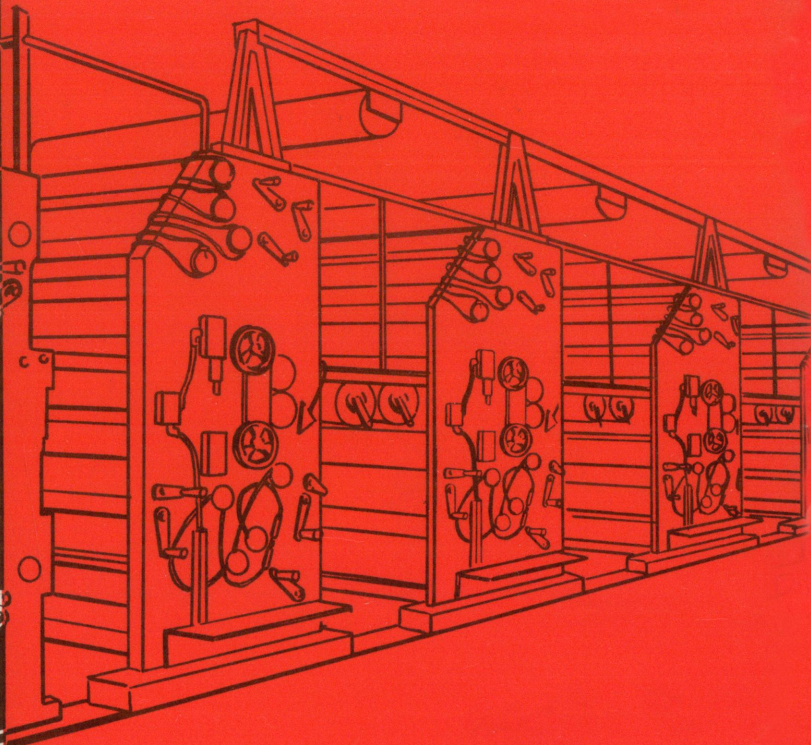
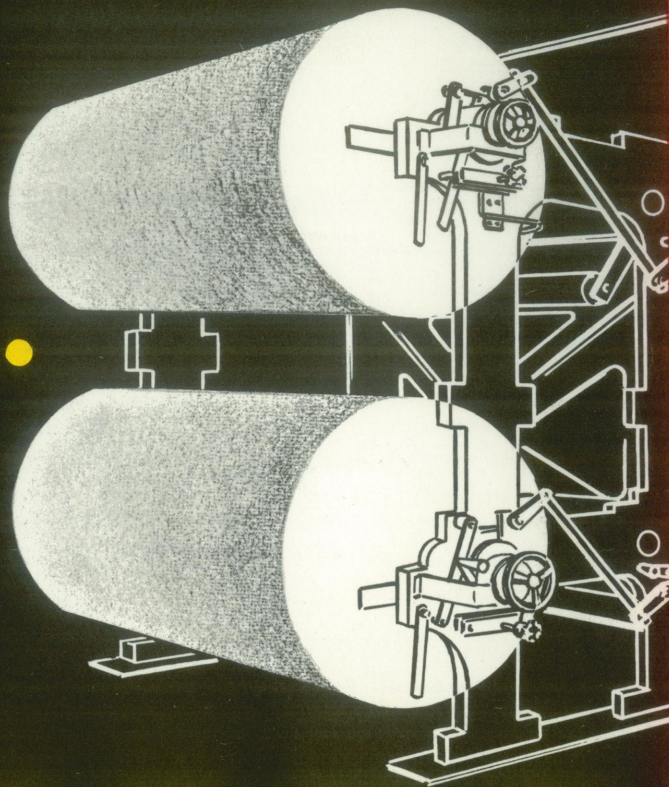


Printing industry



IMPACT

of Web Offset

A UNION'S ANALYSIS OF EMPLOYMENT, GROWTH, TRENDS

INSTITUTE OF INDUSTRIAL
RELATIONS LIBRARY

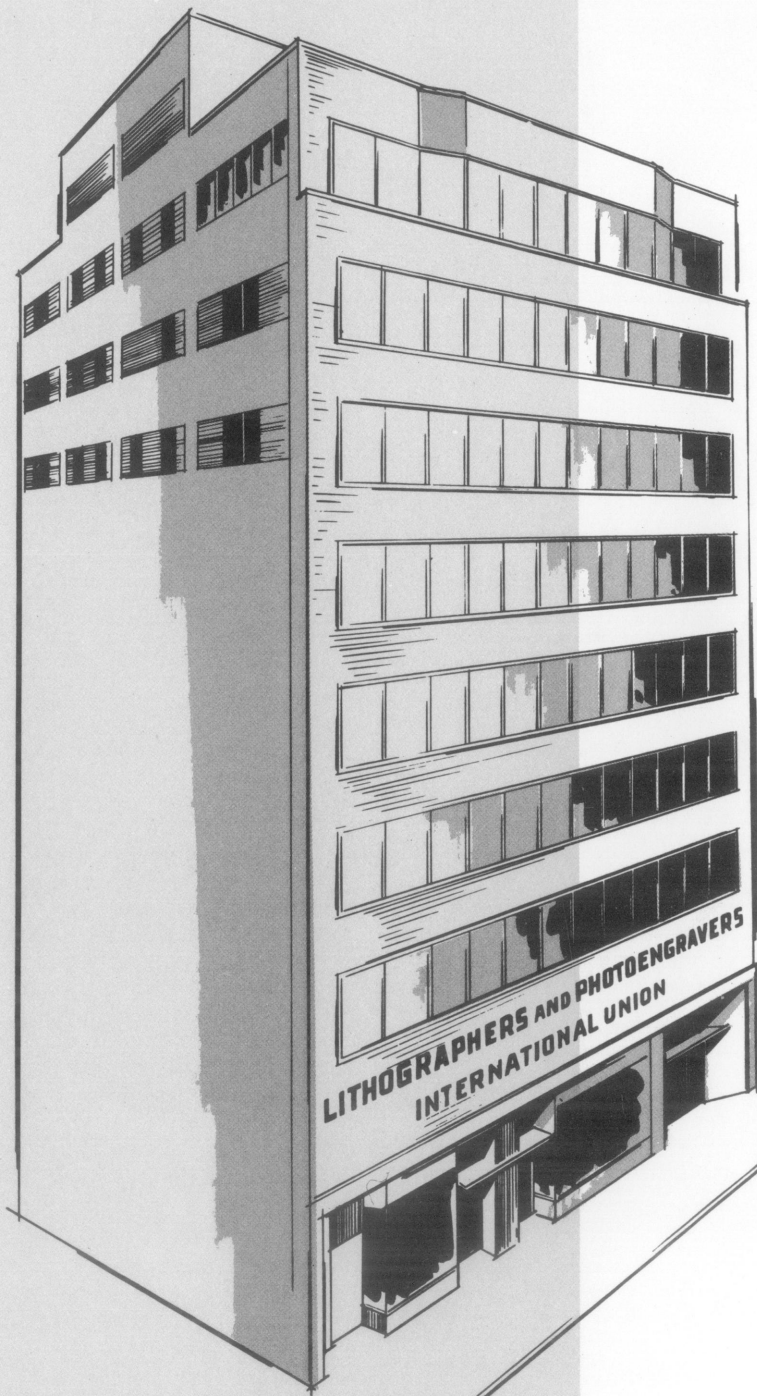
APR 18 1966

UNIVERSITY OF CALIFORNIA
BERKELEY

Lithographers and Photoengravers International Union



☐ New York, 1965 ☐



This brochure compiled, designed and published by the
Lithographers and Photoengravers International Union

On September 7, 1964 . . .

the Lithographers and Photoengravers International Union arose as the result of the merger of two craft unions, the Amalgamated Lithographers of America and the International Photo Engravers Union of North America.

The LPIU was born from the conviction that member interests in a changing industry required such union.

Not for a half century before the ALA-IPEU merger had this belief, widely held among all printing unions, reached this logical result.

Both unions trace their history back to the 19th Century; both respect the traditions of trade unionism, but it is no paradox that both also recognized that a changing industry required a changed union structure if the member was to be served.

This report is also in that tradition: an honest attempt to learn the facts, and then to be guided by them.

LITHOGRAPHERS AND PHOTOENGRAVERS INTERNATIONAL UNION

233 WEST 49th ST., NEW YORK, N. Y. 10019

Preface

Much of the information provided by those who cooperated during the course of our Web Offset Research Project was of a confidential nature. Naturally, individuals and companies are not identified in this report.

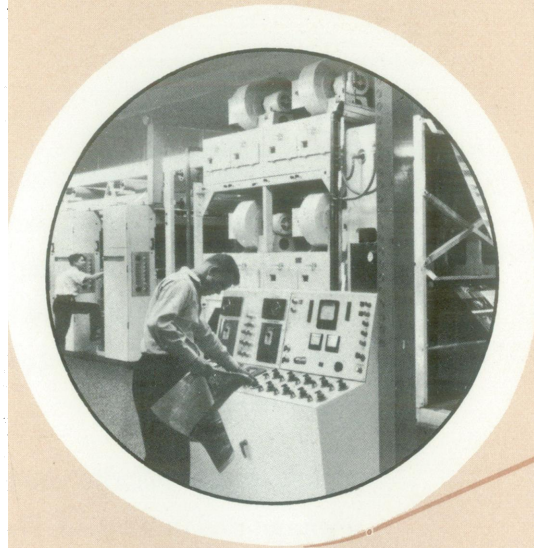
To the many members of the union, as well as members of management and all others who gave their full and complete cooperation, we extend our sincere thanks.

Introduction

It is now commonplace to speak of the technological revolution which the graphic arts industry is undergoing. The radical alterations which are occurring and loom increasingly on the horizon have been the subject of wide concern within both union and industry circles. There can, however, be no intelligent concern without a full understanding in depth of the precise nature of the changes which are in progress. The problems here posed, which are the product of all change, cannot even be placed in focus, much less solved, unless all of the facts are known and can be appraised.

One of the most dramatic, as well as significant, areas of the revolution is the growth of the web offset process in the industry in recent years. The Lithographers and Photoengravers International Union has recognized that the policies it would be required to frame to protect and advance the welfare of its membership and its future goals could not be fashioned in a vacuum or upon conjecture. Neither the dimensions nor the significance of web offset had been examined. A careful research study was imperative if the Union was to act intelligently. Accordingly, the necessary personnel to undertake the study was authorized. The study was made as the sole and full time assignment of a member of the organization for a period of eight (8) months.

During the course of this project, seventeen (17) cities were visited involving more than 27,000 miles of air travel. Forty-two (42) plants



*Introduction
contd.*

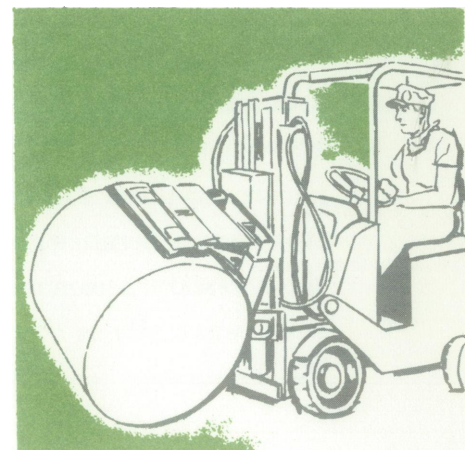
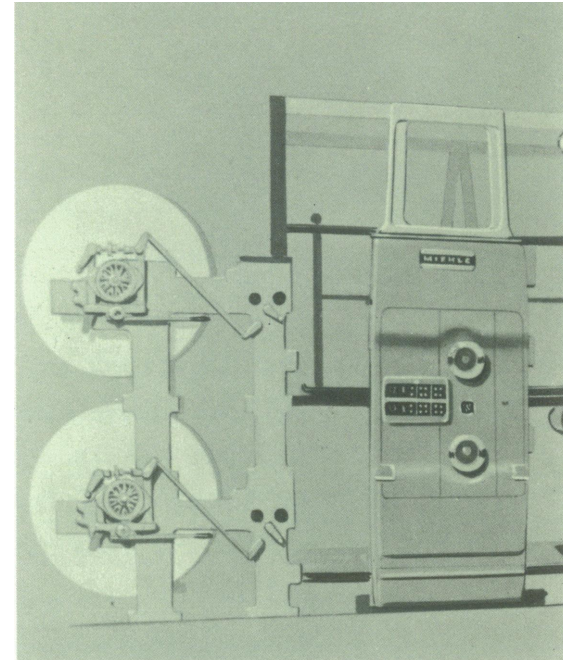
were visited and carefully designed interviews were held with sixty-six (66) men employed on web offset presses and fifty-nine (59) people in top management. Meetings were held with representatives of fifteen (15) press and equipment manufacturers, three (3) paper mills, manufacturers associations, employers associations, and three (3) publishing companies.

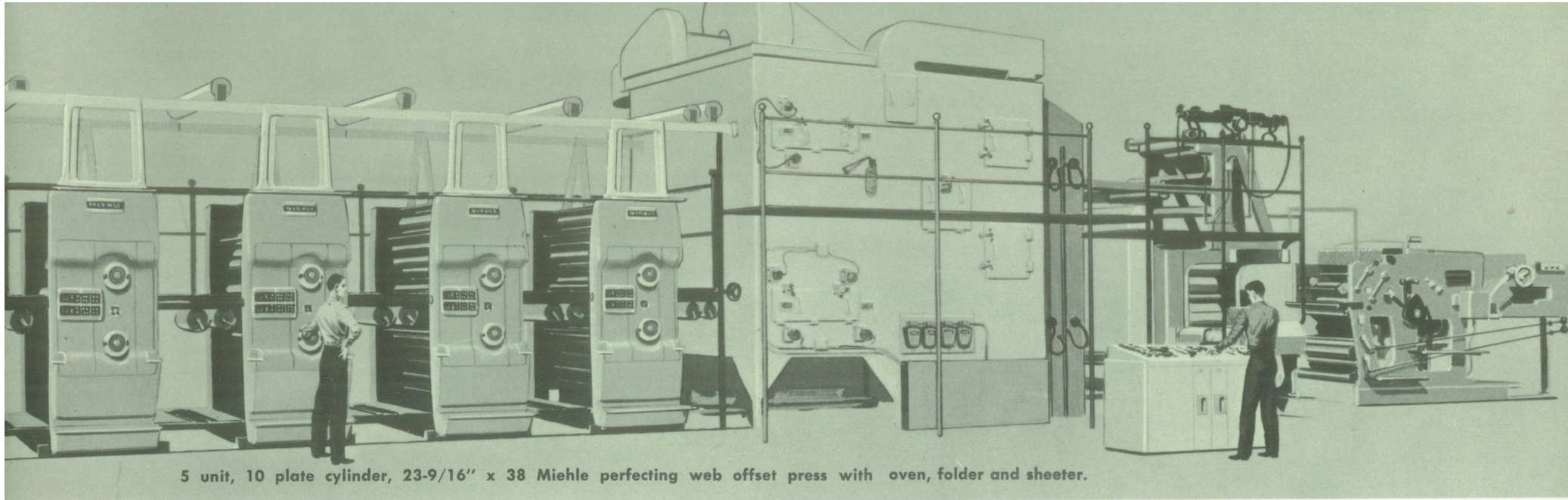
Our own records were studied for all useful data that had been accumulated in the past. Reports of the U. S. Department of Commerce, Business and Defense Administration, Printing and Publishing Division were analyzed and the trade journals were carefully watched for information and clues to avenues of further investigation.

