

Magazines—A Pipeline for Science to People

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Mark Bowden of the *Philadelphia Inquirer* won a recent AAAS Science Writing Award for a feature on dairy cattle breeding. In his acceptance speech he said, "Seriously, I would like to say that I think it's important for nonscientists to be writing about science. I say this because I have heard it suggested that newspapers hire scientists to write about their fields. I wouldn't want to imply that all scientists can't write—that certainly isn't true—but in order to ask the proper store of ignorant questions it helps if you are properly ignorant."

Now I'm not yet sure whether Mr. Bowden is ignorant by choice, convenience or necessity.

An ag economist friend of mine once described members of his profession "as mathematicians who had learned to write." But I'm sure that some of you would argue with the journalistic side of that equation.

I'm not going to discuss whether science writers should be trained journalists who treat science as any other subject or whether science is complex enough to require some science knowledge for a writer to gather and present science information effectively.

However, I will describe myself not as a science writer but as a scientist who is learning to write.

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Actually I backed into science writing after 25 years as a scientist with teaching, research, extension and administrative duties. I had the perhaps quite unusual privilege and experience of writing the job description for the position I now hold, looking at applicants for it for five years and then resigning as an administrator to fill it myself.

When I resigned as Nebraska's extension director in 1975, I spent six months at the University of Missouri where I audited a journalism course or two and did a sort of working apprenticeship as a visiting professor with Dick Lee—"the Walter Cronkite of Missouri Ag Journalism," and Joe Marks—"King of Quips-Nimrod of Nimble Nuances." I learned much from these two, from some good editors since and I'm still learning!

Only a little over half my time goes toward the researching and production of magazine articles, since I have other duties, including 20 percent on a research project and some other assignments.

Recent research by Vacin of Kansas State and by Brown and Collins of Missouri has shown magazine articles to be an important source of information for farmers. And an unpublished survey which I ran last year in Nebraska showed farm magazines to rank second only to "neighbors and other farmers," but ahead of all university sources combined as a source of change ideas and information for our farmers and ranchers.

I keep a tally-board on the wall with my article output by years, dates, circulation, etc.—we just photo copy the published titles and hang 'em on a magnet board.

In the past five years I have either published or now have accepted for publication, some 50 magazine articles. These articles have run in 10 magazines to a total circulation of 6,590,700.

If we assume that putting out such information is a land grant university mission, it might be interesting to consider that our University Printing Division has estimated that it would have cost the University of Nebraska \$1.1 million to reach the same circulation itself.

With an assignment to write articles containing scientific information about agriculture and/or home economics for publication in magazines—I found it useful to take of couple of inventories. One established what had already been published in the magazine or magazines in which I hoped to publish. The other determined what the editors were interested in publishing for their readers.

Five years ago, I tackled the situation this way—first I made a two-year survey of *Nebraska Farmer*, our state's farm magazine. The *Farmer* is a tabloid size (10½ x 14¼ inch) magazine which uses a full color cover, interior color on ads but rarely uses other than black and white for illustrating articles. Its record largest issue on September 6, 1980, was 246 pages. But it sometimes gets pretty skinny in the summer (it had just 48 pages in the June 21, 1981, issue).

For a magazine of this type which runs everything from one-paragraph news releases to illustrated 3000-word features, you make some arbitrary decisions about what you are going to index. I mark for indexing as an article pieces that are at least one column (about 430 words), have some useful facts and show some depth in the presentation. We record bylined authorship, whether written by the magazine staff or by our Institute of Agriculture and Natural Resources (IANR) or other outside staff. If not bylined, we assume the article was authored by the magazine's staff. We copy the lead paragraph or two which (in *Nebraska Farmer*) usually summarizes the article for future reference. When I mark the articles for indexing, I assign them to the subject matter department or division which is most closely related to the article.

We are now in our fifth year of indexing this magazine—perhaps you might like to see the last couple of years as to the major subject matter departments covered.

Of the total of 1075 articles in 46 issues, 293 or 27.2% are on economics. I have jokingly suggested to Dave Howe, managing editor of the *Farmer* that he should change the name to *Nebraska Journal of Farm Economics*.

Table 1: Top Four Departments as to Authorship, Two Year Summary, 1979-1980, Nebraska Farmer

Subject (Department)	Total		Total		2-Year	
	1979	IANR	1980	IANR	Total	IANR
Top 4						
Agromony	57	12	69	25	126	37
Ag Economics	149	13	144	22	293	35
Ag Engineering	112	7	98	4	210	11
Animal Science	80	2	71	9	151	11
Total	398	34	382	60	780	94
Remaining 21	154	15	141	19	295	35
TOTAL	552	50	523	79	1075	129

Ag Engineering is the second largest contingent with 210 or 19.5%, Animal Science third with 151 or 14.0%, and Agronomy (includes soils and range management) is fourth with 126 or 11.2%.

There were some other departments that I have lumped in our remaining 21 departments and divisions of that get significant coverage—such as the Conservation and Survey Division, which monitors natural resources and Veterinary Science.

