron, but I had no idea what the guy was talking about. My brain turned to instant oatmeal and then shut down. I had scribbled some illegible notes, but it was too late. I turned the page in my notebook and went on to ask him about something I could cope with. It was probably a good bit of science he had there, but I had only an hour and he hadn't yet released a Sesame Street version– not a dumb version, just simplified and catchy.

On the other hand, there is Robert Watters, a geologic engineer from the University of Nevada in Reno. I chased him around Glacier Basin on Mount Rainier for a day as he pounded on and measured the strength of crumbling rocks. Watters has incredible enthusiasm and way too much energy, and it rubs off. He has also put some thought into explaining his work to nonscientists. "Mount Rainier is like a cake," he tells me of the mountain's stratigraphy. "There is icing, sponge, and cream filling. If you tilt the cake, it will slide along the cream filling, the area with the least strength." Instant quote. Beautiful analogy.

Lighten Up. For a story on dating Kennewick Man, a 9,300-year-old skeleton found along the Columbia River, I interviewed a radiocarbon specialist. He spoke so quickly and technically that I was unable to process what he was saying. This was one of my first interviews, and I fell victim to a technical paralysis that can afflict a reporter when an expert source fails to translate the science.

In the end, I used almost nothing from that hour-long interview, and instead interviewed Donna Kirner, another scientist in the field who was far more journalist-friendly. Kirner had actually done the work on Kennewick Man, and slowly walked me though the process.

Slow Down. During an interview, journalists need time to absorb what you are saying while they take notes, mentally file important facts, and discard others. Then, they will need to ask questions to make sure they are getting what you're saying. Encourage the journalist to interrupt you. And try not to appear too irritated.
Also, encourage the journalist to contact you for further information. Often, a call-back is intimidating. This is especially so for me because I've witnessed the disdain that scientists hold for journalists who don't seem to get it the first time. But I'm sure most scientists would rather be

bothered than have their science misrepresented. It helps to have graphics and photos ready for the journalist. Anything you can offer to the publication's art department helps ensure the accuracy of the article's accompanying graphics.

Get Excited! Explain what you do with enthusiasm. If you are bored by your work, imagine how a journalist will feel interviewing you. This summer David Kestenbaum, an AAAS fellow working for a radio station in Columbus, Ohio, interviewed an ornithologist who actually yawned on tape throughout the entire interview.

Office interviews I conducted seldom produced the excitement and enthusiasm my article might show if I'd actually been in the field with the scientist. But Seth Moran, a seismologist from the University of Washington was ready for me when I arrived in his basement office. With maps and seismographs, he excitedly explained the seismic network set up in the Cascades. He even took the time to set up a projector full of field slides.

Try Interviewing Someone Out of Your Field. In my career as a student, I've often been amazed how deeply divided different earth sciences are. Imagine interviewing someone in another earth science field. Magnify the frustration by a factor of 10, and you've got the beginning science writer view on your work.

I've often heard scientists grumbling down the halls of academia, "But I gave them all that good science. They must be too ... to get it." Whenever a reporter uses a quote like, "This will be the big one for sure!" it's usually because the source failed to provide much that the journalist could understand and identify as newsworthy.

Deadlines. Think of the pressure you're under to turn in a meeting abstract or a grant proposal. Journalists are under this kind of pressure daily. When a journalist is covering your work, if you don't return messages promptly, the reporter will have to do the best he or she can, which may not be in the article's best interest. The publication's editor, like the folks running meetings or dishing out grant dollars, will not wait for the piece.

Granted, I've heard legitimate complaints about the overzealous reporter who sinks canines into one entirely speculative sentence in your paper's discussion section and bases the whole article around it. But overall, placing the blame for bad mainstream science reporting solely on the journalists is ignoring at least half of the problem.

Recently, I had lunch with Patrick O'Neill, an *Oregonian* health reporter. Missing my life as a journalist, I inquired about his current work. "Oh," he said, looking exhausted and leaning into his lunch plate, "I've been working on this story that I've researched to the *nth* degree....I've worked on this thing for nearly *two weeks*." Having spent the previous day with David Zimbelman, my mentor volcanologist who is into his fifth season climbing and collecting in the Cascades, I realized that scientists and journalists are not meant to act as one or even have a complete understanding of one another's work. And I realized the fundamental division between scientists and journalists: time.