This report is the result. It should be studied by the membership. We believe it serves the important purpose of providing an informed basis for the shaping of the future of the industry.



PRESIDENT
*Lithographers and Photoengravers
International Union*





5 unit, 10 plate cylinder, 23-9/16" x 38 Miehle perfecting web offset press with oven, folder and sheeter.

Survey of Equipment

One of the factors of immediate concern, quite obviously, was the number of web offset presses existent at this time and to draw comparisons with the past. Going through our International records it was found that a survey of web offset equipment was made in 1950 by the Amalgamated Lithographers of America.

According to that earlier survey there were one hundred twenty-one (121) web offset presses on the continent in 1950. They were described as follows:

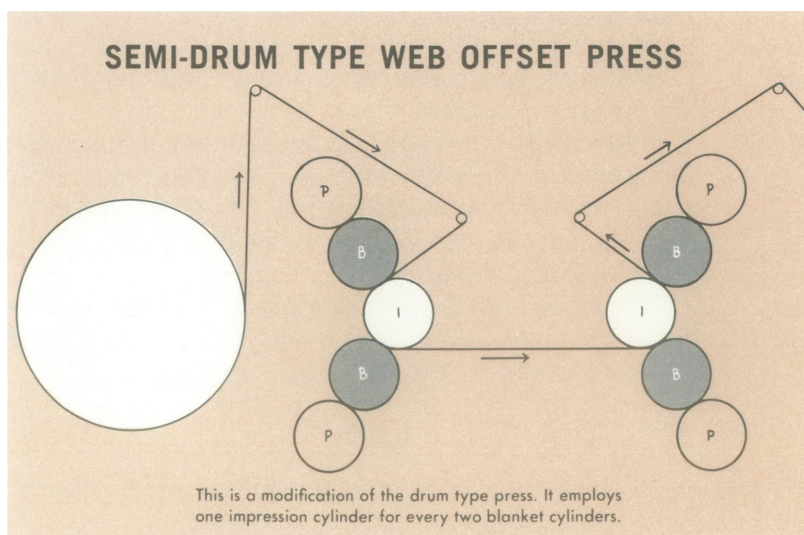
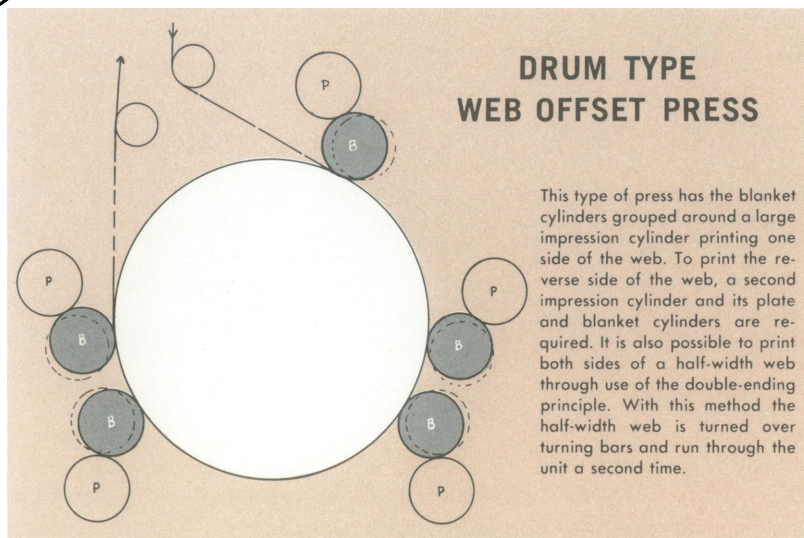
6—8 plate cylinder presses	38—2 plate cylinder presses
1—6 plate cylinder press	17—1 plate cylinder presses
26—4 plate cylinder presses	10—presses of unknown number
13—3 plate cylinder presses	of plate cylinders

Only the six (6) and eight (8) plate cylinder presses can be definitely identified as *perfecting* offset presses since the survey does not differentiate between the in-line and perfecting presses.

At that time there was widespread misunderstanding as to how to describe any given web offset press. The only factor that was genuinely understood as being important was the number of plate cylinders on a press. As a result, we find most accountings of equipment for that period showing only the width of the web and the number of plate cylinders. The measurement of the cut-off was disregarded in many instances and rarely was any reference made to the design of the press.

Only twenty (20) of the presses covered in the 1950 survey were doing commercial and publishing work. Forty-one (41) presses were doing strictly business forms and sixty (60) presses were doing wrapping paper, newspapers, newsprint flyers, telephone books, patterns and so forth.

Going back even farther, Printing Industry of America (PIA), states that in 1946 there were only thirty (30) web offset presses and that nineteen (19) were single unit presses.



According to the Economic Summary Report of the U. S. Department of Commerce in a survey of printing equipment, there were two hundred and one (201) web offset presses in the country in 1958.

Our current project has enabled us to confirm four hundred fifty-nine (459) web offset press installations in 239 different plants in the United States and Canada. These presses are classified as follows:

2—8 unit 16 plate cyl. presses	110—2 unit 4 plate presses
13—6 unit 12 plate cyl. presses	37—1 unit 2 plate presses
49—5 unit 10 plate cyl. presses	6—Drum type presses
117—4 unit 8 plate cyl. presses	105—presses of the in-line type.
20—3 unit 6 plate cyl. presses	

These figures do not include the web offset presses designed for and producing newspapers and products of like quality.

Presses of that type are competing in an entirely different field than those in the commercial, book publication and magazine publication fields. Therefore, *for the sake of clarity the perfecting web offset presses listed in this report are all of the type designed for and producing commercial and magazine or book publication work.*

Business form work is done almost entirely on in-line or open type of web offset presses that print only on one side of the web. The majority of presses producing business forms are not listed in this report since our census is centered on perfecting equipment. Some commercial and publication work is done on "in-line" presses, but the bulk is produced on perfecting equipment.

Of the 42 plants visited during this project thirty-six (36) were equipped with perfecting web offset presses and doing commercial and publication work. Three (3) of these plants had no sheet fed press equipment. Sixteen (16) of the thirty-six (36) plants had additional web offset equipment on order or in their immediate plans.

There were eighty-six (86) web offset presses in the thirty-six (36) plants and only twenty (20) of these presses were with webs greater than 38 inches. Listed below are the perfecting presses according to the number of perfecting units.

2—8 unit 16 plate cyl. presses 3—3 unit 6 plate cyl. presses
 6—6 unit 12 plate cyl. presses 11—2 unit 4 plate cyl. presses
 18—5 unit 10 plate cyl. presses 7—1 unit 2 plate cyl. presses
 33—4 unit 8 plate cyl. presses

(There were also 3 Drum type presses and 3 in-line type presses in these plants).

The year of installation and the number of presses installed in each year are listed below:

YEAR	NUMBER OF PRESSES INSTALLED	YEAR	NUMBER OF PRESSES INSTALLED
1940	3	1958	5
1947	1	1959	4
1948	2	1960	10
1949	1	1961	14
1950	1	1962	10
1954	4	1963	19
1956	2	1964 (June)	6
1957	2		84

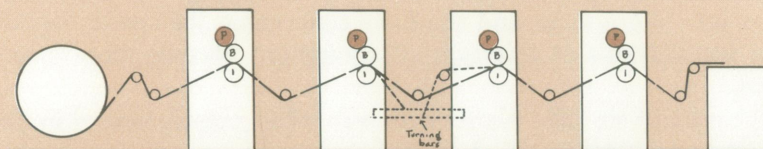
Analyzing these figures we find that seventy per cent (70%) of the web offset presses in the plants visited during this project were installed in the period from 1960 through June, 1964. Taking the period of 1958 to June, 1964 we find that eighty per cent (80%) of these presses were installed within that period.

There were only sixteen (16) perfecting web offset presses in these plants prior to 1958 and seven (7) of these were of less than 4 units, 8 plate cylinders each.

Information regarding the installation of web offset equipment is without meaning unless the greater productive capacity of such presses is understood.

The most popular web offset presses in the commercial and publication field are those printing 36" and 38" webs with a cut-off from 22¾" to 23½". The printing area of such presses on each side of the web is between 20% and 25% of the area printed in one impression on the largest sheet fed presses. However, the percentage

IN-LINE WEB OFFSET PRESS

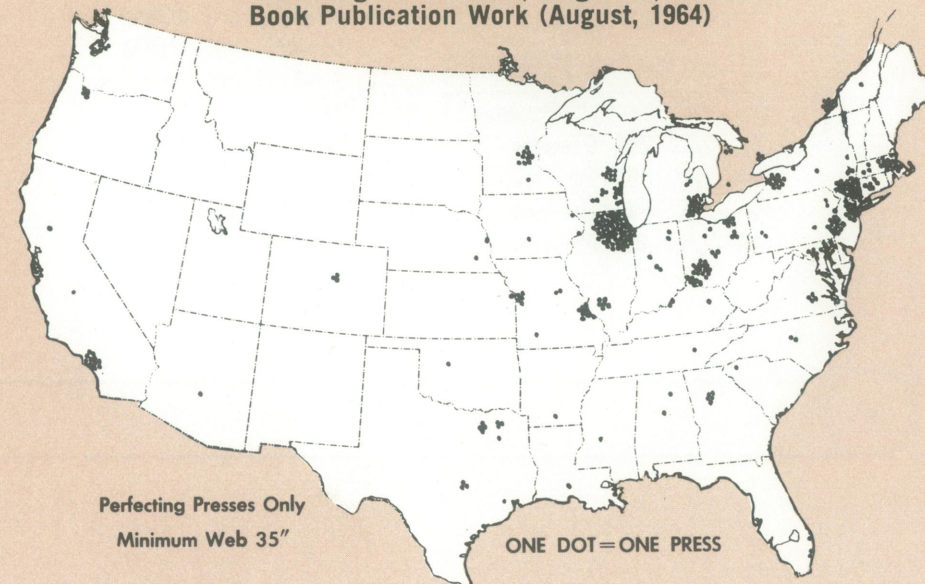


This press, also called an "open press" or "open web press", is similar to a sheet fed offset press. It has a plate cylinder (P), a blanket cylinder (B), and impression cylinder (I). Each unit of the press prints one color on one side of the web as it passes between the blanket and impression cylinders.

To print the reverse side, the web can be turned over between units by means of turning bars.

DISTRIBUTION OF WEB OFFSET PRESSES

Producing Commercial, Magazine, and Book Publication Work (August, 1964)



is doubled by the fact that *both* sides of the web are printed simultaneously on perfecting web offset presses.

Take into consideration that these perfecting web offset presses print three to four times as many impressions per hour as sheet fed presses and you begin to see the productive capacity of web offset moving out in front.

Then consider that printing both sides simultaneously and the bindery operations built into such equipment means less handling. Understanding all this, the tremendous advantages of web offset comes into sharp focus and the facts concerning the trends toward more installations of this type of equipment become more meaningful.

The thirty-six (36) plants with web offset presses visited in this project had a total of 155 sheet fed presses. These presses are listed as follows:

SHEET-FED PRESSES

5—5 COLOR PRESSES

1—5/C 60" Press
4—5/C 76" Presses

46—4 COLOR PRESSES

29—4/C 76" Presses
5—4/C 72" Presses
7—4/C 58" Presses
1—4/C 50" Press
3—4/C 38" Presses
1—4/C 42" Press

53—2 COLOR PRESSES

10—2/C 76-77" Presses
2—2/C 72" Presses
13—2/C 58" Presses
2—2/C 54" Presses
8—2/C 49" Presses

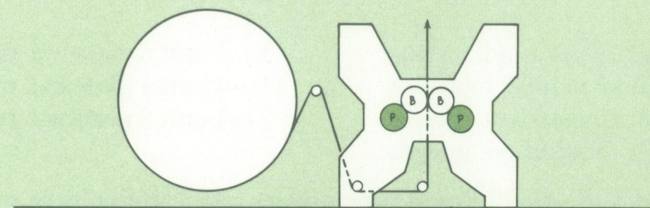
53—2 COLOR PRESSES

5—2/C 45" Presses
8—2/C 38" Presses
5—2/C 34" Presses

51—1 COLOR PRESSES

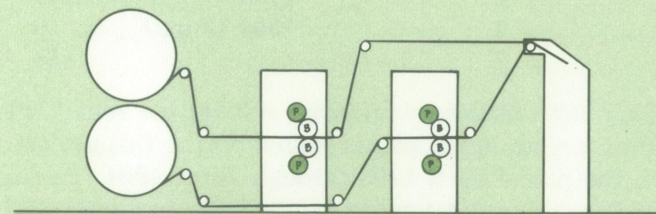
2—1/C 77" Presses
1—1/C 68" Press
1—1/C 62" Press
3—1/C 59" Presses
1—1/C 54" Press
1—1/C 49" Press
8—1/C 45" Presses
3—1/C 42" Presses
10—1/C 34" Presses
15—1/C 29" Presses
4—1/C 25" Presses
2—1/C 22" Presses

VERTICAL PERFECTING WEB OFFSET PRESS



This is a blanket to blanket perfecter using the same principle of the horizontal perfecting design whereby the web passes between two blanket cylinders each thereby acting as the impression cylinder for the other. However, in this design the web is travelling vertically as it passes between the blanket cylinders. The vertical web design is used widely in newspaper presses.

HORIZONTAL PERFECTING WEB OFFSET PRESS



With this design the web passes between the blanket cylinders horizontally. The press illustrated has 2 units, 4 plate cylinders, and is not equipped with an oven. This type of press could only produce work with an ink coverage or on stock not requiring an oven for drying.

There is considerable evidence that sheet fed operations in most plants will be reduced in the coming years as a direct result of web offset. There is also very much evidence that certain specific press sizes are the most likely to become less popular. It appears that the most vulnerable of these are the presses sized *between 38" and 76"*. The reason being given is that the 38" sheet fed and the 76" sheet fed produce a sheet *compatible* with the 36" and 38" web offset product. Therefore, those sheet fed presses with sheet sizes *in-between* will become less popular.

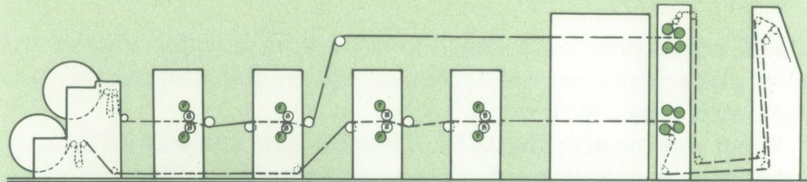
In almost every instance in plants with both web and sheet fed operations, the sheet fed presses were observed to be producing covers or inserts for catalogs or publications being run on the web offset presses in the same plant.

