Anyone can be a book publisher today.

A great many desktop publishers actually do generate books they will wish to have bound. A review of our sales for 1996 showed that some 30% of sales were made to independent publishers, not library customers. This did not happen by accident. We have taken a strong marketing approach to attract such new business. When dealing with a first time publisher, we have learned that a good deal of flexibility, patience, and the development of retail sales skills are necessary.

Book production is a very technical business. Most of the general public has little knowledge of what is required to produce a book purchased at the local bookstore. Few have any knowledge of book design or would grasp that there may be a vast difference between the *concept* of "camera ready" copy and copy that is ready to print. Fewer still have any idea of how decisions they make about printing will affect various binding options.

If, by lucky accident, a new, independent publisher should find someone with enough time and book design knowledge to help them achieve their goals they are very fortunate. If not, they may make any number of costly mistakes.

Having been involved in the business of bookbinding for some 30 years I feel just barely confident enough to offer some rudimentary advice about book design and book structure to a beginner. The first bit of advice I offer is that I won't have all the answers for you. The information I am offering is gleaned from practical experience and is geared toward desktop publishers who are seeking hardcover binding solutions. It is advice that is often given over the phone or in person to someone inquiring about our bookbinding service by asking the broad question, "How much does it cost to bind a book?" or "Can you bind this disk?"

The questions most often asked fall into three main categories.
- Paper
- Printing formats
- Binding

PAPER

The paper chosen for any printing project may be the most crucial decision to make. Decisions about paper will not only affect the printing but will affect how a book may be bound. Because of this, there is a heavy concentration on the subject.

Handmade Paper

Prior to 1830, all paper was made by hand from plant fiber such as cotton, linen, flax, straw, hemp, or kozo. Plant fibers were torn or, if in the form of rags, cut up. These shreds are then beaten into pulp fibers and placed into a vat of water allowing the fibers to float to the surface. A screen that is woven tightly enough to catch pulp fibers but open enough to allow water to escape is dipped into the vat. As the screen is raised the fibers trapped on top formed the sheet of paper.

In hand papermaking, the size of the screen is determined by the size of the sheet needed for any particular papermaking project and the strength of the papermaker to lift the screen from the water. Hand papermaking is hard, laborious work with very little mechanical assistance. As such, one of the beauties of handmade paper is that there is no discernible, machine-made, grain direction to its fibers.

Machine Made Paper

The demand for paper, even today remains unsatisfied. In the early 1800s paper was in very short supply. Machinery for making paper was developed to satisfy growing demand. The most successful and prolific of these machines is known as the *Foudrinier* papermaking machine. The Fourdrinier is a great, long, ponderous, steaming piece of machinery that Dard Hunter once described as "dragon like." Fourdriniers are capable of producing continuous streams of paper, over 300 inches wide, at more than 2000 feet a minute!

As the still liquid paper is spit from the Fourdrinier machine in one forceful direction, the pulp fibers line up parallel to each other in the long direction they are being driven, much like water droplets streaming from a garden hose.

As paper comes off a Fourdrinier machine, it travels through a series of both horizontal and vertical rollers. It is stretched, dried and rewound. It is then colored and coated with agents such as clay, chalk, caesin, and various resins. Finally, it travels to a calendar or finishing machine that puts artificial textures into the paper.

Common Book Paper Classifications

In general, paper used for books comes in either *text weight* or *cover weight*. Text weight paper (used for the printed pages of the text) comes in four main weights: 50-pound, 60-pound, 70-pound, and 80-pound.

Cover weight paper (used for printing paperback book covers, magazine covers, etc.) is approximately three times thicker or heavier than text weight paper of the same poundage.

Standard cover weight paper comes in 65-pound, 70-pound, 80-pound, and sometimes 100-pound weights. There would be, however, approximately one third the number of sheets of 70-pound cover stock in a carton as there would be in a carton of 70-pound text weight paper.

Both text and cover weight papers come in coated and uncoated versions for various uses.