My very supportive team members at *The Oregonian* regularly told me I wrote in geologic time. At some point, they said–preferably today than in a millennium–I had to give it up and let it go. After all, tomorrow would bring another day and another deadline.

Scientists and journalists will never live by the same clock, and those of us who try to bring the two together are in for a great challenge. This past year, 1997, marks the first year of AGU sponsorship in the AAAS Mass Media Science and Engineering Fellows Program. Continuing to link earth scientists to mainstream media is in the best interest of both scientists and society and the responsibility of all who have the great fortune of working to uncover the Earth's endless mysteries.

Mass Media Fellow Westley Spends Summer Publishing in Newsweek

By Harvey Leifert, AGU
Reprinted from *Eos Trans. AGU, 79*(36), 431, 1998.

If you are a subscriber to *Newsweek*, you probably remember these stories from the past few months: "Vaccine Revolution," "Aliens Invade America!," "A Gymnast's Long Fall," "Is AIDS Forever?," and a cover story, "Science Finds God." They all had something in common, aside from their science focus: at the end of each article was the credit line, "With Marian Westley." In addition, a story titled "A Long, Wacky Summer," on recent weather patterns, carried Marian Westley's byline. Who, you may have wondered, is this Marian Westley, who reports with equal aplomb on matters as diverse as epidemiology, meteorology, the predations of nonnative plant species, and the interface between scientists and theologians? Actually, Westley is a graduate student in biological oceanography at the University of Hawaii and a member of AGU. She spent the summer of 1998 as the AAAS/AGU Mass Media Fellow at *Newsweek* in New York.

The goal of the AAAS Mass Media Science and Engineering Fellows Program, now entering its 24th year, is to get more science news into general interest media. It provides a living stipend to the Fellows, 20 in 1998, all of whom are advanced students in science or engineering. The newspaper, magazine, or broadcast outlet provides a mentor in journalism and assigns the Fellow primarily to science stories. Of the circa 375 alumni Fellows, about half are currently journalists, either full- or part-time, according to Amie King, who coordinates the program for AAAS.

Mass Media Fellow Marian Westley discusses her experience with *Newsweek* at the AGU 2001 Fall Meeting.

Westley is the second Mass Media Fellow AGU has sponsored under the AAAS program. Last year's Fellow, Victoria Bruce, is now a science writer with NASA's Earth Observing System Project and has just begun serving on the AGU Public Information Committee. During the summer of 1997, she wrote for *The Oregonian*.

Westley says she enjoyed every minute of the 60 to 70 hours she put in weekly, and she learned a lot about news values in general and the place of science news in the hotly competitive world of weekly news magazines. A lot of selling is involved, she found: selling a story idea to your section editor and then trying to squeeze it into an already overloaded issue. While she had always assumed that a scoop was highly prized, she discovered that this is not always the case. One story she reported on was rejected until a similar one ran in *The New York Times*, at which point her story was hurriedly resurrected.

Westley found it easy to gain access to scientists for interviews, as they felt comfortable talking with her, even about subjects she had never studied. As a group, scientists are not cynical people, she found, and they were more than willing to take time from their work to answer her questions. But she found it was not always easy to understand their answers. "Few of the people I interviewed spoke English. They were born native speakers, but long ago forgot how to speak a jargon-free and acronym-free sentence."

In fact, Westley told her colleagues at a wrap-up session concluding the 10-week program, while at *Newsweek*, scientific jargon became a problem only once, when she conducted an interview concerning her own field of study. She realized to her chagrin that she and the interviewee had quickly lapsed into terms that would have been incomprehensible to readers who were not themselves oceanographers.