Much of the cover stock being used is too heavy to be run practically on web offset presses or else the covers are "stepped-up" on a plate thus reducing the run to a point where it is more economi-

cally run on sheet fed equipment. Therefore, the sheet fed offset presses are taking on the role of being supplementary to the web offset equipment instead of being the primary equipment. They will be more and more considered as auxiliary pieces of equipment as time goes on and sheet fed presses *in between* the 38" and 76" sizes will become less popular.

In several instances we have found plants that have already discarded sheet fed presses sized within that vulnerable area. One plant with two (2) web offset presses and seven (7) sheet fed presses has plans to reduce the sheet fed operation to three (3) presses within five (5) years. Another web offset operation trimmed their sheet fed operation down to four (4) presses from eleven (11) within the last year. Still another plant currently with ten (10) sheet fed presses has plans to sell three (3) in the vulnerable size area. Of the one hundred fifty-five (155) sheet fed offset presses existent in the thirty-six (36) plants, sixteen (16) presses are definitely destined to be sold. Since in many instances, in other plants, there was apparent difficulty in getting work to keep all their sheet fed equipment busy, it is anticipated that the number of sheet fed presses in these thirty-six (36) plants will be reduced by considerably more than the sixteen (16) presses previously mentioned.

HORIZONTAL PERFECTING WEB OFFSET PRESS



While of the same basic design as the horizontal perfecting web offset press illustrated on page 6, this press is equipped with an oven and chill rolls identifying it as capable of producing work in the commercial, magazine, and book publication field.



Trend in Sales of Press Equipment

According to a Printing and Publishing Industry report issued by the U. S. Department of Commerce in June, 1962, total sales of printing presses (letterpress, lithographic, and gravure) reached \$94,200,000 in 1958, a gain of 17.2% over 1954.

The increase was due to a 42% increase in sales of lithographic presses and a 152% increase in gravure press sales.

The sales of letterpress presses declined 2% in that period.

Sales of letterpress equipment have declined since 1947, from 66% of total printing press sales to 45% in 1958. The decrease has been mainly in sales of equipment used by the commercial printing industries. Sales of letterpress equipment used by the newspaper publishing industry continued to rise in 1958.

In relation to total printing press sales, lithographic press sales increased from 19% in 1947 to 36% in 1958. The average annual rate of increase was approximately 10%. While sheet fed lithographic press sales increased only 6% from 1954 to 1958, sales of web offset presses increased 387% in that same period.

Gravure press sales declined 45% from 1947 to 1954 but increased at the impressive rate of 152% during the 1954-1958 period. In relation to total printing press sales, gravure press sales increased from 4% in 1954 to 9% in 1958.

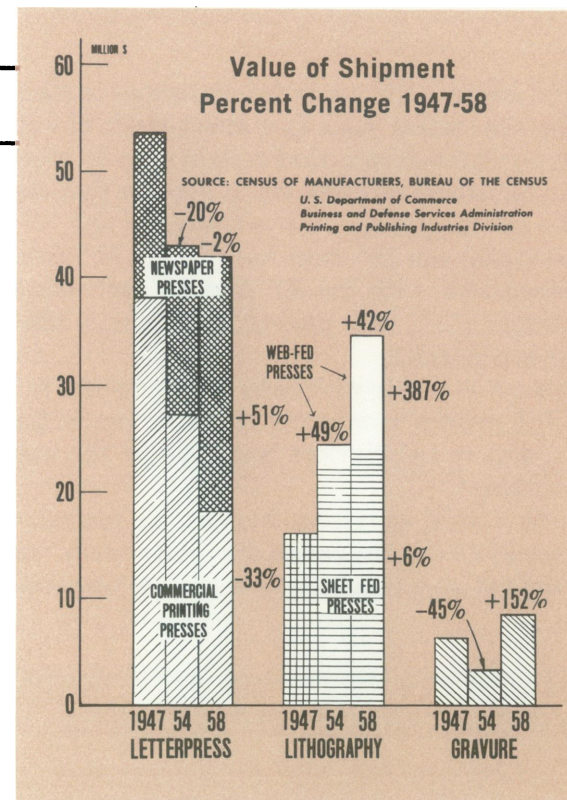
The report for the period 1958-1963 will be released by the government later this year.

Commercial Work

The quality of four (4) color process work produced on web offset equipment has reached a point where it is comparable to and in some cases better than work produced on sheet fed equipment.

The impact of web offset upon sheet fed offset in the field of commercial work is very evident and there is every reason to believe that it will be greater as time goes on.

The consensus seems to be that it is not practical from an economical point of view to put a four (4) color process job of less than



SELECTED GROUPS OF PRINTING PRESSES

50,000 impressions on a 22¾" x 36" 4 unit 8 plate cylinder web offset press. However, some shops have been observed running such work with runs considerably lower.

When you consider that a 50,000 impression run on a 22¾" x 36" 4 unit 8 plate cylinder web offset press compares with a run of less than 25,000 on a 76" sheet fed press it is easy to understand why sheet fed offset operations are being affected.

Catalog, direct mail advertising, and other commercial types of work have been steadily drawn out of the sheet fed press rooms onto the web offset equipment seriously affecting many operations of sheet fed equipment and the people employed therein. Some sources claim that 50% of the work now being run on sheet fed offset equipment could be more economically run on web offset presses. If so, it eventually *will* go to the webs. Therefore, the trend toward more work on webs will continue while sheet fed work will decline.

While there is a limiting factor in the cut-off of the web offset press, the advantages so outweigh this factor that work is being

designed to fit the equipment, especially on jobs that have to be folded. There is a distinct advantage to running it on a web offset press where the folding can be done in the same operation without additional handling. This advantage is most apparent and a foremost attraction to prospective buyers, and a typical example of why sheet fed work is going to web offset presses.

The fine quality of work now being produced on these presses at speeds far in excess of sheet fed equipment is attracting work that, heretofore, would never be considered for webs. The fine register and the volume and control of ink now possible on web presses; in many instances, surpasses sheet fed work.

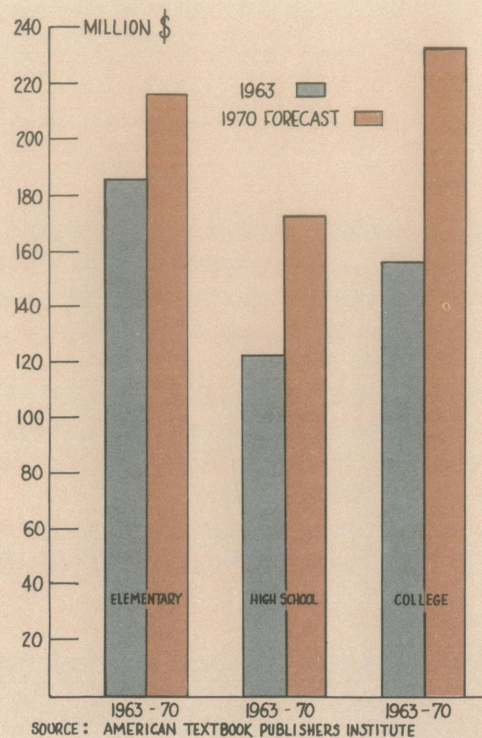
Shops equipped with both sheet fed and web offset presses and doing *both commercial and publication work* are faring better in their sheet fed departments than those which have similar equipment but do *only commercial work*. The production of publication work presents opportunities to keep sheet fed presses busy running covers and inserts while the body of the publications are run on the web offset presses. Therefore, as previously mentioned, the sheet fed presses are assuming a new role — that of being supplementary to web offset. With more and more commercial work going to web offset — shops with *sheet fed equipment only* are finding it increasingly difficult to complete. Many shops producing *only commercial work* and equipped with *both sheet fed and web offset presses* are finding it difficult to keep their *sheet fed equipment* busy. At the same time their *web offset equipment* is running two and three shifts.

Textbook Publications

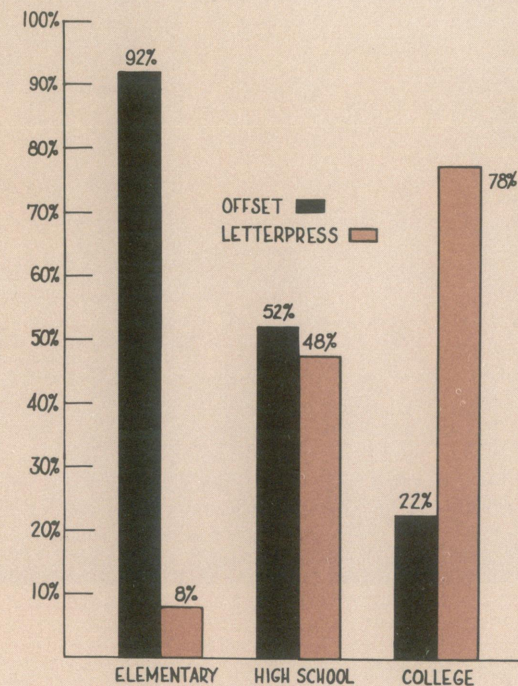
According to the latest information available to us from several sources, offset is already dominating the textbook publication field.

As of 1963, 92% of all elementary grade school textbooks were produced offset; 52% of all the high school textbooks were produced offset while 22% of all college textbooks were produced offset.

The total dollar volume in textbooks for the year 1963 was \$462,750,000; \$185,200,000 was the total volume for elementary



COMPARISON OF OFFSET AND LETTERPRESS PROCESSES USED IN PRODUCTION OF SCHOOL TEXTBOOKS, 1963



textbooks, \$120,650,000 for high school textbooks and \$156,900,000 for college textbooks*. The market increase anticipated in the elementary grade school textbooks will be 15 to 20% by 1970, while high school textbooks are expected to increase 40 to 45% and college textbooks 50% during the same period.

With the increased market anticipated, offset is expected to continue to gain a greater proportion of the total market. One source predicts that within five (5) years textbooks in all three (3) categories will be done entirely by the offset method.

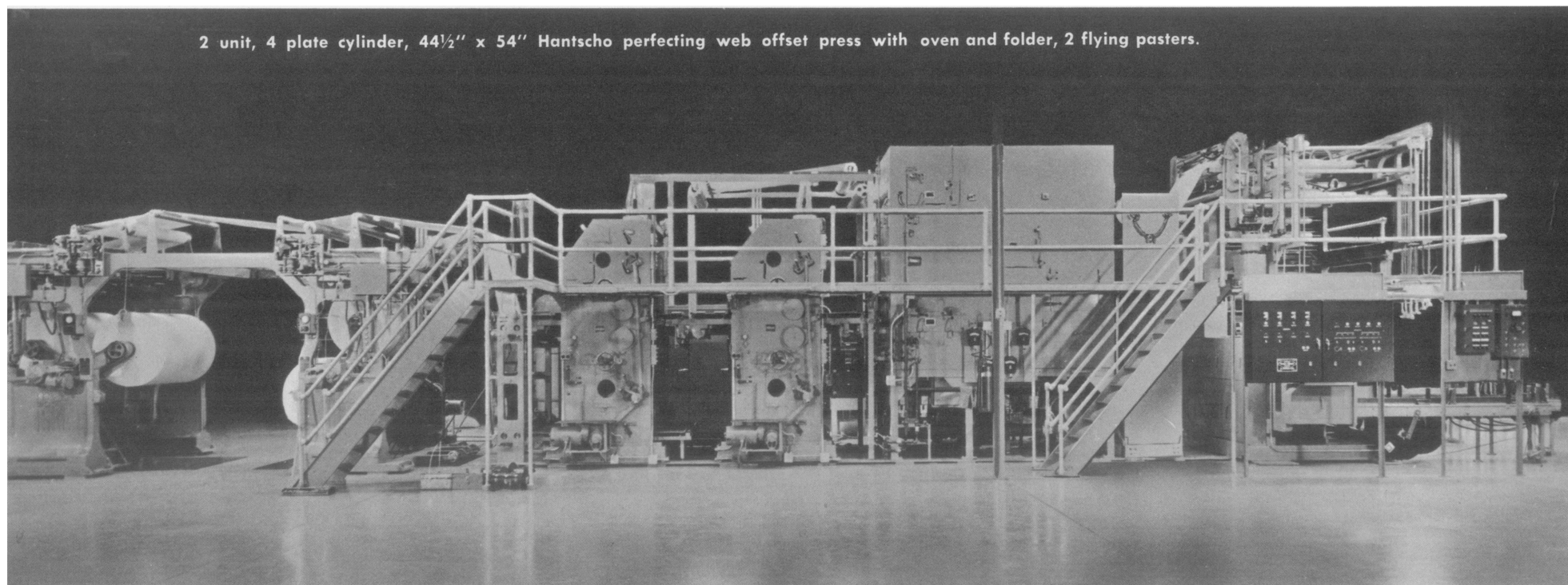
Our investigations show that textbooks first began to use the offset method in the early 1930's. The reason for publishers selecting

the offset method was principally for lower preparatory costs. With sheet fed offset the trend toward offset continued to grow and with the advent of the web offset the trend is intensified.

Plants are installing web offset equipment designed to produce specific publications or types of publications. With the promising outlook in the textbook publication field, plants are looking for equipment that will give them a competitive edge. Some of the plants are bidding for contracts and getting contracts to produce textbooks at web offset prices and are actually running the jobs on sheet fed presses until they install web equipment. These plants, while quite busy at this time in their sheet fed pressrooms under these circum-

**American Textbook Publishers Institute*

2 unit, 4 plate cylinder, 44½" x 54" Hantscho perfecting web offset press with oven and folder, 2 flying pasters.



stances, will undoubtedly reduce their sheet fed departments later when their web offset equipment is in operation.

Magazine Publication

Brightype is undoubtedly a major factor in taking work away from web letterpress for web offset.

At one typesetting plant in Chicago, where they set type for twelve (12) different monthly magazine publications, we found a typical example. The owner said that prior to 1959 all of these magazines were produced on letterpress equipment. However, one by one they gradually went to Brightype conversions to be produced web offset. Today all twelve (12) publications for which they set type are run on web offset presses.

At another typesetting plant in a midwest city, they said that 90% of the type they set ultimately goes to Brightype for conversions and in the final result is run on web offset equipment.

At Ludlow Typograph Company, Chicago, Illinois, it was revealed that there are eighty-three (83) Brightype installations in the country, ten (10) of which are in Chicago.