Grain direction

Machine made paper, like wood, has a grain direction which should be taken into account when choosing paper for a book. If the paper grain is not parallel to the spine, the book's pages will not turn easily or lie flat. Folding a sheet of paper across the grain will break approximately 50% of the paper fibers, weakening the sheet substantially. Additionally, cross-grain paper is strangely hydroscopic. It will absorb moisture from adhesives at a much faster rate, causing "cockling" and warpage.

Grain direction of paper is almost always "with" the longest dimensions The paper merchant's catalog designates grain direction with a small underline below the number (such as 25 x 38 inches).

Paper Sizes

In the US, paper that is sheeted for the printing trade, either text weight or cover weight, comes in standard sizes. Standard sizes for text weight paper in inches are 25 x 38, 35 x 40, and 38x 50. Standard sizes for cover weight paper are 23 x 35, 25 x 38, 26 x 40 and 35 x 45.

PRINTING FORMAT
Book Sizes

Common book sizes relate to a printer's best yield or (cut) from these master sheets of paper. Thus $8^1/_2$ x 11, 7 x 10, 6 x 9, and $5^1/_2$ x $8^1/_2$ inches are traditional sizes of many books. Lately, due to photocopiers and other emerging printing technologies, the $5^1/_2$ x $8^1/_2$

inch size has become much more common, as you can print two pages at a time on a standard $8^1/_2$ x 11 sheet of paper.

Book Design

When pages are printed on both sides there is the possibility of "show-through" or bleed-through problems. This is the dark shadow from type or an illustration that shows through from the reverse side of the sheet. This is caused by the fact that the paper is not opaque enough to mask out the image.

Ideally, printing that is done on both sides of the page should "back up" or have its shadow hidden by printing that is done on the reverse or opposite side of the page. This prevents show-through and gives a crisp, clean look to the page.

If show-through problems persist we advise against the natural inclination of choosing a heavier weight paper for the text, especially cover stock! Heavier paper will only resist opening and easy reading. Try choosing a text weight paper of another color such as off-white or light gray.

After decisions about paper have been made, the next most important consideration should be what typeface and what size type to use. Obviously, it is best to use a size of type that is easy to read. For text generated by word processor or computer these sizes would normally be 10 point, 12 point, and 14 point.

We would urge you to resist the temptation to reduce the size of the typeface by photocopy reduction. This will only make the text more difficult to read. It is preferable to add additional pages if required.

I encourage you to read more about book design. The best book I have read on the subject is Adrian Wilson's *The Design of Books* (ISBN 0-87905-019-5). In his book, Wilson lists another dozen or so references for those who are truly serious about wanting to learn more.

Typefaces

Thankfully, for the desktop publisher, computer type has come a long way from the days when typefaces were limited to what was easily displayed on a computer screen. There are now thousands of typefaces to choose from. Each one has its own character. While hundreds of books have been written about type and book design, the choice of which face to use is most often made by either a typeface's availability or personal preference.

Typefaces fall into two main categories: *serif* or *sans serif* type. Serif type has little feet on the letters. This article is written in a serif typeface. Serif typefaces are considered easier to read (as text) than sans serif. Sans serif type is more often used as a headline or chapter heading.

Page Margins

Page margins and choosing proportions within a page are very important design elements. It is a basic principle of book design that typographic areas will generally occur within the same rectangular space, in the same position, throughout a book. The "white space" around the typographic area frames the text on a page much like a mat frames a picture. In book design the old classic standard was one-third black space to two-thirds white space. This made for eye appeal and easy reading.

As paper and printing costs have escalated this rule has been sacrificed. Margins have become narrower and narrower. As a general rule, and if at all possible, we recommend a one-inch all around page margin for desktop publishing. If this is not possible due to maximum page count or other considerations leave as much margin as possible, keeping in mind that most bookbinders will want to trim three sides of a book when doing the binding.

BINDING

Ideally, the actual binding on a book should perform several functions.

These are consolidation or holding the pages together and providing protection from moisture and handling. Bindings should provide for identification of the item. They may also be designed as a means for attracting attention to and for promotion of the item.