Newsweek's science editor, Sharon Begley,

offers high praise for the Mass Media Fellowship program and for Westley in particular. "To have someone on staff with a scientific background is invaluable," she says, "but less for the content of their knowledge than for their frame of mind. These young scientists approach science news with greater skepticism than other journalists and have the ability to see the flaws or gaps in arguments. We can check facts easily, but we cannot find a substitute for the scientific mind."

Begley adds that the Fellows also receive a reality check. They learn how a news magazine works, its planned content constantly changing as the week unfolds. They discover that a story they have labored over for weeks may never get into print, sometimes being yanked at the last minute. Also, science news is not always presented the way a scientist might prefer. "*Newsweek* isn't *Science* or *Nature*; for lay readers, you must get them interested in science first, and this means you have to present it in a readable way," Begley says.

As for Westley, Begley says she was "a delight." She willingly stayed till midnight once or twice a week and never lost her sunny disposition, even when one of her stories was dropped.

Marian Westley was born in Addis Ababa, Ethiopia, to a U.S. foreign service family and grew up in Nairobi, Kenya. She graduated cum laude from Yale with majors in physics and English. As an undergraduate, she wrote for the *Yale Herald* and tutored New Haven school children in math and science. After graduation, she returned to Kenya for an internship with the U.N. Environmental Program and did freelance writing in science and technology for children.

She is now back in Hawaii to continue her work on the role of oceanic primary production in glacial-interglacial change, analyzing a sediment core from the Gulf of Alaska. And she will also pursue her twin interest in journalism. Armed with a portfolio of clippings from *Newsweek*, she is seeking freelance writing assignments on a variety of topics. "There is lots of exciting science in Hawaii," she says, "and not that many science writers." And the future: science, journalism, both? She shrugs and smiles. Too early to say.

What I Did on My Summer Vacation

By Roberta Hotinski
Reprinted from *Eos Trans. AGU, 80*(46), 551, 1999.

Imagine learning on Monday morning that you had to write an article on an area of science you knew little about. Now imagine that the article had to be finished by Thursday morning, in print by Friday, and scrutinized by millions on the following Monday morning. If you felt a rush of adrenaline reading that scenario, then you have a sense of my fellowship experience this summer. Instead of scaling mountains or feverishly experimenting in the lab, I explored a strange new frontier: the world of science journalism. I spent ten weeks immersed in the tumult and fervor of a news organization, and now have a new appreciation for the art of science communication as well as a new sympathy for science writers that would benefit any researcher.

The fellowship I embarked on is the creation of the American Association for the Advancement of Science called a Mass Media Fellowship in Science and Engineering. AGU has been a sponsor of the program for several years, and provides funding for one of the fellowships to encourage participation by young geoscientists. The purpose of the program is to improve communication between scientists and the media by thrusting researchers into writing positions for popular media organizations. This is an extraordinary opportunity, as fellows get to jump right into writing and skip the less exciting, and often unpaid, internships that budding journalists often endure. I applied in February, and in June became a part of the science desk at U.S. News & World Report, a popular weekly news magazine that has over 2 million subscribers and about 12 million readers. The other fellows, all of

whom were either working toward or had completed advanced degrees, were similarly assigned to newspapers, magazines, and radio and television stations across the United States.

The first thing I learned is that the career of a science writer is a perpetual continuing education course. Within half an hour of arriving at my first Monday morning meeting, for example, I had been assigned a story on a new paper about pain centers in the brain. Before I could steel myself to call the researcher, though, I had been reassigned to a story on a report about the effects of low-frequency electromagnetic fields on human health. The next week I covered an article detailing the variation of women's mate preference through the menstrual cycle, followed by xenotime dating of sedimentary rocks, a potential Alzheimer's vaccine, the discovery of Dante's remains in a Florence library, neuroscience of the teenage brain, fiber optic cable deployment in the United States, the science of human attraction, and forecasting of global warming.

You can imagine the trepidation that a late-stage Ph.D. student felt in tackling these topics with so little prior knowledge. Many people, including myself, have been surprised at the breadth of my "beat," but I quickly learned that news abhors specialization. The reason scientists make good science writers is that they have a fundamental understanding of basic science, well-honed research and critical thinking skills, and, most importantly, a strong compunction to get the science right.
Specialized knowledge may help a writer develop an area of expertise, but ultimately journalists need to cover late-breaking stories, regardless of subject matter. This leads to some humbling experiences, like the time I had to talk to a neuroscientist with no time to do background research, fervently hoping that he would tell me the amygdala's exact function before I had to ask.