But authorship doesn't necessarily follow opportunity. Agronomy has authored 37 or over 29% of the 126 articles published but Ag Engineering, with a larger opportunity (210), has written only 11 or 5%.

Such a survey answers the question as to what has been published in a given interval in a particular magazine. Now—what to do with it. Generally the person in a subject matter department or division who best knows the scope of that unit's operation is the chairman or head. When you sit down with that person and show what has been published relating to their scope of operation, he or she will have some suggestions as to what information or topic is available and important that should have been or should now be published. You'll also get names of the scientists in the unit who are doing the work.

You now have some potent "editor" ammunition—

- a. You just very possibly know more about what he has published, in numbers per categories, than he does and he'll be very interested in any analysis of his magazine.
- b. You are now armed with a well known expert's opinion (heads and chairmen are usually as well or better known than any scientist in the department) as to important information and the source.

When I made my first two-year survey of the *Nebraska Farmer*, I interviewed the six departments which had the largest two year totals of articles. I came away from those interviews with 36 topics. And I believe the department heads had a better appreciation of magazines as actual and / or potential outlets for information.

When I called Dave Howe and explained what I had been up to, Dave was interested enough to call a meeting of his three writers, plus the chief editor and the publisher to seminar with me on the survey and list of topics. We spent half a day. My approach was to try to interest the editorial staff in either writing the topics with their own staff, arranging with scientists to write them or assigning them to me.

They accepted all 36 topics on one or another of these terms. Six of the topics were assigned to me, of the remaining 30 about 24 were to be done by their staff. The other six they felt were quite specialized and should be written by the scientist doing the work. I noticed a pattern—the articles with a broad base of sources, several units involved and lots of leg work were assigned to me. The very narrow and specialized were left to the scientist involved. The magazine staff elected to write those that were timely as to season and intermediate in scope.

It is not necessary, of course, to use the survey technique repeatedly with the same magazine. Once you get acquainted with the editorial staff and turn out articles which slip easily into their format, you'll have more than you can do. I believe that I am now on that basis with four editors who publish in the state and have a total single issue circulation of 520,000. Two of these are monthly publications, one is a weekly, and the other is the *Nebraska Farmer*. They offer nearly a hundred publication opportunities per year.

There are several ways that a science writer might measure productivity. Total circulation is an easy way. But with fewer than 3% of our people in production agriculture, we also need to reach urban people about agriculture. Their understanding and political support is needed by agriculture as never before. What I try to do is to reach farmers through publications such as *Nebraska Farmer* with solid, well researched authentic material in some depth. And it's no real problem to serve up the city folks with interesting facts about farming while avoiding too much detail and data. The problem comes when the readership is mixed, say half rural and half urban; how do you hold on to the urbanites and still give the farmers something with which to make a buck? Which brings me to say something about editors and I'll forego the temptation to go on at length.

An editor is responsible for the care and feeding of his readership. He knows its nutrition better than you do. If it suffers from malnutrition the advertising blood pressure will drop and he'll be replaced. I often remark, "He's a good editor—he doesn't change my stuff". But I'll have to admit that often editors have changed my stuff and made it vastly better. As a case in point, in dealing with that urban-rural mix—my friend Hollis Limprecht of the *Magazine of the Midlands* (Omaha World-Herald Sunday Magazine, circulation of 280,000), handled my article on modern tillage methods by putting the technical stuff in an illustrated sidebar. The city folks could read all about Thomas Jeffer-

son's moldboard design and how a burly blacksmith named John Deere first used a polished sawmill blade to fashion a steel moldboard plow that would "scour" in sticky soils. And farmers, out to save a dollar on fuel, could compare fuel efficiency of moldboard versus no-till, etc., in the side-bar.

Of course, once in a while an editor can change your words so that even *you* don't recognize them.

Editors can do other things to you, too. After one had held an article that I had written on center pivot irrigation machines until I had to update some of the figures, all the while promising me a cover spot, I was bumped out of the cover slot by a flyboy who has been dead for 63 years. But I can't blame editor and Captain Chick Stevens, an ex-airline pilot, for falling for the cover that bumped me—it illustrated an eye witness "as told to" story of The Red Baron Von Richthofen's World War I demise.

But the real clincher came when the *Frontier's* story editor changed my title "Circles of Green" to "Pies on the Prairies". I couldn't resist needling him later, telling him that "prairie pies" in our country are things that you carefully step around.

At this point, it occurs to me that we have covered the who, the what, the where, the when and why—now all that is left is to handle the "how."

I have just finished a little article on bees and honey (*Bucaneers of Buzz*) that was a lot of fun for me to write and which was written with the methodology that I have settled into. I'll cite my method of putting an article together although yours or someone else's may be better and probably less work. My method works for me though.

Photography often sells an article and I furnish a number of photos with each article—shooting, begging, and borrowing these is an art unto itself.