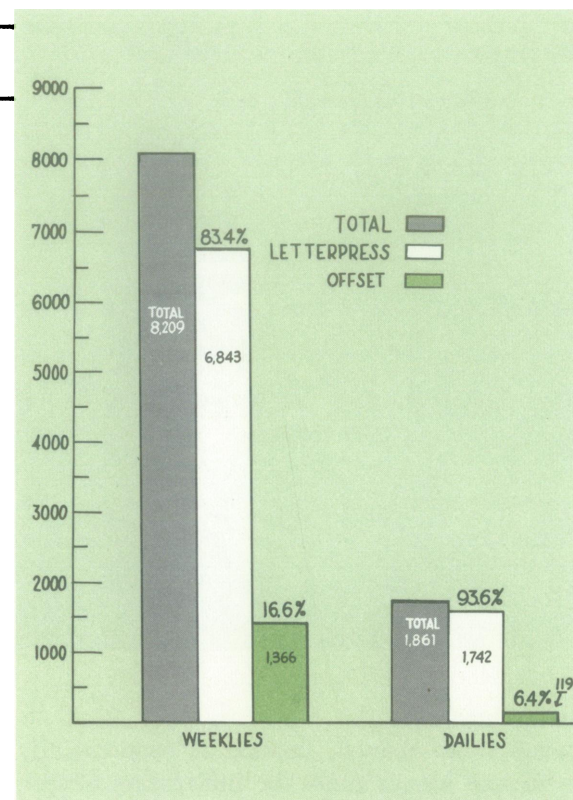
Brightype and other conversion processes, such as Du Pont's Crona Press and 3 M's Scotch Print, provide the channels for work to be diverted from letterpress to offset and, in the majority of instances, to web offset.

Newspapers

There are according to the 1964 Editor & Publisher Year Book, nine thousand nine hundred and sixty-three (9,963) newspapers in the United States and Canada of which approximately eight thousand two hundred and nine (8,209) are weeklies, bi-weeklies or tri-weeklies.

The remaining one thousand seven hundred and fifty-four (1,754) are dailies.

Of the weeklies, 1,366 or 16.6% of the total are produced offset. Those produced offset in the field of dailies amounts to 119 or 6.4% of the total.

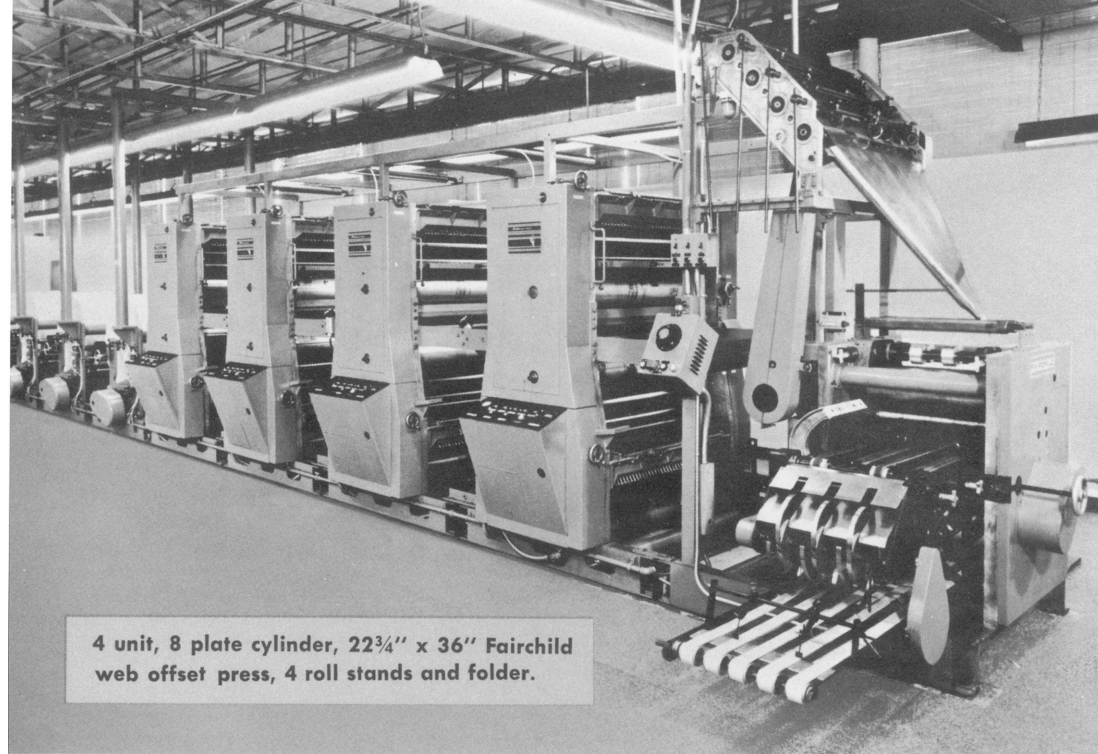


**WEEKLY AND DAILY
NEWSPAPERS IN U. S.
BY PROCESS, 1964**

(See Pages 26-30 for Distribution of Weekly and Daily Newspapers in the U. S. by Process 1964).

The growth of web offset in the newspaper field has been phenomenal. Newspapers are making the transition from letterpress to offset at a rate of about one (1) a day. There are at this time approximately seven hundred (700) web offset presses in the country producing more than fourteen hundred (1,400) different newspapers.

There are some differences of opinion as to whether or not this rate of one (1) a day transition to offset will continue. Some in the field say the rate will decline on the ground that the cold type operations have limitations that will restrict or tend to retard the growth of web offset in the newspaper field. Counter to this, it should be pointed out that many newspapers converting their pressrooms to offset are not changing their typesetting. Many papers being run offset still have hot type composing rooms and employ one of the



4 unit, 8 plate cylinder, 22 $\frac{3}{4}$ " x 36" Fairchild web offset press, 4 roll stands and folder.



Goss Web Fed Metro-Offset Press. Page cut-off 22 $\frac{3}{4}$ ". Guaranteed speed 50,000 papers per hour. Blanket-to-blanket printing, vertical web lead up to 9 webs. Four plate wide semi-cylindrical design (2 pages around cylinder) permits straight and collect operation. Each unit will produce 8 broadsheet pages (16 tabloid) when running straight or 16 pages (32 tabloid when running collect).

several different conversion methods.

As equipment becomes more refined, making it economically feasible to produce longer and longer runs, the infiltration of web offset into the field of dailies will increase.

Early in 1960 there were fewer than 10 daily newspapers in the country being printed on offset presses. The number grew to 40 by April of 1962 and today (Sept. 1964) there are 119.

The average daily being produced offset has a circulation of under 6,000. Only in a couple of instances do they exceed 25,000. The largest daily reported to date is the Oklahoma City Journal with a circulation of 70,000.

The average weekly newspaper being produced offset has a circulation of under 5,000.

Indicative of the advancement of offset to the higher circulation

area is the fact that web offset presses specifically designed to produce daily newspapers with a daily circulation of seventy-five thousand (75,000) are now on the market. There is little doubt that this type of equipment will become more and more refined and that offset will, as time goes on, make deeper and deeper inroads into the newspaper field.

While at this time the vast majority of newspapers produced by the offset method are in the lower circulation categories, as the trend continues the transition will go into the higher and higher circulation papers, both weekly and daily.

Practically all of the major press manufacturers are marketing web offset equipment specifically designed for the production of newspapers. Without question this is an extremely fertile field for the continued growth of web offset.

A fact that is very evident, however, is that the newspaper segment of the web offset field is quite different from the magazine publication or commercial field. It is quite apparent that the skill requirements are different and the equipment is different. While still employing the same basic principles of all perfecting web offset presses, newspaper presses are stripped of the many refinements and sophisticated devices that appear on equipment designed for the production of process color, commercial and magazine publications. The most obvious difference is the lack of an oven or dryer on newspaper presses. A comparison of costs of web offset presses designed for these fields alone tell the story of how the equipment differs.

The installation of a 4 unit 8 plate cylinder 22 $\frac{3}{4}$ " x 36" perfecting web offset press designed for commercial and publication work usually involves an expenditure in excess of \$400,000. In contrast, the installation of a 22 $\frac{3}{4}$ " x 36" 4 unit 8 plate cylinder perfecting web offset press designed for newspaper can range from \$60,000 to \$175,000 depending upon the model and manufacturer selected.

The Goss Company, a Division of Miehle-Goss-Dexter, Inc. has had three (3) different models of web offset presses on the market specifically designed for newspapers, each to meet the circulation, page, and speed requirement of different segments of that field. The lower the requirements, the more basic the press specifications and, therefore, the lower the cost.

Now the Goss Company has added a fourth (4th) line designed to meet the requirements of still another segment of the field—the daily with a circulation of approximately 75,000. This is indicative of the continued infiltration of web offset deeper toward the heart of the newspaper field.

In order to meet the production requirements of daily newspapers in that circulation range, press manufacturers have designed double-width presses. Today, press manufacturers are producing and installing equipment of that type.

There has been considerable comment that when newspapers presses are not running newspapers, they are running commercial

work in competition with shops that deal only in commercial work. While it *is* true that these newspaper presses *do* run commercial work, in the vast majority of instances it is of a grade that would *not* be competitive to shops equipped with heat set presses.

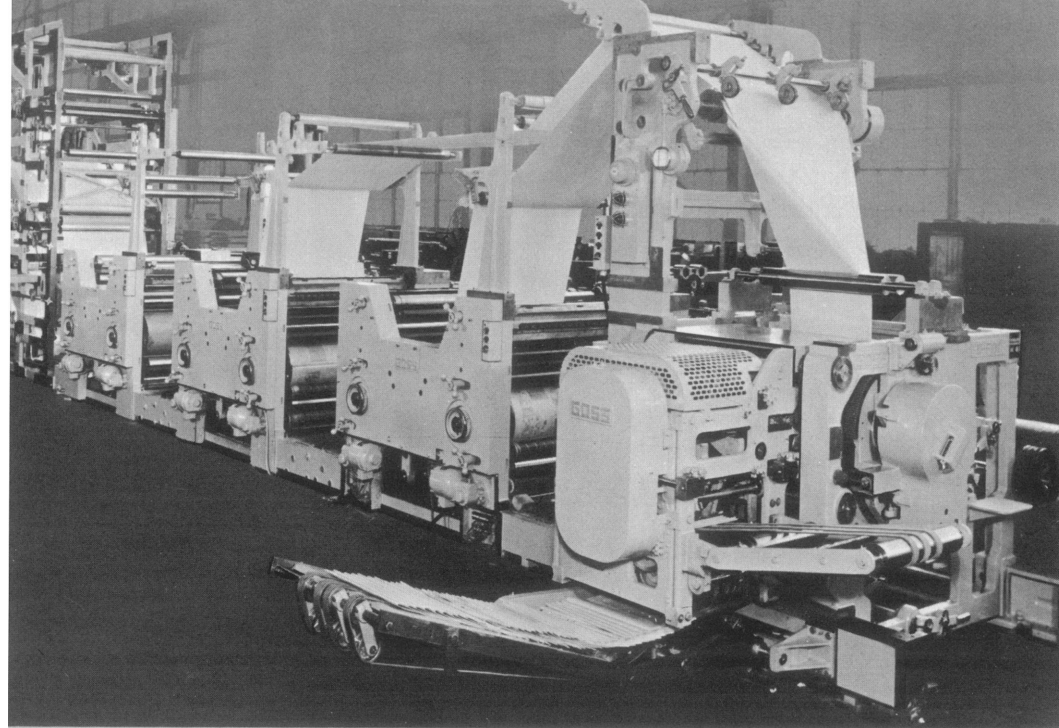
While there is undoubtedly some overlap in the lower grades of commercial work where the jobs could possibly be run on either type of press, it does not appear to be of significant competition to the commercial plants.

It should be noted, however, that with possible future developments such inks that would eliminate the need of an oven, would without doubt considerably increase the product field of these presses now producing newspapers.

As mentioned, the skill requirements for men operating newspaper presses are quite different from those operating heat set presses. Certainly, at this point, it could not be said that one required *more* skill than the other, but it is very apparent that the skills are *different*. As an example, one might say the man on the heat set press has more to watch with closer register, balancing of color, controlling an oven, and more careful and refined folding. On the other hand, the man on the newspaper presses can reply he is constantly running multi-web and consequently putting more paper through the press and, therefore, has more to control. At any rate, it is apparent that there are many factors that separate the newspaper field from all other segments of the printing industry. This is a situation not readily accepted by many of those who have built all their thinking around sheet fed operations.

In the past, description of sheet fed presses by sheet size capacity and number of printing units was sufficient to evaluate the presses for manning requirements and rates of pay. The work on the presses would range from the most basic to the most intricate, but the presses were all of the same design and engineering which naturally resulted in uniform approaches to sheet fed presses.

With web offset presses bringing presses designed to produce specific types of products such means of description is insufficient.



Goss Urbanite Press. Plate cut-off 22 $\frac{3}{4}$ ", maximum speed 40,000 papers per hour. Web Specifications: 29x36" width, maximum roll diameter 40". Blanket-to-blanket printing, vertical web lead up to eight webs. Semi-cylindrical design (two pages around cylinder) permits straight and/or collect operation. Each unit will produce four broadsheet pages (eight tabloid) when running straight or eight pages (16 tabloid) when running collect.

Basically, to describe web offset equipment sufficiently to make an evaluation, the following information is needed:

1. Number of printing units.
2. Number of plate cylinders.
3. Measurement of cut-off and width of web.
4. Type of web offset press (perfecting, in-line, drum or semi-drum).
5. Manufacturer and model of press.
6. Whether it has an oven.
7. Description of folder attachments.
8. Whether it has a sheeter.
9. Number of roll stands.
10. Whether it is equipped with flying pasters.
11. Description of any other attachments on the press such as imprinting, perforating or punching units.

With more variations in equipment and a greater variation of types of work produced, it is important that enlightened approaches be used to encourage the growth of the industry and to ensure the futures of the people working in it.

It is a fact that far more variations exist with web offset than ever existed in the sheet fed field. However, it appears that many people still try to apply the same standards which were acceptable to sheet fed.

It is understandably difficult for lithographers who have built all their thinking around an industry completely removed from newspapers to suddenly find themselves thrown headlong into that field with a host of unfamiliar problems. However, it is important that the differences in the newspaper field be recognized if our representation in that area is to grow.

Web offset has opened new fields to the lithographic process and the newspaper segment of the industry is one falling into that category. With web offset we have seen equipment designed specifically for this product. While the product is quite different from what the lithographic field has been accustomed to in the past, it is still lithographic. However, the venture into a new field made possible by new types of equipment does necessitate changes in thinking.

Business Forms

Before evaluating where the Business Forms Industry fits into the *web offset picture*, first let us analyze where it stands in regard to the printing industry.

The business forms industry had its beginning in the 1880's with the development of the sales book. While we know the industry grew continually, little is known statistically about that factor until around 1940. It is generally recognized that the annual sales volume of the business forms industry reached the \$50,000,000 mark shortly before 1940. By 1950 it has risen to \$200,000,000 and the period from 1950 to 1960 showed an average annual increase of approximately 10%.

The first Government census of the Manifold Business Forms Industry indicates sales of \$406,000,000 in 1958. By 1962 the figure was up to \$553,000,000. The latter figure indicates an average annual increase of 8% during the period 1958-62. In this period the value of shipments by the business forms industry had gained 36% while the Gross National Product increased only 18%. The \$553,000,000 sales volume for 1962 represents 7% of the total sales figure of the commercial printing industry which was approximately \$7,200,000,000 for that year.

Over the past twenty-three (23) year period the business forms industry has enjoyed an average annual economic growth of 9% in contrast to the average increase of 4% in Gross National Product. In other words, the business forms industry has had a growth more than double the average national economic growth. According to figures released by the Department of Commerce, Business and Defense Administration, there were approximately 350 plants producing business forms in 1962, employing 27,000 people of which 19,000 were production workers.