On the other hand, my science background was useful in recognizing important Earth science news stories. For example, I begged to cover a story on a new technique for dating sedimentary rocks. The piece might have run without my support, but certainly wouldn't have been as ardently promoted. It made my whole summer worthwhile to hear the word "Precambrian" uttered casually by writers, editors, and artists around the magazine, and to know that 12 million people knew a little more about geology because of my story. This sort of influence, although seemingly small, is the reason I would encourage other geoscientists to participate in the program. Medical and health stories currently dominate science coverage in the popular media because they have an obvious appeal and newsworthiness. Earth science discoveries, in contrast, are often passed over because the significance to the general public is less apparent or because technical aspects of the stories make them too daunting for those without a background in the field to cover. By both encouraging well-trained scientists to enter journalism and increasing the media savvy of researchers, the Mass Media Fellows Program is a phenomenal opportunity to increase the exposure of geosciences in the mass media and educate the public about the importance of geoscience.

For researchers seeking more successful interactions with the mass media, I offer the most important lessons I learned at U.S. News:
• Avoid jargon. If you are talking to a reporter and use phrases your average 14 year-old doesn't understand, odds are the writer will have to paraphrase you or an editor certainly will. Providing clear quotes is the best way to ensure your ideas are communicated as you intend them to be.
• Make yourself available. Reporters often have to research and report stories in hours, so calling or writing back as soon as possible is essential. Also, if you seem happy to answer endless questions you are more likely to hear from the reporter again and to have more input into the story's development.
• Think about your work in a larger context. The average reader doesn't care about new methods

or standard deviations; he or she wants to know how this will benefit the average person.
• Communicate your confidence. Reporters often talk with economists, industry representatives, government officials, and public interest groups as well as researchers, and quotes from scientists often seem noncommittal or inconclusive when compared to other groups. If you can express your level of certainty in terms of odds or common analogies, reporters will have something concrete to emphasize. For example, you could characterize your certainty that global warming is upon us as comparable to your belief that a) the sun will rise tomorrow, b) your kids will go to college or c) you'll win the lottery.
• Let the writer do the writing. Writers are paid to make the subject matter interesting and clear to the public, so their style and emphasis are bound to be different than that of most researchers. Before you make objections to content, consider whether a story is actually inaccurate or just written differently than you would have written.

Since coming back to Penn State I've already been interviewed about my work by a budding science writer, and I can attest that my experience at U.S. News has made me a much better interviewee. I try to follow the advice above, and when I get frustrated I think about the wonderfully patient scientists who tolerated my ignorance all summer (particularly about the amygdala). And if the article about my research doesn't get published, I'll remember how many times I was suddenly reassigned and forced to abandon stories that I wished I could get into print, and how the researchers I interviewed good-naturedly forgave me.

I'm glad I devoted ten weeks to understanding the fickle and challenging world of news and plan to use my new skills to aid public education efforts throughout my career. In the United States, only about half of elementary school teachers and parents polled say they are "very comfortable" answering children's science questions, federal funding for geosciences has barely kept pace with inflation over the last decade, and a state board of education recently voted to exclude evolution from its teaching standards. It's clear that improving public science literacy would benefit both scientists and non-scientists in this country, and that better communication of science to laypeople would ameliorate disparities in science education around the world. Improved relations between scientists and the media are critical to this effort, and I warmly recommend the AAAS program as a great place to start.

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Fish Fat, Quantum Cryptography: All in a Day's Work at The News

By Matthew Carr
Reprinted from *Eos, 81(50), 611, 2000*.

Fellow scientists always get a laugh when I tell them my first publication was in The Dallas Morning News.

