

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

The Poster Session--a Guide for Preparation

by

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## AUTHOR'S NOTE

This text, essentially as presented here, was submitted to the editor of the new USGS "Suggestions to Authors" (Hansen, in press) and will be included, as modified by the editor, in that volume. Because of the unusual number of recent requests for this material, I have decided to release this as an open-file report to make it immediately available.

## INTRODUCTION

The prime purpose of a poster presentation at a scientific meeting, as well as of an oral presentation, is communication of information and ideas to one's colleagues.

The poster format has become an increasingly popular form of communication. At AAPG and GSA national meetings between 1977 and 1988, poster sessions have risen from less than 10% to about 40% of the total presentations. There are a number of reasons for this popularity. Although most material could be presented either orally or as a poster, some material particularly lends itself to graphic presentation. Many authors prefer informal individual discussions with their illustrative material at hand to the prospect of speaking to a large audience in a formal setting. Authors and viewers alike find rewarding the opportunity to exchange ideas freely and at some length. Viewers appreciate being able to take a quick walk past a large number of presentations (no captive audiences here!) getting the gist of a lot of science, and then returning to the displays they find of greatest interest.

Abstracts for poster presentations are published along with those for oral presentations, and carry the same prestige. Most scientific meetings now allow abstracts to be submitted for either an oral presentation or a poster presentation. At the larger 3- and 4-day meetings, poster sessions commonly run for a half day each, with the author to be present during a specified, generally at least 2-hour, interval. During each of these half-day sessions there may be 30-80 posters displayed, so competition for attention is keen. At smaller gatherings a single group of posters may be shown during the whole meeting.

## THE POSTER

As poster sessions are a fairly recent innovation, participants have had few guidelines to help them produce an excellent poster. They have mostly learned, in the typically scientific fashion, by observation: good science, coupled with uncluttered and colorful design, legibility and brevity of text, and straightforward organization equals a good poster.

The sponsoring society should inform the author of the specific location of his display area (by map and/or number designation) and the size and orientation of the display boards. Commonly, individual display areas have tack board mounted horizontally at eye level and measuring 4' x 8' or slightly less. Three boards of this size, forming a booth, are not uncommon. Occasional vertical placement of the display boards by the

organizers makes design of a poster difficult because so much of the area is well above or below eye level, and should be discouraged. It is imperative that the author know the dimensions of his display boards, and whether they are horizontal or vertical, before he begins designing the poster. He should call the sponsoring society if it does not provide this information along with notification of acceptance of the abstract. It is also helpful to know the color of the display boards so as to avoid a color clash with the poster material.

As a general rule allow 6 weeks of discontinuous work to prepare an attractive poster. This will allow time to take photos or order photo enlargements, gather all materials, and actually execute the poster.

New and exciting ideas based on sound research can draw deserved recognition through a well-written abstract and an eye-catching poster design. However important his work, the scientist must recognize that participants at a scientific meeting most likely have not had the opportunity to read his abstract before they walk into the display area. Their attention will invariably be drawn to posters with a crisp, clean design and a snappy title. The title, composed months before, must have this strolling audience in mind. It helps to think of the title as a newspaper headline vying for attention. Once the viewer has come over to take a closer look at an interesting looking display, all aspects of the design and the science work together to keep -- or lose -- his attention.

### Science

Obviously the story to be told should be an interesting one and the research should be sound. However, the ideas need not be uncontroversial. Work which encompasses or might interest other disciplines, or has broad application and/or implications, is the type most likely to be accepted for inclusion as a poster and most likely to receive considerable feedback.

A common criticism of posters is that the author attempts to tell the whole story of his research. He should restrain himself and present only enough data to support his conclusions. Here, however, modesty is not a particular virtue -- the significance and originality of the work should be made very clear as viewers from other specialties may not be aware of its importance.

### Design

The subject of design is complex, and any rule can be broken creatively and pleasingly by one with an artistic flair. There are suggestions, however, that generally will make a poster more accessible, attractive, and interesting.

1. At first glance from 10-15 feet away the viewer should see an easy-to-read title and an uncluttered neat arrangement of photos and/or illustrations and text. It should be obvious where to start inspecting the poster and where to go from there (generally left to right, top to bottom). As this progression is vital, the component parts should

either be numbered to facilitate this, or should have arrows that can graphically lead the viewer through the display. (Figure 1).