The number of production workers in this field increased 13% during the 1958-62 period in contrast to a figure of 5.8% in the commercial printing industry.

While wages (per man hour average) in commercial printing increased 12% in that same period, the wage increase in the business forms industry was only 3.7%.

Productivity per man hour in the business forms industry in that same 1958-62 period increased 3% and there was a decline of 11% in the ratio of payroll costs to value of shipments. At the same time that ratio in commercial printing dropped only 2% as a result of payroll costs nearly keeping pace with value of shipments.

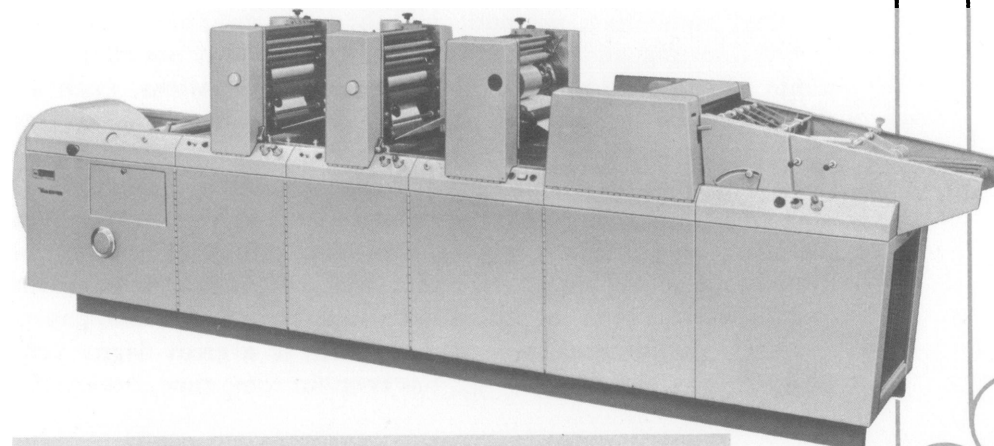
The Business Forms Industry is among the select "high growth" industries as indicated by the previously mentioned more than 20 year average of 9% annual growth. The increased use of electronic data processing by smaller companies will unquestionably be a stimulus for future growth. The Manifold Business Forms Industry ranks

among the top third of 450 different industries in the United States in terms of value added by manufacture. (Value added by manufacture is the difference between cost of materials and value of shipments).

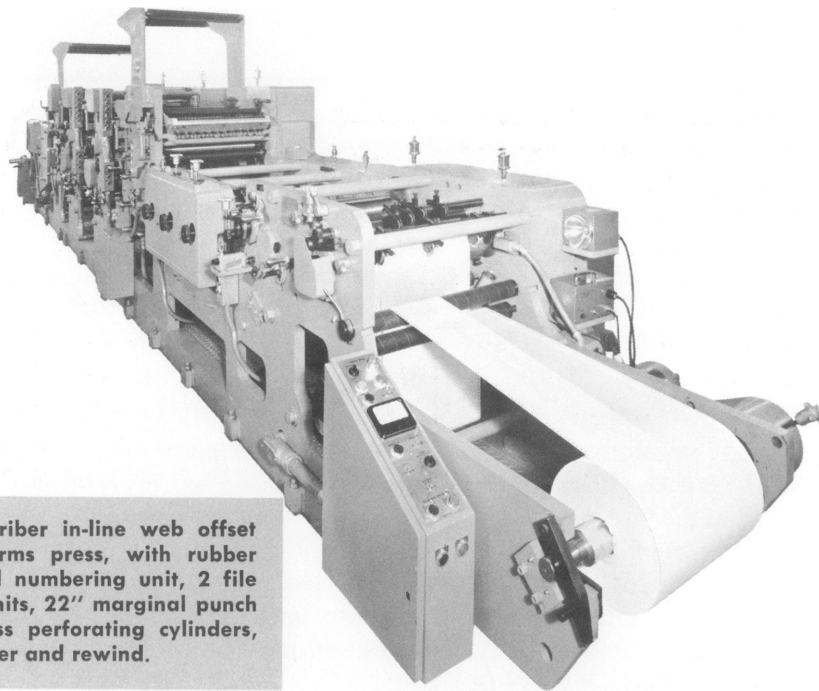
All this indicates a mighty, healthy, growing industry.

Thirty years ago it was dominated by rubber plate presses, but around 1940 web offset established a foothold and has been surging forward ever since. Sheet fed offset presses were also strong in the field producing forms other than those of the continuous type. However, some sources say that 80% of all presses manufactured for the business forms industry since 1940 have been *web offset* presses. At any rate, by 1963, 50% of *all* business forms were being produced on offset presses.

Today, men working on sheet fed presses in business forms plants say they have seen their work shift to web equipment steadily and today only short run specialty forms and straight padded forms are being run on sheet fed equipment.



2 color, in-line, Didde-Glaser web offset press with imprint unit and sheeter.



3 color Schriber in-line web offset business forms press, with rubber imprint and numbering unit, 2 file punching units, 22" marginal punch unit, 2 cross perforating cylinders, vertical slitter and rewind.

The web offset presses used for printing business forms are of the "in-line" or "open web" design, printing only on one side of the web. These presses in addition to the printing, also perform many in-line bindery operations such as file punching, marginal punching, continuous vertical perforating, cross perforating, rubber plate imprinting, numbering, magnetic ink character imprinting, slitting, carbon inserting, and hot spot carbonizing. Obviously not all presses would be equipped to do all the above listed operations. Each installation is customized from standard presses with added features according to the needs of the purchaser of the equipment. Some presses deliver the finished product sheeted, some rewound, and some in a zig-zag fold. The sheeted and folded product is usually a completed business form, while the rewound printed product is delivered in that manner in order that other off press operations can be done, such as collating with other printed webs and carbon paper.

While the business forms industry was to a great degree centralized, the trend today is, and has been for some time, toward de-

centralization. It is true that Ohio remains as the capitol of this industry but growth is running hand in hand with decentralization. Plants are now located all over the country and in many instances in areas where we as a union are not relatively strong. As a result these plants are either unorganized or organized by other unions generally recognized as willing to provide a less costly agreement than our union seeks to achieve.

Web offset in the business forms industry is different from the commercial field and different from the newspaper field. While the lithographic skills are still required, the in-line bindery operations incorporated into the presses create a unique situation when compared to other segments of the printing industry.

As on perfecting web offset presses, it makes good sense that all workers assigned to the equipment should be represented by our union to provide greater versatility and to ensure the full utilization of available labor.

Training

The training of web offset pressmen and feeders is a major problem with most of the shops we have contacted.

To give some idea of the background of the sixty-six (66) people interviewed who were working on web offset equipment, we averaged out the time they have spent in the industry in both sheet fed and web offset fields. According to the men interviewed, the average web offset pressman on perfecting equipment has been in the litho industry for fourteen (14) years. Eight (8) years of his experience has been on sheet fed presses and six (6) years on web equipment.

The experience background of Second Pressmen showed an average of 11 years and 6 months in the industry — nine and one half years (9½) years of that experience on sheet fed equipment and two (2) years on web offset equipment.

The average feeder has six (6) years and one month of experience in the industry with two years and nine months (2 yrs. 9 mos.) on sheet fed equipment and three years and four months (3 yrs. 4 mos.) on web offset equipment.

While sheet fed experience is very prevalent in the backgrounds of the people operating web offset press equipment today, it appears there will be a hesitancy on the part of management, in the future, to move employees from sheet fed equipment to web offset equipment. This is in spite of the fact it is very evident that sheet fed experience is very valuable toward the making of web offset pressmen. The experience accumulated on sheet fed equipment under conditions that are slower allows men to spend more time learning the "art of printing" than would be possible on web offset equipment. This is substantiated by the opinion of the great majority of men working on web offset equipment today.

Pressmen on sheet fed presses learn the art of printing, learn ink and water balance, roller settings, damper settings, plate care, plate and blanket packings, and the art of "reading a sheet" under slower conditions. Whereas, the speed of web offset equipment provides conditions less conducive to acquiring the necessary knowledge involved in the aforementioned factors. Trial and error methods, which are a part of the learning processes, becomes exceedingly costly when attempted on web offset equipment.

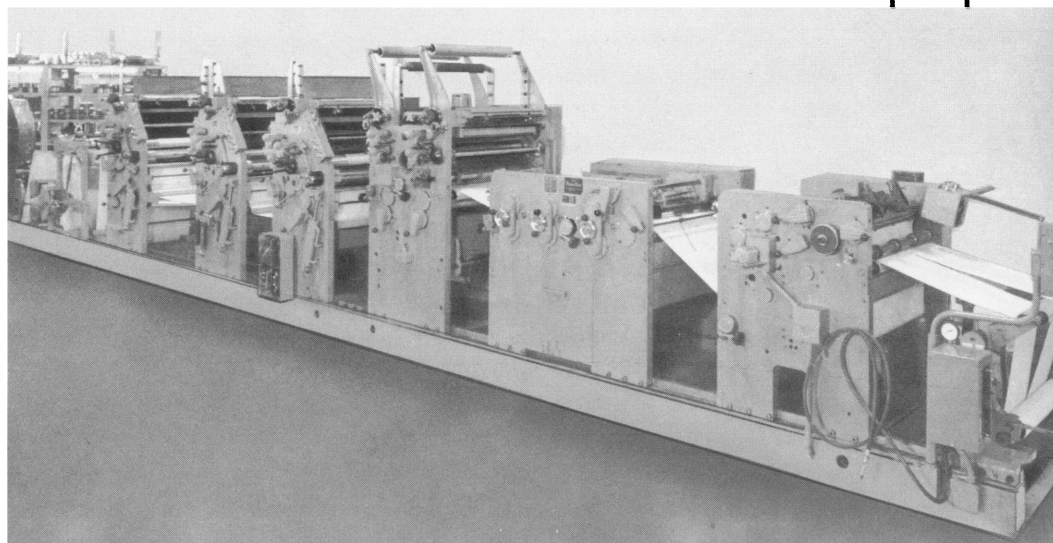
Men learning on sheet fed equipment have the advantage not only of slower moving equipment but also of the fact that they can hold down the spoilage factor by using waste sheets whereas, on web equipment every impression goes on clean paper and every bad impression increases the spoilage on the job.

Once the art of printing, reading a sheet and all the basic principles of offset are learned on sheet fed equipment they can be directly applied on web equipment. True, that the sheet fed pressman must learn the mechanics of a web press. However, the consensus of web offset pressmen interviewed overwhelmingly supported the theory that it is far easier to learn the mechanics of a press than it is to learn the art of offset printing.

A pressman in St. Louis, Missouri with twenty-six (26) years of web offset press experience and *no sheet fed experience*, recognized the value of sheet fed experience in spite of the fact that he had *none* himself and so expressed his views. He acquired his appreciation for

sheet fed experience through training many people to run web offset equipment. He said that those who came in as pressmen on *sheet fed presses* to be trained as pressmen on web offset presses learned much faster than the people whose only previous experience was on web offset equipment in lower classifications such as feeders or helpers.

Management in the majority of instances, it appears, will tend to hire men for and advance them through the ranks of the web presses without any movement back and forth between sheet fed and web offset equipment. Once a man is assigned to a web offset press, even in the lowest classification, it is most likely he will stay on the web offset equipment for his entire career. It is quite likely that this could be a mistake and that some attempt should be made to outline some system of progression that could carry men through both sheet fed and web offset equipment.



3 color, 22" x 26" in-line Hamilton web offset business forms press, with reversible rubber plate imprint unit, Magnetic Ink Character Recognition numbering unit, 2 file punch and one line punch unit, double cross perforator and rewind.

Unfortunately, the art of printing becomes intangible and far less apparent at the outset than familiarity with a given piece of mechanical equipment.

To the observer, the feeder or helper who has several years of experience on web offset equipment moves around the press with assurance that comes only with experience, while his lack of knowledge in the art of printing, reading a sheet, etc. is not readily apparent. In contrast, the *sheet fed pressman* moved to web is in the first instance somewhat overwhelmed by the difference in equipment and his lack of mechanical familiarity is readily apparent. Therefore, it seems management will be inclined to move web feeders up to fill openings as 2nd pressmen and pressmen rather than to select journeymen sheet fed pressmen. Unquestionably, the web feeder moved up to pressman or 2nd pressman would make a much better "first impression" upon the employer than the sheet fed pressman. However, our information indicates that a sheet fed pressman would prove in the end to become a more competent web offset pressman.

It should be recognized, however, that all sheet fed pressmen do not have the aptitude to convert to web offset equipment. In other words, while the knowledge gained as a sheet fed pressman is valuable, it must also be recognized that aptitude must be considered. It is imperative that a web offset pressman be versatile, he must make decisions quickly and on his own and must be able to analyze press problems and must be able to delegate the work among the crew. It might be said that many of the attributes that you might look for in selecting a foreman should be sought in the selection of a man for a web offset pressman on large equipment. At any rate, it seems that with the proper perspective, sheet fed operations could be used as a medium through which men could be selected for web offset operations. As previously noted, all sheet fed personnel do not possess the qualities to work on web offset equipment but these qualities that are necessary could be recognized in men while they are working on sheet fed equipment.

Also, an additional gain could be realized by the personnel if

they received both sheet fed and web offset experience. While it is recognized that sheet fed operations will be somewhat reduced, there will always, at last in the foreseeable future, be sheet fed equipment. Therefore, men with experience in both fields will have greater employment opportunities.

One shop that recognized the value of sheet fed experience was a non-union shop in the Midwest. To outline the picture we had best describe this plant and then give you the opinions of the management.

They have:

1—4 unit 8 plate cylinder 22 $\frac{3}{4}$ " x 36" perfecting web offset press with an Offen oven and folder.

In their sheet fed department they have:

1—77" 4 color press	1—36" 1 color press
1—77" 2 color press	1—29" 1 color press
1—38" 2 color press	

All of the men working on the web offset presses in this plant have sheet fed press experience. The management said that they were aware of the advantage of sheet fed experience in the making of a flexible pressroom and that it tends to make a better web offset pressman. The plant manager and the superintendent said they were aware of the fact that their web offset press people have sheet fed experience only because of the fact that they came up when web offset presses were installed and they were the only people available to man them. However, for the future they are aware that there will be a trend toward hiring people who will work exclusively on web offset presses. This is something they want to avoid.

Therefore, they plan to install a progression system that would take men in their training back and forth between the sheet fed to web offset operations. At the time of our meeting in April they had not yet formalized a program, but they expressed the opinion that when men reach the stage of being feeders on the presses they will be moved back and forth between sheet fed and web offset

presses. After becoming journeyman feeders they will be moved to pressmen on the sheet fed presses. Then, after becoming sheet fed pressmen they would go to web again and in the final result would be moved back and forth from sheet fed to web offset presses.

Time and time again we hear that the web offset employee must be a young man. Our project has shown that the average web offset pressman is in his early to middle thirties. Many of these pressmen question whether or not they will be able to function efficiently on web equipment in the latter years of their working careers. It seems that with the right type of program the sheet fed operation could be used as a way up and a way down from the web offset operation for pressroom employees.