That article (about fish fat and how it helps fight depression) was the first tangible product of my AGU-sponsored participation in the Mass Media Science and Engineering Fellows Program, sponsored by the American Association for the Advancement of Science (AAAS). The program sends science and engineering graduate students to media organizations across the country for 10-week summer stints as science journalists. The objective is to strengthen the connections between scientists and journalists and improve coverage of science in the media.

My first article appeared in the weekly health and science "Discoveries" section of the Morning News, just 7 days after my arrival in Dallas. But my education on the delicate symbiosis between science and the media began before I even set out on the 4-day drive to my summer destination.

The week before heading down to Texas, I joined the two dozen other AAAS Mass Media

Fellows in Washington, D.C., for a crash course in science journalism from some of the field's top names. We toured the studios of National Public Radio and heard from writers and editors at Science and "Discovery Online."

In the 10 weeks that followed, I wrote roughly a dozen articles for the Morning News. Their subjects were disciplines for which my training as an atmospheric scientist left me less than fully prepared. By summer's end, I had written articles on quantum cryptography, chiral chemistry, and drug-induced sex reversal in fish, and probably learned more science than in all my college classes combined. But back to my first story.

With potentially more than a million Texans pouring over my prose, I did not take my first assignment lightly. Less than a week into the fellowship, I was instructed by my editor to write a thorough, engaging article on a subject I knew almost nothing about.

"Make no mistakes; and have it on my desk by tomorrow," he said. "And stop using the passive voice."

That first assignment took me a few blocks down the street to the Dallas Convention Center, where thousands of food technologists had gathered for their annual meeting. My duty was to listen to the presentation on fish fat and interview the speaker before he could scurry out of the room.

On arriving, I realized I would have to make a decision: accost a total stranger who would undoubtedly expose my ignorance on the subject or face the fiery wrath of my editor.

Surprisingly, the scientist was more than willing to talk to me. And, after quickly discovering that I was no expert in omega-3 fatty acids, he helped me understand the implications of his results for technologists and non-technologists alike. Still, my grasp of the research itself remained somewhat sketchy, so my editor

Mass Media Fellow Matthew Carr discusses his experience with the *Dallas Morning News* at the AGU 2001 Fall Meeting.

suggested
I call a local researcher to get his perspective on the study. To my surprise, the second scientist was equally helpful.

This seemed to present a contradiction. Up to that point, my own experience with scientists and the media had been of the grumbling researcher bemoaning the abysmal portrayal of science in newspapers and on television. My colleagues' opinion of science journalists seemed to range from derisive to downright damning. Had I stumbled upon the only two scientists who did not hold these views? Did this explain their willingness to talk to journalists?

My next assignment--a study in which scientists used a magnetic field to manipulate the structure of a molecule--seemed to answer my question. All of the scientists I spoke to were enthusiastic in their explanations (though somewhat reserved in their opinions). Could it be that, while publicly disdaining the media, scientists actually enjoyed discussing their research with journalists?

Over the summer, as I researched and composed the remainder of my stories, the overwhelming conclusion was "yes." Quantum physicists, environmental chemists, forest ecologists--even meteorologists--were cooperative and helpful.

As a conclusion to this article, I would like to offer kudos to AGU members who have spoken with science writers in the past and plan to continue doing so. My fellowship experience taught me what I believe most scientists already know: that science journalists are not out to make us look bad, or skew the facts; but rather, are avid supporters of scientific research and staunch defenders of the scientific process.

My co-workers in the "Discoveries" department at the News were some of the most professional, hard-working individuals I have ever encountered. Their attention to detail and insistence on accuracy and fairness was unequalled. And despite (in some cases) decades of experience covering the same beat, their enthusiasm for new discoveries has never waned.

Now, 5 months after my first article appeared in the News, I have two "real" articles in press at respected scholarly periodicals. Their acceptance has, I think, rescued me in the eyes of my colleagues, many of whom feared openly that I'd been blinded by the glare of the media limelight!

If any of them asks, I will certainly remark that "coverage of science in the media is appalling." But when, a few months from now, I stand in of my Ph.D. committee, defending the fruits of 5 years' labor in an obscure area of science, I'll be glad there are journalists out here to make the work of scientists like me sound more exciting and important than I ever thought it could.