2. Leave some open space in the design. The same rule applies as in packing a suitcase: when you've finished, take out half. Tightly packed space tires the eye and the mind.
3. Use different-sized and different-proportioned elements. Same-size, same-proportioned components make for a boring design. For areas of particular emphasis try different shapes. Curved shapes or lines attract the eye if most other lines are straight. Straight lines, conversely, draw attention if others are curved. (Figure 2).
4. A large and/or bright center of interest can draw the eye to the most important aspect of the poster --a simplified, bold cross section illustrating a structural feature, a colorful paleogeographic map, a blowup of a photo of a new species, a large outcrop photo illustrating depositional environments. Color poster prints, 12" x 18" or 20" x 30", can be ordered from photographic slides or negatives for a modest price at most photo shops.
5. Enlarge all photos enough for pertinent details to be clearly evident.
6. Make all illustrations of simple, bold design. Leave out all detail unnecessary to the story being presented.
7. Convert tabular material to a graphic display if at all possible. Try scatter plots, bar graphs, triangular diagrams.
8. The inclusion of actual rocks or fossils is a nice touch. They can be fastened to poster board with silicone glue. Alternatively, if a table is included in the display area, specimens can be put there.
9. Make a scale drawing of your layout. Have a few colleagues comment on your over-all design before final drafting. If you have access to professional drafting personnel, ask for their suggestions as they keep up on new developments in drafting and photographic techniques and have a good eye for design.
10. The main tenet of good poster design: simplicity.

#### **Lettering, line weights, and color; computer printouts**

All lettering should be legible from 5 feet away. The over-40 crowd should not have to put on reading glasses. This means the minimum type size should be no less than 18 point and the style should be bold or semi-bold in a simple clean-looking type. (Figure 3). The title lettering should be the largest, about 2-3", with subheadings  $\frac{1}{2}$ -1" high. Office and art-supply stores have a wide variety of stick-on and rub-on individual letters in various colors and sizes which are ideal for titles and subheadings. The sponsoring organization may indicate it will prepare the title, but take along your own in case theirs is too small, as usually is the case. For

material other than titles and subheadings, it is useful to know that capitals and lower-case letters in combination are much easier to read than all capitals. (Figure 4). Text material can be typed (about 12 pt. size), then enlarged on a copying machine to as large as 24 point without significant loss of clarity if a carbon ribbon and a clean type element have been used. This is an inexpensive method of producing very neat-looking text material. (Figure 5). The typed material may also be enlarged photographically. A professional appearance can be obtained by use of a lettering machine which produces strips of stick-on text. These lines of text, in the final size, are applied to plain white paper and then photographed so that the tape does not show.

Both the typed lettering and the stick-on lettering can be combined with black and white line drawings before the final copy (copy machine enlargement or photograph) is made. Line drawings -- maps, diagrams, fossils, cross sections, etc. -- should use a line weight that will be no thinner than .70 mm (#2 pen) in the final product. Bolder lines are preferable. Keep the drawing simple. Leave out all extraneous details.

Color is as complex a subject as design, and it is not possible to give any set rules. Some authors prefer soft muted colors and others like deep or very bright ones. Any type can be used attractively, within some constraints. The temptation is to use color everywhere. Don't. The viewer's eye will jump erratically around the poster instead of tracking through it to the crucial points. The less important parts of the poster -- the necessary background information, the supporting data -- will seem to recede into the background, as they should, if done in cool or cool-neutral colors (blues, greens, some grays). The featured parts can then be highlighted by using the warm colors (reds, yellows), or black if the background colors are soft, or white if the background colors are bright or deep. In choosing colors be aware that lighting in the display area may not be optimal.

Color should be applied to the black and white drawings after they are photocopied unless the cost of color printing is of no object. Transparent or opaque sheets of stick-on color (use the non-glare matte-finish type) provide the most even shading. Colored stick-on tape comes in widths up to 2". The flexible kind can be used for line work. The standard kind is perfect for bar graphs and histograms, for borders, and as leaders from one element of the poster to another. Colored stick-on dots, squares, and triangles are available in various sizes. Large arrows can be cut from stick-on tape or from stick-on color sheets.

"Reverse-color" photo prints make a striking poster. These prints have colors the "reverse" of what were used on the original drawing. White background becomes black, black lines become white, red becomes blue, etc. A chart showing original colors to use to obtain the desired "reverse" may be acquired from some photographic studios, or advice may be sought from drafting shops or from colleagues experienced in drafting for reverse-color prints or slides.

The computer is an excellent tool for preparing text material for posters. However, standard computer printouts are poor material for posters. The standard type size is too small and the line weight is too thin. If printouts must be used, enlargement can improve legibility of tabular material, and addition of color and enhancement of lines with stick-on tape can enliven graphics. Although standard computer printouts are not recommended for use on posters, illustrations using certain of the growing variety of computer-graphics programs can be very effective--providing the guidelines here on type size and line weights and color are followed. Once the design is completed, it may be printed out in color or the screen itself may be photographed. Consult your local expert on computer graphics for details of the available system.