Men could receive their primary training on sheet fed equipment. Then in the most productive years of their careers they could be on web offset equipment. Later in their careers, if age should affect their ability to efficiently operate such web offset equipment they could return to sheet fed equipment where they could still earn a good livelihood.

It is very apparent that in shops where there are both sheet fed and web offset operations that a rivalry between the two branches is developing. In many instances, it seems to stem from the fact that when web offset equipment was originally installed some of the sheet fed men refused to move to the web offset operation. Later on, as the web offset operation proved successful, and as they saw the work on the sheet fed presses diminishing, these same men recognized their mistake and attempted to get into the web offset operation. The web offset employees generally resent this as they recognize that *they* had taken the original chances on new equipment and that the sheet fed employees, who had turned down the opportunity, were now seeking entry into their department after the risks are cleared away. They have generally reacted by making every effort to close the door to these sheet fed employees, which quite obviously results in poor relationships within the plant.

In many shops, the web offset operation is very busy, with the men working overtime, while at the same time in the same shop the

sheet fed presses are slow and the men in some instances are working short hours. All this is the basis for rivalry and dissension and if some system of movement between the two branches were achieved it seems that this dissension and rivalry would be lessened for the betterment of our members, our organization and the industry.

Competition of Other Unions

Wherever we go and find representation by other unions we find rates and conditions inferior to those existing in LPIU shops.

To cite specific instances we call attention to one large industrial city, where there are the following rates and complements that prevail in shops under contract with another union for five (5) unit ten (10) plate cylinder web offset presses (perfecting) up to and including 36" webs:

Pressman	\$4.62 per hour
Second Pressman	\$3.86 per hour
First Assistant	\$3.30 per hour
Second Assistant	\$2.93 per hour

for a labor cost of \$14.71 per hour exclusive of fringe benefits. (Packers or Joggers are in addition.)

The contract of the LPIU in the same area, covering the same type of equipment calls for the following rates and complements:

Pressman	\$4.96 per hour
Second Pressman	\$4.27 per hour
First Operator	\$3.15 per hour
Second Operator	\$3.15 per hour
Tender	\$2.65 per hour

for a labor cost of \$18.18 per hour plus fringe benefits. (Plus Packers or Joggers.)

In addition the presses in the shops under another union run through lunch at no extra benefit to the men on the equipment. The

men in the other union also work a 37½ hour work week in contrast to a 35 hour work week in the LPIU shops.

The plants in this city represented by other unions, for the larger webs, up to and including 50 inches, have the following complement and rates for the five (5) unit ten (10) plate cylinder web offset presses.

First Pressman	\$4.87 per hour
Second Pressman	\$3.96 per hour
First Assistant	\$3.83 per hour
Second Assistant	\$2.98 per hour

for a labor cost of \$15.19 per hour plus fringe benefits. (Plus Packers or Joggers.)

Note that the complement on the five (5) unit ten (10) plate cylinder press provides for only (4) men and the labor cost is \$3.00 less per hour than that of the 36" five (5) unit ten (10) plate cylinder web offset press in the LPIU shops.

In another Midwest city the contract of another union provides the following rates and complements for five (5) unit ten (10) plate 22¾" x 36" (perfecting) web offset presses:

Pressman	\$4.28 per hour
Second Pressman	\$3.66 per hour
Tension man	\$3.25 per hour
Helper	\$2.84 per hour

for a labor cost of \$14.03 per hour plus fringe benefits. (Plus Packers or Joggers.)

While in the LPIU shops in the same city we have the following rates and complements for the same press:

Pressman	\$4.91 per hour
Second Pressman	\$4.10 per hour
First Perfecting Oper.	\$3.29 per hour
Second Perfecting Oper.	\$3.13 per hour

for a labor cost of \$15.43 per hour plus fringe benefits. (Plus Packers or Joggers.)

In addition the presses in the shops under other unions run through lunch, again contrary to a situation that exists in the contracts of the LPIU in that area.

In another Midwest city, the contract of another union covering a four (4) unit eight (8) plate 22¾" x 36" (perfecting) web offset press calls for the following rates and complements:

First Pressman	\$4.31 per hour
Second Pressman	\$3.72 per hour
First Assistant	\$3.12 per hour
Second Assistant	\$2.17 per hour

for a labor cost of \$13.32 per hour plus fringe benefits. (Plus Packers or Joggers.)

In addition, the contract of that union provides for a 37½ hour work week, time and one half for Saturday overtime and a vacation program of only one week for one year, 2 weeks for 2 years and 3 weeks for five years.

The same type of press under the LPIU contract in this city calls for the following rates and complements:

First Pressman	\$5.34 per hour
Second Pressman	\$4.34 per hour
First Helper	\$3.39 per hour
Second Helper	\$3.17 per hour
Web Tender	\$2.80 per hour

for a labor cost of \$19.14 per hour plus fringe benefits. (Plus Packers or Joggers.)

It should be noted that while the LPIU rates were higher than those of other unions, it was also generally recognized that LPIU shops were producing a higher quality of work.

Competition of Other Processes

Nowhere, during the course of this project did any web offset plant management complain or express concern about competition from web letterpress or rotogravure. On the other hand, talking to web letterpress and rotogravure management there was considerable concern about web offset competition.

At one time sheet fed letterpress, web letterpress and rotogravure controlled almost all fields in the printing industry and now offset is the aggressor. Offset as a newer process has moved in to take work away from these processes.

Sheet fed offset moved a great deal of work from sheet fed letterpress and web offset delivered the mortal blow. Sheet fed letterpress is all but dead and now web offset will continue to infiltrate deeper and deeper into fields controlled by web letterpress and rotogravure. True, that both letterpress and rotogravure are going through technological changes which could reduce the impetus of web offset. However, based on what is happening today and what appears to be on the horizon we can only see web offset surging forward.

The majority of magazine publications being produced on web offset presses at this time are those with circulations of 100,000 or less. As previously pointed out, however, this is merely the spearhead of the infiltration. As time goes on it will go more and more into the larger circulation publications.

In attempting to determine the area where web offset and rotogravure come into competition, a wide variety of answers are given. However, when it was narrowed down to a four color process job on a 22 $\frac{3}{4}$ " x 36" web offset press, the consensus was that it would be competitive to rotogravure up to a million impressions. According to most people interviewed, as soon as the press run would approach one million impressions the customer would immediately consider rotogravure for the sake of economy.

Job Classifications and Titles

It is very apparent that special attention should be given to establishing a standard description of job titles for men working on web offset presses.

As the situation exists today, the only job that has a title understood throughout the continent is the "first pressman". Every job from there on downward in the classifications is cluttered with a completely confusing assortment of titles.

The second man on a large multi-unit web offset press in the

majority of instances is called a "second pressman" but in some areas they are called "assistant pressmen" or "first assistant pressmen" or "assistant to the pressman".

The third man in most instances is called a "feeder", but here again we find a variety of titles for the job. Some of the other titles also given for that same job are: "roll tender", "first feeder", "first assistant", "brakeman", "first operator", "second assistant to the pressman", "first perfecting operator" or "first multi-color feeder" "first helper", "compensator", and "tension man".

The fourth man also has a variety of titles such as "feeder", "second feeder", "second operator", "tender", "second assistant", "second helper", "roll tender", "press tender", "third assistant pressman", "assistant roll tender" and "second perfecting operator".

The fifth man on a five unit, ten plate web offset press is called a "tender", "helper", "third perfecting operator", or "roll tender".

Men removing signatures from the folders are called "joggers", "fly-boys", "packers", "packer boys", "helpers", "web assistants", and a variety of other titles.

From all of these confusing job titles arise many misunderstandings. Therefore, immediate attention should be given toward establishment of standardized job titles for all men working on web offset presses. It would seem that a joint committee of people from both management and labor unions could be established to discuss this problem and agree upon job titles that could be understood throughout the industry.



Conclusion

Web Offset has revolutionized the lithographic industry with great impact upon letterpress, rotogravure, and many other areas in the graphic arts.

Since its very inception offset has continually drawn work away from other printing processes. Each technological advancement in the lithographic field provided the impetus to attract more work. None of the advancements of the past have been as dramatic as the surge forward in the last decade through web offset.

Today, there are approximately 1100 perfecting job offset presses on the continent. About four hundred (400) of these are web offset presses producing work in the commercial, magazine and book publication fields. There are approximately seven hundred (700) presses designed for and producing newspapers.

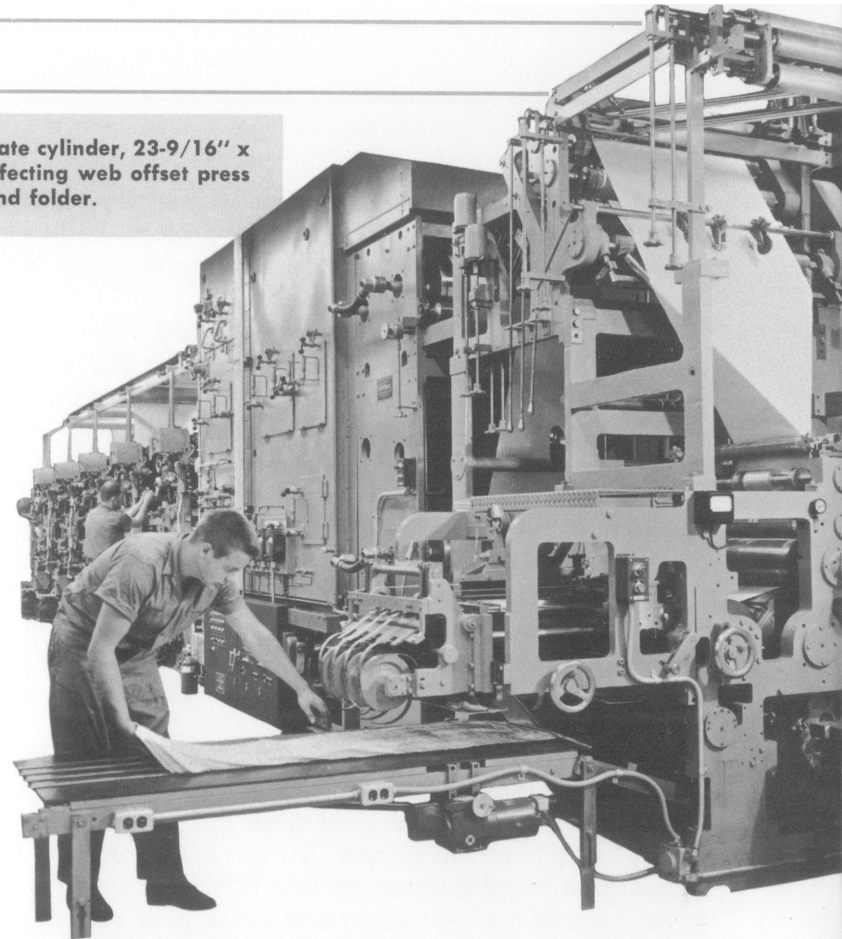
While we may say that the surge of web offset began a decade ago, it is the period after 1959 in which the majority of web offset equipment existant today was installed.

This influx within such a short time has made this a period of many problems as might be expected.

There can be little question that there is an effect upon sheet fed offset presses serious enough to warrant considerable attention. Very few plants visited during this project were busy in their sheet fed pressrooms and in many instances plans were afoot to reduce the number of sheet fed presses. At the same time, the web offset equipment in the same plants was busy and running two and three shifts. Since much of the work currently being run on sheet fed equipment could be more economically run on web equipment, it is only reasonable to expect that it *will* eventually go to web. This can only mean that the effect on sheet fed presses will mount as time goes on and the profitable use of web offset is understood.

The problem of training personnel for heat set web offset presses, while not as critical as a few years ago, is still of major concern throughout the industry. To the plants installing their first web offset press it is an absolute primary factor and a major problem.

5 unit, 10 plate cylinder, 23-9/16" x 38" ATF perfecting web offset press with oven and folder.



Future installations of presses in the commercial, book and magazine publications fields in the majority of instances will be in plants already in the web offset field where they will have a nucleus from which to train additional crews. Once a plant has a press with a trained crew, the installation of a second press does not present a training problem as acute as that which came with the first press.

While the ratio of first installations of web offset presses in this field will be less, they will for years to come be in sufficient numbers to present a training problem of some concern.

In the newspaper field we have a different situation. Most newspapers that are converting to web offset are one press operations and will remain one press operations. Practically *every* installation

of a web offset press designed to produce newspapers is a *first* installation and in the majority of instances it is in a plant with little or no offset experience at all. Therefore, the newspaper field has a tremendous training problem which, if properly solved, will *increase* the rate of conversions to web offset.

Another union is at this time, and has as a matter of practice in the past, offered training to plant personnel at the union's expense. Obviously, this is extremely popular with prospective web offset press owners and is the medium through which that union has made a considerable gain in the offset field. Our union has never offered such an attraction or inducement to counteract this situation.

While we have observed an adverse effect of web offset sheet fed operations, we have also found that the training men receive on sheet fed presses can be put to definite advantage on web equipment.

The consensus of people interviewed indicates that the "art of printing," which is the basis for good craftsmanship, can best be acquired on sheet fed presses where conditions are slower and more conducive to learning. Therefore, while it is recognized that it takes certain specific types of men to operate web offset equipment and all sheet fed men could not qualify, there is strong evidence that the sheet fed pressrooms could be a primary step for future web pressmen. The qualities necessary to handle web equipment could be detected in men while working on sheet fed equipment. In other words, sheet fed departments would be the primary training and screening area for men to be transferred to web offset operations.

Unless such a system of progression from sheet fed to web becomes the accepted way of training, future web employees will begin and end their careers on that type of equipment and never have the advantage of the good training available on sheet fed presses. As a result, both the men and the industry will lose. Sheet fed men will likewise be restricted and many men who could be fine web offset pressmen will be denied that opportunity and the industry will lose potential craftsmen.

Without some system of progression through both departments, a more solid wall will develop between them and communications, through which technical knowledge could be shared, will be less and less. All things considered, there is much to lose by permitting the two departments to be completely separated.

Throughout the project, the plea on the part of the industry was for greater flexibility to permit web offset presses to run a greater

part of the day. Time and time again it was said that wages are of far less concern than flexibility.

Along that line, the most commonly sought condition was a provision to permit web offset presses to run through the lunch period.

Every shop under contract with another union covered in the project ran their web offset equipment through lunch and in only one instance did we find that the men on the equipment got any extra compensation for doing so.

Apparently, it has been an accepted practice to run through lunch as long as web letterpress and rotogravure have been in existence. Therefore, with the advent of web offset in these shops, the practice carried over without apparent objection by the press crews.

In almost every local visited during the project we found some of our LPIU shops running their web presses through lunch in spite of the fact that the union contract makes no provision to do so. Management makes private deals with the men on the equipment and the situation goes on without objection. As a result, some shops abide by the contract and shut down for the lunch period while their competitors under the same contract are enjoying an advantage by getting their crews to violate the contract and keep the presses running.