"Relevance, Creativity, Brevity"

By Nyasha Morris
Reprinted from *Eos Trans. AGU, 83*(17), 190, 2001.

Science and technology often find themselves the unwelcome recipient of inadequate coverage and inaccurate portrayal in the media. The necessity of strengthening the relationship between science/technology and the media became apparent to me during my tenure at CNN as the AGU-sponsored AAAS Mass Media Fellow for 2001. As a fellow, I was granted the challenging privilege of communicating complex technological subjects to non-specialists in a creative way.

As a graduate of the Georgia Institute of Technology with a M.S. degree in Earth and atmospheric science, I was accustomed to giving technical presentations. The atmospheric dynamics research I conducted under Dr. Robert Dickerson and Dr. Rong Fu was easily conveyed to fellow scientists and researchers who were already familiar with the sometimes-complicated terminology. I was certain that with an undergraduate degree in communications I would have absolutely no problem in relaying my scientific knowledge to the general public. But as I began work as a science reporter for CNN, the dictates of academic presentation quickly vanished and were replaced by three simple media guidelines: Be Relevant, Be Creative, Be Brief.

Each day as I went to work, hundreds of articles on innovative new ideas or exciting scientific discoveries awaited my attention. Every captivating story, from the latest trend in biotechnology to the inward working of fireflies, demanded the interest of my already-inquisitive mind. Thus began the task of sifting through each topic—important in its own right—and deciding which ones were relevant to my audience. The journalistic temptation to investigate every idea was eclipsed by the reality of limited time. The chosen few ideas that were actually transformed into feature stories were ones that explicitly followed the three media guidelines.

The first guideline, being relevant, implies that science journalism not only has the responsibility of informing the public of new ideas, but also, that those ideas must be of benefit to the audience. One story that I investigated was, in

my opinion, extremely pertinent. However, by the time the story actually went through the development process, the issue was no longer in the forefront of the public eye, thus losing its immediate significance. The subject matter must be relevant to the time, place, and circumstances of the audience.

After establishing relevance, the next step was to present the subject in a creative manner. My naturally analytical mind was forced to assume the dimension of finding appealing sights and sounds that would adequately illustrate my point. The cliché, "a picture is worth a thousand words," acquired new meaning. Pictures replaced equations; captivating sounds replaced graphs; interviews replaced bibliographies. I had to visualize how to best illustrate the concept while maintaining its scientific value.

The third guideline—that of brevity—was the most challenging one. In the research field, we specialize in giving every detail of the scientific process. It is almost perilous to omit any thread of evidence that leads to a conclusion. But in science journalism, thirty pages of equations and details must be turned into thirty seconds of facts. I would often find myself writing "just the facts" and still having to edit over two pages of script! The joy of brevity is that in a moment, the audience is able to get an overview of the subject matter. The obvious disadvantage is that important facts are sometimes omitted that would provide better understanding of the issue.

My experience at CNN was one that positively changed all my pre-conceived ideas about science communication. It allowed me to see the extreme import of cooperation between scientists and journalists to provide accurate and timely information to the public. This goal is the motivating force behind organizations such as AGU and others that support the AAAS Mass Media Fellowship each year. In order to advance as a highly technological society, each of us must become educated on the issues that are employing our time and research efforts. To be educated, we must continue to conduct programs that promote scientific awareness through the media.

Mass Media Fellowships Bridge Science and Journalism

By Cristina Rumbaitis-Del Rio
Reprinted from *Eos Trans. AGU, 84*(6), 52, 2003.

This past autumn, I had the chance to learn first-hand how journalists work as an AGU/ American Association for the Advancement of Sciences (AAAS) Mass Media Fellow.

I took 10 weeks "off" from being a graduate student in ecology at the University of Colorado to work as a science reporter for WOSU-AM,a National Public Radio station in Columbus, Ohio.

Even though I had little journalism training, the news staff at WOSU put me straight to work. I had my first story on the air by the end of the first week. During the internship, I worked like any other reporter at the station: pitching story ideas to the assignment editor, conducting interviews, writing scripts, editing tape, and voicing my own reports. I covered a variety of scientific issues ranging from climate change to colon cancer. I concluded my internship with a three-part series on forest ecology.