#### Text

The text material included on the poster should be extremely brief or most of the audience will walk away. Some authors like to include the full abstract as part of the poster, but they should not rely on its being read. More successful is placement of a succinct statement of major conclusions at the beginning of the poster -- perhaps as an expanded subtitle. The supporting text is then presented in brief segments along with the appropriate illustrations, and the significance of the findings is made forcefully and concisely clear at the end. Aim for "Wow!" from the viewer as he walks away. Handouts of the abstract may be made available for those more interested viewers.

#### Mounting, packaging, displaying

All poster elements should be mounted with an adhesive on poster board or on 1/8" foam-core board so that they will lie flat. A cleaner look is achieved if the caption is mounted on the same board as the illustration. A half inch or so of the colored poster board extending beyond the edge of the illustration attractively frames it. Select the mounting color carefully so that it does not overpower the picture. Illustrations mounted on the white foam-core board can be edged with colored stick-on tape.

Posters commonly have to be taken to distant conventions. If you know you may be flying, make the poster elements small enough to package within the carry-on dimensions (generally 17" x 22"; call the airline to be sure) to avoid the panic of lost luggage.

You may have only a short time to set up your display, so prepare for this in advance. Have these items in a poster-emergency kit: tape measure, 9' length of string, box of clear push-pins (get longer than standard ones if mounted illustrations are thicker than 1/8") or box of dressmakers' round-headed pins, ordinary thumb tacks, roll of double-stick tape, scissors, glue, package of tissue paper. Have a sketch of the poster layout, with positions of a few key components measured off so you know where to place them. Set up a level line, if needed, by tying the string between push-pins set a measured distance above the bottom of the display board. The poster elements can be fastened to the board without visible attachments as shown in figure 6, or can be attached with the push-pins (or

dressmakers pins), or with lots of double-stick tape. When you remove the display, if you've used double-stick tape you'll need to put a sheet of tissue paper between the components when stacking them to keep them from sticking together.

#### THE ALTERNATIVE POSTER

The professional-looking poster discussed above has an attractive counterpart. The artistically inclined scientist can make a poster by sketching it entirely by hand. This has to follow the same science and design guidelines as above, but the execution is with colored felt-tip pens on poster board of pleasing complementary or neutral color. Text material (equivalent to a minimum of 18 point type) is easy to do by hand with felt markers if there are lightly penciled lines to follow. This less formal kind of poster is fast and inexpensive to do, and if neatly and imaginatively done can have a very special charm.

#### REFERENCES

Hansen, W.R. (editor), in press, Suggestions to authors of the reports of the United States Geological Survey (7th edition): U.S. Geological Survey.

Severson, R.C., Gough, L.P., McNeal, J.M., and Ropes, L.H., 1979, Poster sessions: An alternative to formal presentations: GSA News and Information, v. 1, no. 2, p. 17-18.

Singleton, Alan, 1984, Poster sessions. A guide to their use at meetings and conferences for presenters and organizers: Elsevier International Bulletins, 50 p. Covers much of the material on poster design presented in this chapter. Additionally has helpful information for poster-session organizers. Listed suppliers of equipment are all British.

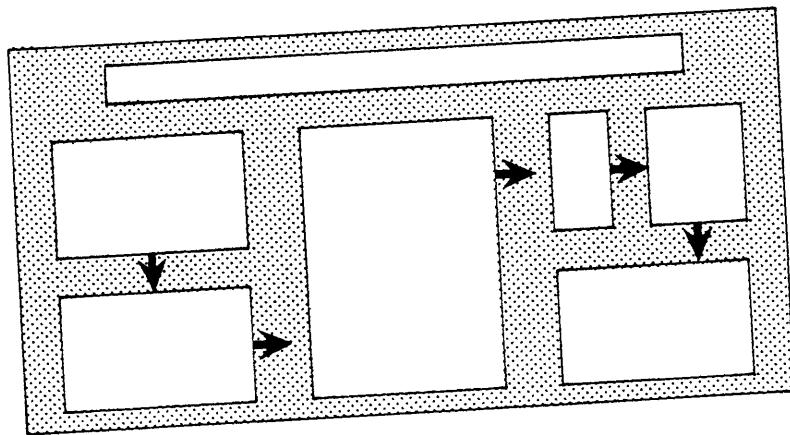
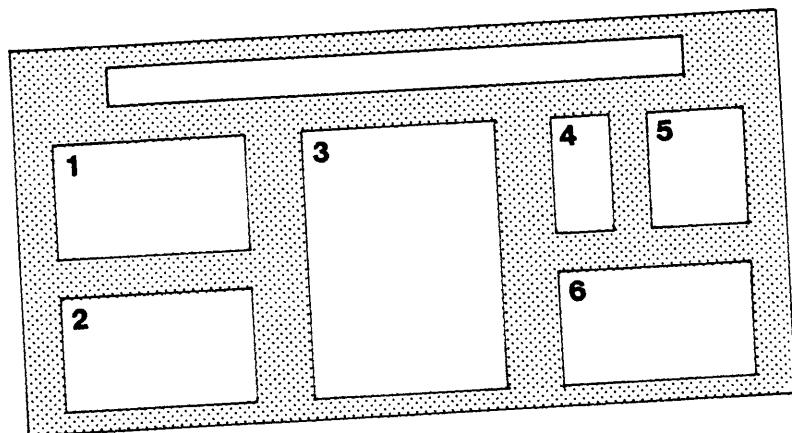