Throughout the continent, wherever we found web offset presses under contract with other unions we found lower wage rates, lesser benefits and lesser conditions. In some instances, the rates for the bottom end of the complement (feeder, helpers, joggers) was slightly higher in shops represented by other unions than in the LPIU shops but the rates for the pressman and second pressman were always considerably higher in the LPIU shops. The total labor rate for every press in every instance was always higher in the LPIU shops than those of other unions in the same area.

Also, we found fewer men in the press complements on the larger equipment in shops represented by other unions. As an example, the basic crew for a 5 unit, 10 plate cylinder 35 x 50 perfecting web offset press was four (4) men (Plus packer boys) in the shops represented by other unions, in every area visited.

While there is much talk of the need for slide week provisions in contracts covering shops in the field of magazine publication, there doesn't appear to be any real competitive need. In the web letterpress and rotogravure shops visited, (and in one case they run 150 different monthly and weekly magazines) there were no provisions

for a slide week. Management did, however, indicate that they were pressuring the union for such flexibility.

In the field of newspaper production, the slide week seems more realistic and shops were encountered with such provisions under union contracts.

According to figures released in the 1964 Editor and Publishers Year Book, there are 9,963 daily and weekly newspapers in the United States. Of these 8,209 are weeklies and 1,861 are dailies. Based on this same source, 1,366 or 16.6% of the weeklies, and 119 or 6.4% of the dailies are produced offset at this time.

The LPIU rates and complements have generated a tendency for web newspaper operations to bend toward other unions where they can get a considerably less costly agreement with greater flexibility of working conditions in the pressroom.

There can be no question that the skill and production requirements are different and the equipment is different for running newspaper work than it is for the other segments of the printing industry. There seems to be great reluctance in some areas to recognize these facts and instead to apply the same policies for all web offset operations regardless of the differences in equipment and job requirement.

As equipment and the industry changes, it is only logical that the LPIU must recognize these changes and move with the times. A typical example is the newspaper field. It may be necessary to have a different type of contract for such type of work and equipment if the LPIU seriously desires to be a factor in the newspaper field.

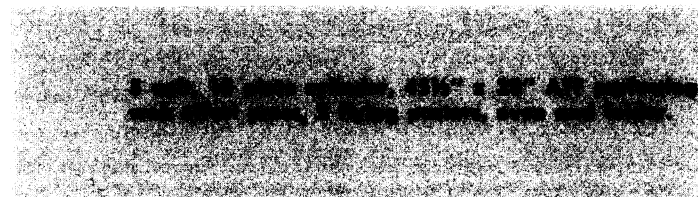
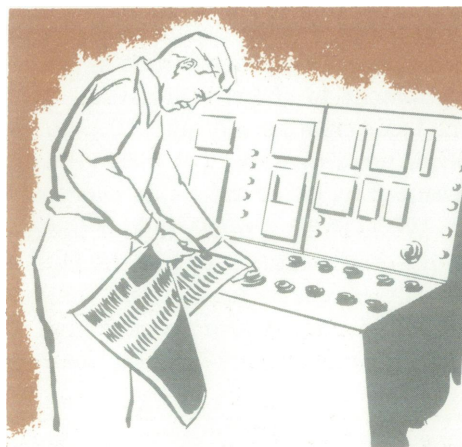
Web offset in the business forms industry is distinctly different

from other segments of the printing industry. The presses are of the "in-line" design and each installation is customized with a variety of different inline bindery operations added according to the needs of the individual plant.

More and more of the business forms work is going on web offset presses. Rubber plate presses are a diminishing factor and only short runs, specialty forms and straight padded forms remain for the sheet fed offset presses. With the expansion of electronic process data usage, the business forms industry can foresee a healthy future with web offset a prime factor.

In all fields of web offset work, the competitive pressures are creating the need for greater utilization of available manpower. In some shops, "packer boys" or "joggers" are never permitted to work on the presses even during the makeready operation. In the majority of instances however, the basic press crews (Pressmen and feeders) prefer to have this extra help during the makeready operation and again in the majority of instances it is being utilized. Therefore, it is only logical that "Packer boys" or "Joggers" should be considered as an integral part of the crew and their jobs be considered as the primary step in the learning of their trade.

Throughout the industry, the titles attached to the jobs performed on web equipment are numerous, varied, and completely befuddling. There is absolutely no standardization of these job titles and the result is much confusion and misunderstanding. Outside of the First Pressman, one cannot be certain of what job a man has if you go by his job title.

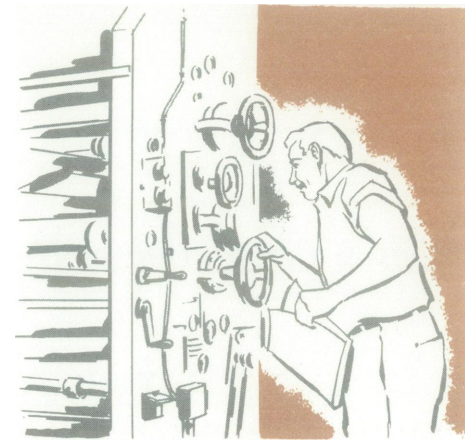


As an example, the third man on a multi-unit web offset press is known by not less than nine (9) different titles around the industry. From city to city and even from shop to shop within the same city, the titles are different.

Without question, some determined effort must be made to eliminate this needless confusion and arrive at a standardization of all job titles. Without such clarification, it is difficult if not impossible to make competitive comparisons or to find information or guide posts in available statistics.

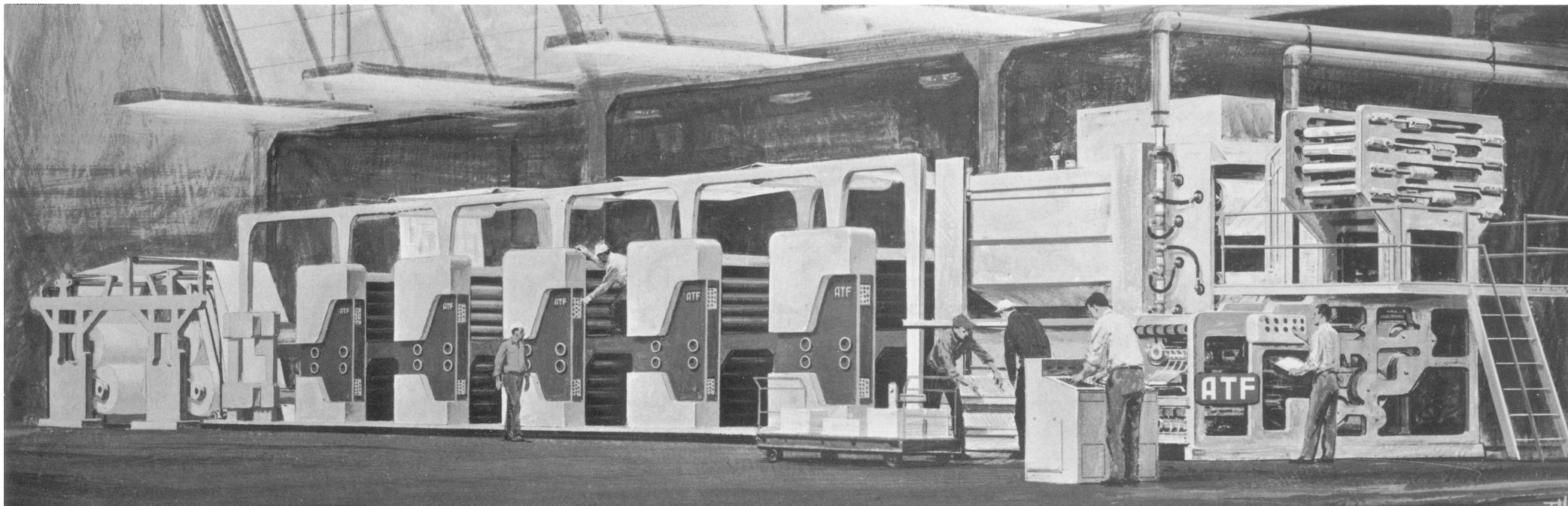
The cost of equipment is more and more driving the medium size plants out of existence. The future will hold *more* mergings of plants, outright purchases of plants by other plants, and the creation of more chains of plants as a result of the greater capital requirement of today's and tomorrow's printing industry.

At this point the LPIU does not have the willing support or recommendations of some of the major equipment manufacturers. It is extremely important that steps be taken to improve these relationships. As conditions now exist, some of these manufacturers actually guide users of their equipment away from our union. Such is not in keeping with any sound programs designed to advance with the rapidly growing web offset industry.



With proper approaches to the many problems in web offset, it will continue to grow, progressing deeper and deeper into fields previously within the realm of letterpress, gravure, and sheet fed offset. More and more magazines and newspapers will go to web offset and virtually all of the textbook publication field will turn to it in the foreseeable future.

All things considered, it is very important that we carefully study our position in the web offset field, change with a changing industry, and take measures to establish and adopt sound programs conducive to our thoroughly organizing this fast growing segment of the lithographic industry.



Number & Circulation of U. S. Weekly Newspapers, by State & Printing Process, 1963

<i>State</i>	NUMBER				CIRCULATION*				
	<i>Total</i>	<i>Offset</i>	<i>Letter- Press</i>	<i>Percent Offset</i>	<i>Total</i>	<i>Offset</i>	<i>Letter- press</i>	<i>Percent Offset</i>	<i>Average Offset Circulation</i>
Alabama	107	18	89	16.8	295,415	55,422	239,993	18.8	3,260
Alaska	9	2	7	22.2	13,263	1,200	12,063	9.0	600
Arizona	53	17	36	32.1	171,636	107,566	64,070	62.7	6,723
Arkansas	133	6	127	4.5	243,279	23,029	220,250	9.5	3,838
California	492	91	401	18.5	4,281,489	652,773	3,628,716	15.2	7,173
Colorado	123	13	110	10.6	230,012	29,769	200,243	12.9	2,290
Connecticut	47	20	27	42.6	301,107	75,985	225,122	25.2	3,799
Delaware	14	6	8	42.9	47,703	26,553	21,150	55.7	4,426
Florida	135	44	91	32.6	423,435	179,667	243,768	42.4	4,083
Georgia	195	36	159	18.5	443,139	124,798	318,341	28.2	3,566
Hawaii	3	1	2	33.3	15,945	4,035	11,910	25.3	4,035
Idaho	72	4	68	5.6	117,090	20,401	96,689	17.4	5,100
Illinois	580	118	462	20.3	2,474,773	902,709	1,572,064	36.5	7,919
Indiana	228	29	199	12.7	512,301	58,454	453,847	11.4	2,016
Iowa	374	33	341	8.8	732,673	66,672	666,001	9.1	2,020
Kansas	268	17	251	6.3	371,933	34,851	337,082	9.4	2,050
Kentucky	143	19	124	13.3	365,946	51,913	314,033	14.2	2,732
Louisiana	107	34	73	31.8	251,060	86,212	164,848	34.3	2,536
Maine	39	4	35	10.3	111,224	8,782	102,442	7.9	2,196
Maryland	60	23	37	38.3	314,622	156,871	157,751	49.9	6,820
Massachusetts	154	41	113	26.6	651,191	152,676	498,515	23.4	3,724
Michigan	294	35	259	11.9	998,088	131,256	866,832	13.2	3,750
Minnesota	355	28	327	7.9	774,856	160,006	614,850	20.6	5,926
Mississippi	104	7	97	6.7	203,407	17,753	185,654	8.7	2,536
Missouri	301	43	258	14.3	629,435	135,969	493,466	21.6	3,162

*As of September, 1962; includes newspapers published once, twice or three times a week.

Source: 1964 *Editor & Publisher International Year Book*

Number & Circulation of U. S. Weekly Newspapers, by State & Printing Process, 1963

State	NUMBER				CIRCULATION*				
	Total	Offset	Letter- Press	Percent Offset	Total	Offset	Letter- press	Percent Offset	Average Offset Circulation
Montana	68	6	62	8.8	115,028	9,151	105,877	8.0	1,525
Nebraska	219	9	210	4.1	383,314	20,447	362,867	5.3	2,272
Nevada	20	2	18	10.0	40,664	2,154	38,510	5.3	1,077
New Hampshire	32	9	23	28.1	95,253	28,544	66,709	30.0	3,172
New Jersey	291	59	232	20.3	1,169,857	306,826	863,031	26.2	5,200
New Mexico	29	8	21	27.6	97,652	45,694	51,958	46.8	6,528
New York	475	123	352	25.9	1,673,242	565,144	1,108,098	33.8	4,632
North Carolina	146	22	124	15.1	434,574	52,380	382,194	12.1	2,381
North Dakota	104	9	95	8.7	166,984	6,534	160,450	3.9	817
Ohio	256	32	224	12.5	990,238	106,382	883,856	10.7	3,324
Oklahoma	209	16	193	7.7	334,433	34,827	299,606	10.4	2,177
Oregon	105	29	76	27.6	238,503	91,403	147,100	38.3	3,152
Pennsylvania	280	53	227	18.9	1,074,388	255,016	819,372	23.7	4,812
Rhode Island	12	5	7	41.7	50,417	27,570	22,847	54.7	5,514
So. Carolina	80	10	70	12.5	202,919	29,273	173,646	14.4	2,927
So. Dakota	150	6	144	4.0	179,876	7,933	171,943	4.4	1,322
Tennessee	122	39	83	32.0	316,835	132,070	184,765	41.7	3,386
Texas	520	78	442	15.0	1,018,435	218,603	799,832	21.5	2,803
Utah	52	9	43	17.3	117,237	32,330	84,907	27.6	3,592
Vermont	20	2	18	10.0	34,352	4,618	29,734	13.4	2,309
Virginia	103	26	77	25.2	324,241	98,824	225,417	30.5	3,801
Washington	151	43	108	28.5	616,958	291,941	325,017	47.3	6,789
W. Virginia	87	10	77	11.5	201,225	18,253	182,972	9.1	1,825
Wisconsin	257	70	187	27.2	558,846	190,408	368,438	34.1	2,720
Wyoming	31	2	29	6.5	55,697	4,567	51,122	8.2	2,288
U. S.	8,209	1,366	6,843	16.6	25,466,190	5,846,222	19,619,968	23.0	4,280

*As of September, 1962; includes newspapers published once, twice or three times a week.