As a graduate student, I think it was instructive for me to see how science becomes news. Science by its nature is a slow, ongoing process. It is not an "event" like a political speech that reporters are used to covering. Science stories are sometimes passed up for more traditional news stories because editors do not see their timeliness or significance.

When science is covered, it is usually because there is conflict or a prominent figure is involved. Sometimes the publication of a paper is enough of an event to get a story covered. Other times, science is covered as an offshoot to a story that

is already in the news, as was the case with smallpox vaccinations recently. And sometimes science stories are covered just because they are zany or unexpected—the "gee-whiz"science story.

The challenge that faces reporters and scientists alike is to make science stories seem timely, significant, and interesting to a local or national audience. Before getting permission to cover a story, I had to convince my editor that the research was significant or interesting to our audience, and that the story should be covered then—not next week or next month.

If those criteria were not met, the story idea was rejected. By working with reporters to prepare answers to these questions, scientists can help expand the coverage of science by the media for the benefit of the general public.

A valuable lesson I learned from my time as a science reporter is that journalism is very similar to science. Both rely on inquisitiveness, critical thinking, objectivity, and creativity to lead the way. Accuracy and credibility are indispensable. Persistence and patience are traits needed in both trades.

The only difference, perhaps, is that journalists need to learn a subject well enough to communicate it in a matter of hours or days, and they may be covering everything from physics to politics at the same time. Reporters deserve our trust, cooperation, and understanding that their job—in certain ways—is an accelerated version of ours.

This internship was a spectacular experience for me. I loved learning about so much science. Every day I covered something different. I could report on bat communication one day and growth-enhancing hormones the next. Most of all, I liked the challenge of making science make sense and still sound exciting and interesting. I hope to continue working as a freelance radio journalist while I finish my degree and throughout my career. There is so much science that deserves to be reported. I hope to continue being a part of that process, just as I hope to remain involved in research and teaching.

Mass Media Fellow Cristina Rumbaitis-Del Rio discusses her experience with the WOSU-AM, a National Public Radio station in Columbus, Ohio, at the AGU 2002 Fall Meeting.

Accuracy and Intuition: The Mission of a Science Journalist

By Carolyn Gramling
Reprinted from *Eos Trans. AGU, 85*(28), 268, 2004.

After years of experimenting with how to explain my thesis research to family and friends, I realized two things: (1) just because I was the presumed expert on a topic didn't mean I could easily break it down into absorbable nuggets of information; but (2) trying to do that was an absorbing challenge. It was more than a game; it was a sort of mission. How do I convince my audience that the underlying science isn't too esoteric—that science can be more fun than intimidating?

The AAAS Mass Media Science and Engineering Fellowship program seemed like a perfect opportunity to undertake this mission. As a recent Ph.D. in marine geochemistry in the

MIT/WHOI Joint Program for Oceanography, I had written and presented specialized papers geared toward scientists. However, as a science journalist, I imagined I would be a sort of interpreter, an intermediary between scientists and the general public, translating complicated scientific concepts into readable prose, while maintaining constant vigilance against jargon and assumptions. Something like that.

Thanks to the American Geophysical Union, I was able to take that opportunity. With AGU's sponsorship, I spent 10 weeks in the fall of 2003 as an AAAS Mass Media Fellow: the designated science reporter at NPR affiliate station WOSU-AM in Columbus, Ohio. It wasn't long before I began to realize that science reporting wasn't just going to be about interpreting science, but also about such topics as how to recognize what makes a good science story, how to make it feel relevant and timely to my audience, and how to conduct an effective interview. That last was a trial-and-error process, but it boiled down to doing my homework on the subject, asking informed questions, and most of all, really listening to the answers (good follow-up questions are often contain within!).

Almost from my first day, it seemed like I had more story leads than I had time. WOSU is a small newsroom, with only a few full-time reporters.Consequently, everyone wears lots of hats, from news anchor, to broadcast producer, to traffic reporter; and the newsroom was always eager for timely and interesting material. I was able to produce as many stories as I could come up with, on just about any scientific topic that interested me (though preferably with a local connection).