But a science article is the visible tip of an "iceberg" of solid facts. Like that submerged seven-eighths of the iceberg, most of the details gathered by diligent research on a subject serve only to provide a broader and better base from which both pertinent and interesting facts can be selected. The more complete the research, the more facts from which to select and the more accurate and penetrating the article.

I'm sure that I over-research. In November of 1976, Dave Howe of *Nebraska Farmer* called me and asked if I could do a review article on Nebraska's water resources for their December reference issue. It was just two weeks before deadline and it was my first magazine article in Nebraska

since returning from my Missouri leave. For that article, I interviewed 16 people and read 70 articles, books, speeches and the like. The article was finished in ten days—four days ahead of deadline. As I try that article against the pattern that has emerged, five years later, it was unusual in only one respect—the short deadline. Now I work on five to seven articles simultaneously and prefer a two to three month time frame.

It seems to me that much of journalism's current credibility problem stems from the all too frequent pattern of interviewing a couple of people on both sides of the question and dashing off a story against a deadline without further checking. My observation of resulting inaccuracies in cases where I have personal knowledge makes me wonder if the same proportion of error exists where I am in no position to know.

Although I have over 600 scientists to tap, not nearly so many are engaged in research in those departments that get most of the magazine coverage. That means that I must work with some scientists repeatedly. So I take special care to understand their work and to quote them accurately and in a manner satisfactory to the scientist.

After I have sold an editor on an article, I come up out of my cave in room 4 of the Plant Industry Building and take a short work across campus to the C.Y. Thompson Library. There, with the help of some good friends and colleagues like librarians Annie Laurie Smith and Elsie Thomas, I do a literature review of the subject. If it is to be a comprehensive treatment of a broad area, I may use the computer, but in most cases, a run through the *Bibliography of Agriculture* or the subject-author card file will usually put me on to a review article or book which will give me the general status quo of the subject.* Copies of summaries, abstracts and lists of references are photocopied for the accumulating file on the subject.

At this point, since all my articles relate to work currently underway, I give particular attention to our institute's authored technical articles. When I set up interviews with the primary on-campus sources for my articles, I try to know the background of their research, see work in progress and what they have published. In these interviews, I get scien-

*For a case history of how to use computerized reference banks such as DIALOG, Lockheed's Retrieval Service, see *Searching With Cybernetics*, by Adams and Collings, Univ. of Nebraska-Lincoln. For information on USDA's systems, see video cassette "The Information Cycle—USDA's Technical Information System," National Agricultural Library.

tist's recommendations as to other sources both as to the literature and as to other scientists.

When interviews are complete and the file has fattened to the point where I'm ready to write, I do a scope draft which covers the subject but is not necessarily final as to lead, organization, or ending. As I put this draft together, I keep a running record of sources in the left margin of numbered manuscript paper. Then I set up an interview with my primary source and we go over the article for scope and technical accuracy. I carefully explain to my "expert" that this is a rough draft, to try to ignore style, typos, etc., but to be especially attentive to *technical accuracy*, whether I have used the *best sources* (most of these will be well known to the expert) and whether the *examples* I have used are the best available or would he suggest others? I also use these sessions to firm up quotes and/or attributions.

If I have done my homework, changes at this point will be minor but some technical errors are often caught and corrected. When any modifications stemming from this interview are completed, I'm ready to write a lead and rewrite the draft.

When I have written a lead that is consistent with the magazine's style, organized the piece and tightened it to fit space allowances, then I'm ready for the final polishing—what I call my STAMP process. I suppose most writers have tendencies or weaknesses to guard against. My stamp process is a systematic way of checking for, and correcting mine.

"S" is for strong, action verbs

"T" is for tense agreement

"A" is for active voice (a holdover from my technical journal article days when 100 birds were placed in cages of 10 birds each . . .)

"M" is for meaningful adjectives

"P" is for punctuation and paragraphing.

I run through the manuscript one page at a time and apply each of the STAMP letters in turn, ending up with S-T-A-M-P at the bottom of each page as it is finished.

For the final draft, I moved the marginal source notes onto a source list which is sent with the article to the editor, but of course will not run in print. It lists sources complete with addresses and/or telephone numbers for pages and lines on the numbered manuscript paper. This source sheet is useful in several ways.

1. It shows your editor that you have researched your writing and have authoritative sources for statements of facts.

2. It identifies sources of information which may be useful to *both* the author and the editor for future articles.

3. It protects the author and serves as reference for future questions from readers about the article.

Sometimes I feel a little guilty about my job because magazine article writing is fun! The pipeline is flowing fairly well this year—zooming in on the tally board shows circulation of: 845,000 *published to date* with a good 3/4 of this to urban readership; 265,000 in the publisher's hands with about a third of this urban; and seven articles in progress (totalling over 500,000) all going to editors with whom I've worked before—all should be finished before the end of the calendar year.

But I don't feel too guilty—at the cost estimates quoted earlier—I figure this is a \$275,000 year, more if postage goes up again, and my salary plus support is somewhat less. Judging from the numbers of science writers coming on board in land grant universities, administrators are recognizing magazines as a cost-effective way of getting information to those who can use it.