Source: 1964 Editor & Publisher International Year Book

Number & Circulation of U. S. & Canadian Daily Newspapers, by State & Printing Process, 1964

<i>State</i>	NUMBER				CIRCULATION*				
	<i>Total</i>	<i>Offset</i>	<i>Letter- Press</i>	<i>Percent Offset</i>	<i>Total</i>	<i>Offset</i>	<i>Letter- press</i>	<i>Percent Offset</i>	<i>Average Offset Circulation</i>
Alabama	21	.....	21	0.0	708,970	.....	708,970	0.0	.....
Alaska	6	.....	6	0.0	57,268	.....	57,268	0.0	.....
Arizona	13	4	9	30.8	358,905	9,754	349,151	2.7	9,754
Arkansas	34	3	31	8.8	395,256	20,401	374,855	5.2	6,800
California	127	10	117	7.9	5,257,557	62,859	5,194,698	1.2	6,984
Colorado	25	2	23	8.0	644,412	5,946	638,466	.9	2,973
Connecticut	25	.....	25	0.0	835,846	.....	835,846	0.0	.....
Delaware	3	.....	3	0.0	129,082	.....	129,082	0.0	.....
District of Columbia.....	3	.....	3	0.0	899,497	.....	899,497	0.0	.....
Florida	47	6	41	12.8	1,675,769	16,002	1,659,767	1.0	4,001
Georgia	30	4	26	13.3	951,730	20,966	930,764	2.2	5,242
Hawaii	5	.....	5	0.0	196,657	.....	196,657	0.0	.....
Idaho	15	2	13	13.3	155,490	10,959	144,531	7.0	5,480
Illinois	82	4	78	4.9	3,817,494	49,235	3,768,259	1.3	12,309
Indiana	91	6	85	6.6	1,709,398	32,531	1,676,867	1.9	5,422
Iowa	44	.....	44	0.0	948,761	.....	948,761	0.0	.....
Kansas	52	4	48	7.7	661,004	18,785	642,219	2.8	4,696
Kentucky	26	2	24	7.7	720,751	9,857	710,894	1.4	4,929
Louisiana	21	3	18	14.3	755,405	19,683	735,722	2.6	6,561
Maine	9	.....	9	0.0	253,130	.....	253,130	0.0	.....
Maryland	12	.....	12	0.0	748,500	.....	748,500	0.0	.....
Massachusetts	48	.....	48	0.0	2,321,713	.....	2,321,713	0.0	.....
Michigan	53	1	52	1.9	2,285,466	5,155	2,280,311	.2	5,155
Minnesota	30	2	28	6.7	1,064,061	25,428	1,038,633	2.4	12,714
Mississippi	20	1	19	5.0	297,964	1,760	296,204	.6	1,760

*As of September, 1963.

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Source: 1964 Editor & Publisher International Year Book

Number & Circulation of U. S. & Canadian Daily Newspapers, by State & Printing Process, 1964

<i>State</i>	NUMBER				CIRCULATION*				
	<i>Total</i>	<i>Offset</i>	<i>Letter- Press</i>	<i>Percent Offset</i>	<i>Total</i>	<i>Offset</i>	<i>Letter- press</i>	<i>Percent Offset</i>	<i>Average Offset Circulation</i>
Missouri	53	5	48	9.4	1,783,277	19,909	1,763,368	1.1	3,982
Montana	16	1	15	6.3	173,997	2,975	171,022	1.7	2,975
Nebraska	20	.....	20	0.0	477,434	.....	477,434	0.0	.....
Nevada	7	1	6	14.3	113,077	2,280	110,797	2.0	2,280
New Hampshire	9	1	8	11.1	134,521	10,500	124,021	7.8	10,500
New Jersey	27	1	26	3.7	1,596,805	12,885	1,583,920	.8	12,885
New Mexico	19	1	18	5.3	189,719	2,005	187,714	1.1	2,005
New York	85	6	79	7.1	7,516,461	66,702	7,449,759	.9	13,340
North Carolina	47	3	44	6.4	1,137,911	33,818	1,104,093	3.0	11,273
North Dakota	11	.....	11	0.0	168,436	.....	168,436	0.0	.....
Ohio	96	4	92	4.2	3,266,766	14,236	3,252,530	.4	4,745
Oklahoma	51	3	48	5.9	770,454	12,335	758,119	1.6	4,112
Oregon	22	3	19	13.6	636,450	20,758	615,692	3.3	6,919
Pennsylvania	119	9	110	7.6	4,213,982	928,575	3,285,407	22.0	132,654
Rhode Island	7	.....	7	0.0	304,685	.....	304,685	0.0	.....
South Carolina	17	1	16	5.9	506,252	13,321	492,931	2.6	13,321
South Dakota	11	1	10	9.1	166,479	3,132	163,347	1.9	3,132
Tennessee	30	4	26	13.3	1,057,653	30,313	1,027,340	2.9	7,578
Texas	116	14	102	12.1	2,962,940	77,662	2,885,278	2.6	5,547
Utah	5	.....	5	0.0	254,149	.....	254,149	0.0	.....
Vermont	8	1	7	12.5	92,857	5,543	87,314	6.0	5,543
Virginia	32	1	31	3.1	943,452	3,005	940,447	.3	3,005
Washington	25	1	24	4.0	954,436	6,958	947,478	.7	6,958
West Virginia	31	.....	31	0.0	479,716	.....	479,716	0.0	.....
Wisconsin	38	.....	38	0.0	1,138,623	.....	1,138,623	0.0	.....
Wyoming	10	.....	10	0.0	70,726	.....	70,726	0.0	.....
U. S.	1,754	115	1,639	6.6	58,961,344	1,576,233	57,385,111	2.7	5,512**

*As of September, 1963.

**Median

Source: 1964 Editor & Publisher International Year Book

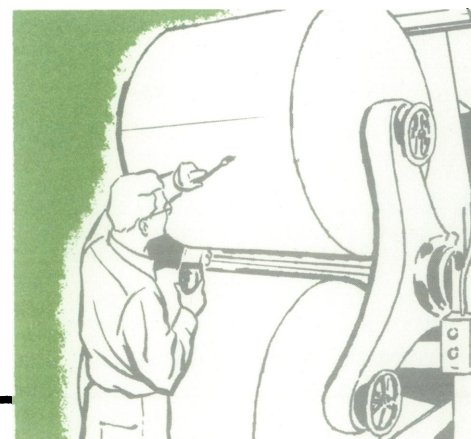
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<i>Canada</i>									
Alberta	6	6	0.0	272,496	272,469	0.0
British Columbia	14	1	13	7.1	466,575	6,363	460,212	1.4	6,363
Manitoba	6	2	4	13.3	219,114	2,961	216,153	1.4	2,961
New Brunswick	6	.....	6	0.0	97,557	.....	97,557	0.0	.....
New Foundland	3	.....	3	0.0	28,678	.....	28,678	0.0	.....
Nova Scotia	6	.....	6	0.0	157,710	.....	157,710	0.0	.....
Ontario	46	1	45	2.2	1,757,084	2,587	1,754,497	.1	2,587
Prince Edward	3	.....	3	0.0	26,925	.....	26,925	0.0	.....
Quebec	13	.....	13	0.0	1,052,506	.....	1,052,506	0.0	.....
Saskatchewan	4	.....	4	0.0	111,804	.....	111,894	0.0	.....
Canada	107	4	103	3.7	4,190,512	11,911	4,178,601	.3	3,970
Canada & U.S.	1,861	119	1,742	6.4	63,151,856	1,588,144	61,563,712	2.5	5,480**

*As of September, 1963.

**Median

Source: 1964 Editor & Publisher International Year Book



Glossary of Terms:

ANGLE BAR

Metal bar laid horizontally at a 45° angle from the direction of the press. Used to turn the web when feeding from the side or to bypass the former in ribbon folding. Often filled with air and perforated to reduce friction from web travel.

ANGLE BAR FOLD

See Ribbon Fold.

AUXILIARY ROLL STAND

A second roll stand that can be mounted on top of another roll stand. Reduces down time by permitting one stand to be reloaded while the other is still unwinding. Can not be used to feed two webs at the same time unless converted to a Dual Roll Stand. See Dual Roll Stand.

BLANKET-TO-BLANKET PRESS

Refers to a perfecting press in which the web runs between two blanket cylinders, each of which acts as the impression cylinder for the other. Also referred to as a Unit Perfecting Press.

CHILL ROLLS

See Cooling Rollers.

CHOPPER

Mechanism which accomplishes the Chopper Fold. Signature is conveyed from the first parallel fold in a horizontal plane, spine forward, until it passes under a reciprocating blade which forces it down between folding rollers to complete the fold.

CHOPPER FOLD

Also called a Cross Fold or Right Angle Fold. The fold can only be made following the First Parallel Fold and at right angles to it. Produces signatures that are 16-page multiples of the number of webs in the press, $\frac{1}{4}$ web width x $\frac{1}{2}$ cut-off length.

CHUCKS

Mechanisms inserted at ends of core to support paper roll on roll stand.

COCKING ROLLER

See Guide Roller.

COMPENSATORS

Adjustable rollers used in folder feed mechanism to control tension of web and keep it smooth.

COOLING ROLLERS

Also called Chill Rolls. Located immediately after the drying oven and used to reduce the temperature of the web from the approximately 350° of the oven to the setting temperature of the heat-set inks . . . about 80° or 90°.

CORE

Shaft in center of roll around which the web is wound. May be either metal or paper returnable or disposable.

CROSS FOLD

See Chopper Fold.

CROSS PERFORATION

Perforations made at right angles to the direction of web travel to prevent bursting of signature during folding.

DANCER ROLL

Sometimes called a Rider Roller. A weighted roller which rides on the web between the paper roll and the metering unit to take up slack and to keep the web at a uniform tension. It is interlocked with a braking mechanism on the roll to control unwinding.

DOUBLE IMPRINT UNIT

Two sets of printing cylinders to permit imprint to be changed while press is running at full speed.

DRYER

Also called Drying Oven. An oven through which the web passes after it leaves the last printing unit. Used with heat-set inks. Heats web at about 350° using either gas electricity or steam to dry the vehicles. Air blasts are used to drive off volatile gases. Results in higher setting temperature for ink.

DRYING OVEN

See Dryer.

DUAL ROLL STAND

Roll stand supporting two rolls one above the other in order to feed two webs at the same time, or to reduce reloading down time if only a single web is being used.

FAN DELIVERY

Water-wheel type rotary units used to transfer folded signatures from various folding sections to conveyors that carry them to the press delivery.

FIRST PARALLEL FOLD

Also called Tabloid Fold when the web has been slit in half longitudinally. Made in the jaw folder immediately following the former fold (see Jaw Folder). Results in 8-page multiples of the number of webs in the press, signature size $\frac{1}{2}$ cut-off length x $\frac{1}{2}$ web width.

FLYING PASTER

Automatic pasting device that splices a new web of paper onto an about-to-be depleted roll, without stopping the press.

FORMER

A triangular device on a folder, slanted at a steep angle from the horizontal, point downward, over which the web travels to be folded in half longitudinally prior to entering the jaw folder. A roller at the top keeps the web smooth, a rounded nose at the point cushions the web, and tiny air jets at the edges and nose reduce web friction. May be equipped with pasting mechanisms.

FORMER FOLD

The fold made by the Former Folder as the web passes over the former. Sometimes called a Newspaper Fold.

FORMER FOLDER

A folder which uses a former to fold the web in half—in the direction of travel—before it enters the jaw folder. Can refer to the complete folding unit, or only to this first fold.

GUIDE ROLLER

Sometimes called a Cocking Roller. Located on roll stand between roll of paper and dancer roll. Can be cocked to compensate for slight paper variation.

HEAT-SET INKS

Special inks for high speed printing which set rapidly when they are heated and quickly chilled.

IDLER ROLLERS

Any free turning grated roller used to support and guide the web as it travels through the press. Often used in the trade interchangeably with Web Lead Rollers.

IMPRINT UNIT

Used to print imprints on one side of the web, from rubber plates.

IN-FEED ROLLERS

See Metering Unit.

JAW FOLD

Fold made by jaw folder. Also called a Tucker Fold or Parallel Fold.

JAW FOLDER

Consists of three cylinders between which the web passes to make one or two parallel folds at right angles to the direction of web travel. The lead edge of the web is caught on pins which carry it around the first cylinder. Half way around tucker blades on this cylinder force the center of the signature-to-be into folding jaws on the second cylinder. At the same time a cut-off knife separates the tail of the signature from the web. The signature is carried around and released by the jaws and the cycle continues. The signature can be passed to the third cylinder in a similar manner to make the second parallel fold.

MAIL FOLD

See Second Chopper Fold.

METERING UNIT

Sometimes called In-Feed Rollers. Series of three rollers (two driven, one free) mounted on roll stand. Used to smooth the web and control its tension and speed as it feeds from roll into first printing unit.

NEWSPAPER FOLD

See Former Fold.

OPEN PRESS

Blanket-to-steel press.

PARALLEL FOLD

See Jaw Fold.

PASTER

Device used to apply fine line of paste on either or both sides of the web to produce finished booklets in which paste replaces stitching. Paste can be applied only in the direction of web travel.

QUARTER FOLD

See Chopper Fold.

REGISTER MOTOR

An optional attachment to enable circumferential and lateral register adjustments from a remote control station.

REWINDER

A unit which rewinds the printed web into a roll should sheeting or folding not be desirable.

RIBBON FOLD

Often called an Angle Bar Fold. Web is slit into multiple ribbons which use angle bars to bypass the former. Ribbons are brought together at the jaw folder for folding and cut-off into desired signatures.

RIDER ROLLER

See Dancer Roll.

ROLL STAND

Frame and mechanism for supporting roll of paper as it unwinds and feeds into the press.

SCHOOL BOOK PERFORATING

Special cross perforation parallel to the spine of jaw-folded signatures used mostly in school examination books from which students tear answer sheets, leaving question parts of pages bound into book. Similar to check book work.

SECOND CHOPPER FOLD

Also called a Mail Fold. Accomplished in same manner as Chopper Fold, immediately following and parallel to it. Produces long narrow signatures that are 32-page multiples of webs used, $\frac{1}{4}$ web width x $\frac{1}{2}$ cut-off length.

SECOND PARALLEL FOLD

Made in jaw folder immediately after the First Parallel Fold and parallel to it (see Jaw Folder). Results in 16-page multiples of the number of webs in the press, signature size $\frac{1}{2}$ web width x $\frac{1}{4}$ cut-off length.

SHEETER

A rotary unit over which the web passes to be cut into individual sheets for stacking if desired.

SIDE ROLL STAND

Located at the side of the press rather than in line. An optional arrangement to permit most efficient space utilization. Web is guided into line by angle bars.

STACKER

Device attached to delivery conveyor to collect, compress and bundle signatures.

TABLOID FOLD

See First Parallel Fold.

TANDEM ROLL STAND

Dual or single stands one behind the other, for feeding multiple webs through a press at the same time.

TUCKER BLADE

Reciprocating knife-like device used to force signature into jaws when making a jaw fold, or between rollers when making a Chopper Fold. See Jaw Folder.

TUCKER FOLD

See Jaw Fold.

TURNING BARS

See Angle Bars.

UNIT PERFECTING PRESS

See Blanket-To-Blanket Press.

WEB

Continuous ribbon of paper as it unwinds from a roll and threads through the press.

WEB CLEANER

Vacuum cleaner located ahead of the first printing unit to remove foreign particles that might damage the plates or blankets.

WEB LEAD

Amount of paper in the press when threaded.

WEB LEAD ROLLERS

Pair of grated idler rollers located between printing units on blanket-to-blanket presses in line with lower blanket cylinder. Used to support the web between units, preventing wrinkling and controlling web wrap. Individual rollers are used to guide web when bypassing individual printing units.