Figure 1.--Two methods of leading viewer through a poster: numbers, arrows.

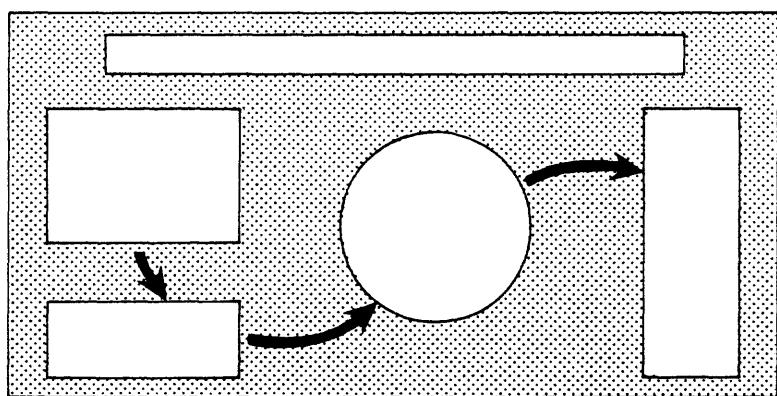


Figure 2.--Attention-getting curved shape and lines.

This is 18 point type, the smallest size you should use. Can you read it from 5 feet away?

This is 24 point type. Better?

Figure 3---Examples of type size.

## **UPPER vs lower case**

**"MOST OF THE PRINTING MATERIAL FOR ORDINARY READING, AS IN NEWSPAPERS, MAGAZINES, AND BOOKS, IS IN LOWER-CASE LETTERS EXCEPT FOR THE CAPITALIZATION OF A FEW WORDS SUCH AS PROPER NAMES AND THE INITIAL WORD IN THE SENTENCE. THIS IS FORTUNATE, FOR LOWER-CASE PRINTING IS MUCH MORE LEGIBLE THAN ALL-CAPITAL PRINTING. LOWER-CASE LETTERS HAVE MORE "CHARACTER" IN TERMS OF VARIATION IN SHAPE AND THE CONTRASTING OF ASCENDERS AND DESCENDERS WITH SHORT LETTERS. THIS LEADS TO CHARACTERISTIC WORD FORMS THAT ARE MUCH EASIER TO RECOGNIZE THAN WORDS IN ALL CAPITALS."**

**"Most of the printing material for ordinary reading, as in newspapers, magazines, and books is in lower-case letters except for the capitalization of a few words such as proper names and the initial word in the sentence. This is fortunate, for lower-case printing is much more legible than all-capital printing. Lower-case letters have more "character" in terms of variation in shape and the contrasting of ascenders and descenders with short letters. This leads to characteristic word forms that are much easier to recognize than words in all capitals."**

***M. Tinker, "Legibility of Print"***  
Iowa State University Press

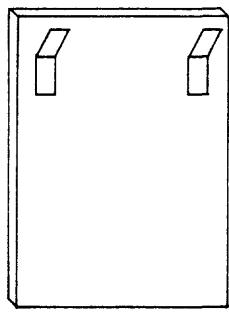
Figure 4---Legibility of upper-case letters alone compared with combined  
upper- and lower-case letters.

subtropical swamp traversed by 1  
region, the Pantanal. Geologic  
reported. Most related informat  
geophysical, geomorphic, or hydr



subtropical swamp traversed by 1  
region, the Pantanal. Geologic  
reported. Most related informat  
geophysical, geomorphic, or hydr

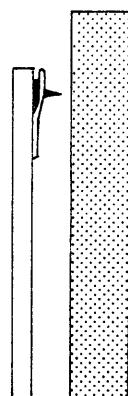
Figure 5.--Typed text enlarged on copying machine to approximately 24-point  
size.



**1. Attach tabs to back  
of mounted illustration.  
Leave upper half of  
tabs free.**



**2. Push thumb tacks  
through upper half of  
tabs.**



**3. Push illustration  
against bulletin board.**

Figure 6.--A method of invisibly attaching poster components to display board.