There are many binding options to chose from. Factors that determine choice are usually based upon cost and availability as well as the expected use a bound item is to receive. Bindings fall into three main categories.

- Mechanical bindings
- Adhesive bindings
- Sewn bindings

Mechanical Bindings

Mechanical bindings include ring binders, loose-leaf or post binders, staples or saddle stitching, plastic coil, plastic comb, Velo binding, channel binding, metal spiral and wire-O binding. Rivets, grommets, and other fastening devices may also be used. With the exception of ring or post binders, mechanical bindings are normally the least expensive binding option available for small runs of desktop published material.

Adhesive Bindings

Adhesive bindings attach a book's pages together with adhesive (glue or paste) rather than by mechanical fastening or sewing.

Bookbinding adhesives fall into two main categories. (1) Hot melt adhesive and (2) cold emulsion, polyvinyl acetates or PVAs. One form of hot melt adhesive is the little round stick of glue that is inserted into a hand-held glue gun. This glue needs to be heated to become liquid for application, thus the term "hot-melt."

A familiar form of PVA is Elmer's Glue. This adhesive does not need to be heated to become liquid, thus the term "cold emulsion."

There are thousands of glue formulations for both types of adhesive, each formula being for specific usages.

The term *perfect binding* always equates to a book that is bound with adhesive. The adhesive, while usually a hot melt may occasionally be a cold emulsion PVA or even a new breed of adhesive called a polyurethane adhesive (PUR). Perfect bound books are usually covered in paper, however they can be made with a hard cover.

Sewn Bindings

Sewn bindings fall into two main categories. (1) *Side sewn* or (2) *sewn through the fold*. Either category may be done by machine or by hand.

Some methods of side sewing are Japanese sewing, block stitching, Singer side sewing, and Moffett stitching. Japanese sewing (to my knowledge) is only done by hand, as is block stitching. Singer sewing and Moffett sewing both refer to the sewing machines that are used in the machine side sewing process.

Sewing through the fold *does* require that a book be made up of folded leaves called *signatures*. A book may have a single signature or be made up of many signatures that will be linked together during the sewing process. Books that are sewn through the fold by hand are referred to, naturally, as "hand sewn" books.

Machine sewing through the fold is most often done on a Smyth sewing machine. The process, again naturally, is most often called "Smyth sewing," although there are other through-fold sewing machines that can accomplish this task. The National sewing machine and the Martini sewing machine are but two examples. Much like "Kleenex" is used to designate facial tissue or "Xerox" is used to signify a photocopy, the trade name "Smyth sewing" has become so prevalent that it is the general term for any through-fold sewing method.

There are other methods and machines used to attach book pages together that are, for the most part, unique to the library binding industry.

The two most common are oversewing and double-fan adhesive binding.

Oversewing offers the advantage of being able to sew single leaves into multiple signatures. Oversewing has the disadvantage of consuming approximately 3/16-inch of spine margin. Additionally, oversewing is so strong that pages have a tendency to "pucker" up along the sewing line, making reading or photo reproduction difficult if narrow margin material is attached in this method.

Double-fan adhesive binding may also be used to attach single leaves together to form a book block. This may be done either by hand or by machine. It is accomplished by clamping the book into a vise-like contraption and "fanning" the pages at a near 90-degree angle, while applying adhesive to the edges of the pages. The pages are brought back to center and fanned in the opposite direction. Adhesive is again applied to the pages as they are fanned. In effect, each page is tipped to its neighbor, fore and aft.

The strength of double-fan adhesive binding may be augmented by notching the spine to increase adhesive penetration or by milling or sanding the edges of the spine to expose additional paper fiber to adhesive. When properly done, double-fan adhesive binding has the advantage of allowing a book to lie open nearly flat for easy reading or photocopy reproduction.

Book Covers

Hardcover bindings, sometimes referred to as "cases," may be covered in paper, cloth, leather, or a combination of two or more of these materials, which are wrapped around and glued to a supporting board. The board itself may be rigid (as in an encyclopedia) or flexible (as in a small Bible).