Culling ideas from the OSU research news team, as well as other local sources, I covered stories ranging in topic from the bioethics of Mary Shelley's novel Frankenstein, to "smart dust" sensors, and microscopic wireless devices with potential military and commercial applications. The Frankenstein piece was timed to coincide with a traveling museum exhibit on Shelley's

Mass Media Fellow Carolyn Gramling, at work during Fellowship at WOSU-AM NPR 820, Columbus. Ohio.

novel, which included a panel discussion about bioethical issues facing current medical professionals and scientists. These issues included how doctors define death and the ethical implications of xeno-transplantation—transplanting organs from other animals to humans. I also visited OSU's Bat Laboratory to talk with researchers about how echolocation calls could be used by bats for social interaction, as well as for navigation. One of the attractions of doing a story on this topic was that I knew I would get some great "natural" sounds—ambient sounds that can really liven up a radio story. My favorite story, however, was a piece on how the invasion of non-native species into Lake Erie was creating a new food web in the lake. I particularly enjoyed this story, not only because it was a fascinating topic, but also because it eventually became my first freelance radio story—definitely a highlight of the Fellowship. In addition to stories I brought in, WOSU also sent me on some interesting assignments, such as interviewing groundbreaking cancer researcher Judah Folkman and Governor Taft of Ohio.

Much has been said about the fundamental tension between the worlds of science and journalism. Science prefers to underplay the potential impacts of research until the data has been tested and re-tested, while journalism wants not only to get the word out as soon as possible

(preferably first), but also with plenty of fanfare. Yet there is, of course, a great deal more symbiosis between these two worlds than that extreme model would suggest. By disseminating scientific concepts to the public, journalists encourage public support for and interest in science. And both scientists and journalists are deeply concerned with accuracy.

The scientists that I interviewed were usually more than happy to discuss their research and seemed pleased that I was interested. It was rare that I encountered a researcher who was reluctant to talk with me, though this did happen: the scientist cited the experience of a colleague who had been interviewed for a newspaper story, and whose preliminary results were used out of context. In this case, I was able to use my own background as a scientist to convince him I would treat his results carefully. This demonstrated to me the importance of trust between reporter and scientist, and the story I wrote based on his research became one of my favorites.

I found that one of my most difficult tasks as a scientist-turned-journalist was learning how to keep it short, but to still "get it right." Maintaining an audience's attention while telling the most accurate story that I could within the time constraints of radio was a constant challenge. I found it difficult to stick to the point and eliminate unnecessary detail when, as a scientist, I was often used to thinking about the details as the point. But for the average rush hour listener, the details might get lost in blaring car horns or in daydreaming; and there's no way for a radio audience to re-read the last sentence.

Working in radio presented some unique challenges. I had to make sure my sentences were understandable on the first go-round, since there's no rewind button (or TiVo) on a car stereo. I also needed to structure my stories so that they had a natural rhythm when read aloud. But the challenges—and joys—of radio extended beyond the writing itself. At WOSU, I had the opportunity not only to research and write my stories, but also to edit and voice them. There was so much to learn about each part of the process, and mastering the equipment was only the first step. But it was a wonderful feeling to take a story all the way from nebulous concept to produced piece; and especially, to hear the finished product on air.

As a result of AGU's sponsorship in the AAAS Mass Media program, I had a unique and invaluable opportunity to experience first-hand the pace of a newsroom. All in all, I produced about 20 radio stories, ranging from brief, under-a-minute "voicers" to 5-minute "packages" complete with multiple interviews and a few natural sound cuts. This opportunity allowed me to investigate and undertake the mission of a science journalist: how to convey the wonders of science to the general public. It's not an easy job to classify: it involves both accuracy and intuition; sometimes it's about distilling complicated concepts, and sometimes about creative writing.

It's not so much sitting on a fence, as it is standing at the intersection of science and media. And you get a great view of both worlds from there.

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16. INDEX