Paper cover materials are referred to in the trade as *non-woven* cover material. Non-wovens are often textured to appear like fabric or leather. They may also be decorated, as in marbled

paper or laminated with clear polyester films for added strength and durability.

Book fabrics (woven materials) are graded by "weight" which refers to the number of threads per square inch in a particular cloth. Book fabric comes in A, B, C, D, E, and F weights. "A" weight fabric is the lightest weight, "F" weight is the heaviest. It is generally assumed that heavyweight book cloth is stronger than lightweight cloth.

Book fabric may be left uncoated in its natural state or coated with moisture resistant substances (vinyl or acrylics). It may also be textured to look like leather.

Leather cover materials are harvested from any number of animals. These commonly include cows, sheep, pigs, and goats. However more exotic skins have sometimes been used to cover books, including human skin!

Leather is prepared for use by *tanning* the hide or skin for durability. It is also frequently colored with leather dye and occasionally textured to alter surface appearance.

Cover Decoration

There are several options available for cover decoration or titling. Most people are familiar with "foil stamping," which usually consists of basic title and author information. This information is set in metal type and hot stamped through a colored foil onto the book fabric or cover. Additional artwork, in the form of an illustration or logo, may be added by having a metal engraving made from film or line art. Most library binders will be very familiar and comfortable in providing this type of cover decoration.

Silkscreening is a second option. It is a popular method, used primarily on vinyl covers. However it can work very successfully on nearly any fabric and many non-woven cover materials. Silkscreening has advantages in allowing larger areas to be decorated. It also allows for multicolored images and easy matching of specific ink colors.

A third option is photo offset printing. As with silkscreening it can be successful on both book cloth and nonwoven materials. Photo offset printing allows for the widest variety of decoration possibilities in design and color.

If a small number of covers are required and color is desired, it is also possible to use a color photocopier. Fabric materials have been developed which can be manually fed through some color photocopy machines. However, if the quantities were large this would be an expensive method to use for decoration of book covers. There may also be possibilities for using inkjet printers to decorate cover materials.

Printed book jackets are another alternative for cover decoration. Book jackets are usually made from paper. They are easily printed in any number of ways, and after binding, wrapped around finished books.

A word of caution about book jackets! Pay close attention to the direction of the paper grain. The grain direction should always run parallel to the spine of the book. Also, be sure to allow enough "wrap around" so that the interior flaps of a book jacket are held firmly in place by the book cover. A minimum of two-inches for interior flaps is suggested. If this is not done the jacket will not fit well and will not stay put on the book as the book is handled.

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CONCLUSION
Copyright information

Finally, after one has spent countless hours producing their first *master work*, we are often asked about obtaining a copyright. This may be done after production of the book. Copyright information may be obtained by writing to the U.S. Copyright Office, Library of Congress, Washington, DC 20559. For books and other printed works request form TX.

ISBN numbers (used as inventory control when ordering) may be obtained by writing to ISBN Agency (U.S.), R.R. Bowker, 121 Chanson Road, Providence, NJ 07974. Tel. 908-665-6770. A new publisher should write a letter on their letterhead requesting an ISBN assignment.

Library of Congress Catalog Card number preassignment may be obtained by writing to U.S. Library of Congress, Cataloging in Publication Division, Washington, DC 20540. The Library of Congress will send you the appropriate form and kit describing Cataloging in Publication procedures.

There are a vast number of resources available in print to those serious about publishing their books. One that I recommend is *The Prepublishing Handbook* by Patricia A. Bell, Cat's-paw Press 1992, ISBN 0-9618227-2-4. This book explains in good detail the many hats worn by a small publisher. It also has an extensive listing of independent publishers and regional booksellers organizations.

I hope this information will be helpful to the beginning, independent publisher and to library binders who wish to offer their services to a growing constituency. New methods of printing and binding continue to evolve. It is estimated that some 5,000 new publishers appear each year! This certainly gives added testimony to the fact that nearly everyone has at one time or another said, "I could write a book!"

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