
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

<http://books.google.com>



BOOK
COMPOSITION

KE 27209

Harvard College Library



THE GIFT OF

~~CANCELLED~~
FROM
~~BAKER LIBRARY~~

FOR THE
GRADUATE SCHOOL OF
BUSINESS ADMINISTRATION

CANCELLED
FROM
BAKER LIBRARY

TYPOGRAPHIC TECHNICAL SERIES FOR APPRENTICES—PART II, No. 20

BOOK COMPOSITION

PART I: COMPOSITION OF PAGES

PART II: IMPOSITION OF PAGES

CHAPTERS FROM DE VINNE'S
"MODERN METHODS OF BOOK COMPOSITION"

REVISED AND ARRANGED BY

J. W. BOTHWELL

THE DE VINNE PRESS, NEW YORK



PUBLISHED BY THE COMMITTEE ON EDUCATION
UNITED TYPOTHETAE OF AMERICA

1918

KE 27209



Trans. of HCL

Copyright, 1918

United Typothetae of America
Chicago, Ill.

Composition and electrotypes contributed by
THE DE VINNE PRESS
NEW YORK

PREFACE

THE following pages are selected chapters from "Modern Methods of Book Composition," by the late Theodore Low De Vinne, founder of The De Vinne Press, New York.

Mr. De Vinne's book is without doubt the most carefully prepared and helpful treatise on the subject that has ever been compiled.

The pages of this volume were revised and arranged by Mr. James W. Bothwell, treasurer of The De Vinne Press, through whose courtesy and co-operation the Committee is enabled to include these valuable pages as one of the books comprising the Typographic Technical Series for Apprentices.

Grateful acknowledgment is also made to The De Vinne Press for contributing the composition and electroplates for printing this volume.

COMMITTEE ON EDUCATION,
UNITED TYPOTHETAE OF AMERICA.

CONTENTS

PART I

	PAGE
PREFACE	iii
COMPOSITION	
TIME-WORK AND PIECE-WORK	1
CUSTOMARY ROUTINE ON BOOKS	2
HAND-WORK AND MACHINE-WORK	6
PROPER METHODS OF HAND-WORK	7
RECENT MANNERISMS	12
COMPOSITION OF BOOKS	
TITLE-PAGE	18
DEDICATION	31
TABLE OF CONTENTS	32
TABLE OF ILLUSTRATIONS	33
PARTS AND HALF-TITLES	33
CHAPTER HEADINGS	34
SYNOPSIS	35
PREFACE AND INTRODUCTION	36
SUBHEADINGS	37
EXTRACTS	39
NOTES	40
ILLUSTRATIONS	41
RUNNING TITLES AND PAGING	42
APPENDIX AND INDEX	46
POETRY	47
INITIAL LETTERS	49
HEAD-BANDS AND TAIL-PIECES	56

	PAGE
DIFFICULT COMPOSITION	
ALGEBRA	65
MAKING UP	
GENERAL RULES	89
THE RUNNING TITLE	84
SIGNATURES	94
NOTES AND ILLUSTRATIONS	96
PART II	
STONE-WORK	
STONES AND CHASES	107
ADJUSTING MARGINS	111
LOCKING UP	118
TAKING PROOFS	128
CLEARING AWAY	133
IMPOSITION	
ELEMENTARY PRINCIPLES	137
FORMS OF FOUR AND EIGHT PAGES	142
INSET FOLIOS OF USUAL FORM	148
MUSIC OR OBLONG WAY	151
SIXTEEN AND THIRTY-TWO PAGES	153
TWELVE PAGES AND THEIR DUPLICATES	163
EIGHTEEN PAGES AND THEIR DUPLICATES	175
TWENTY, FORTY, AND EIGHTY PAGES	179
THE LEAFLET	182
SMALL PAMPHLETS	183
CONCLUDING REMARKS	185
REVIEW QUESTIONS	189

PART I

COMPOSITION

Time-work and piece-work . . . Customary routine on books
Hand-work and machine-work . . . Proper methods of
hand-work . . . Recent mannerisms

TIME-WORK AND PIECE-WORK

Composition in every book-house is done by two sets of workmen that are respectively called time-hands and piece-hands. It is oftenest a matter of contract. The publisher requires an employing printer to furnish perfected composition at a fixed price per page or per thousand ems. In turn the master printer agrees with his piece-compositors to have them do the type-setting part of plain composition at a fixed price per thousand ems. The price given to the compositors includes the distribution of type and the correction of the compositor's faulty work as it may be marked by the office proof-reader, but it does not include other service that is needed to perfect the contract with the publisher. Making up and stone-work, proof-reading and superintendence, all of equal importance, are not paid for by the piece, for the work done in each one of these departments is of too irregular a nature and is too unequal in its requirements of time and dexterity to be adjusted by fixed prices. They must be done by day's work, or "on time," as printers phrase this method. The cost of this supplementary work is variable, seldom less and

often more than one half of the cost of the type-setting that has been done by piece-hands. Although the composition of books is usually rated as piece-work, it should be understood that about one half of it in value is time-work of uncertain cost.¹

CUSTOMARY ROUTINE ON BOOKS

When an agreement has been concluded with the author about the style of an intended book, the copy should be examined by an expert, who will take note of the possible need of additional sorts that may be required in excess. These sorts may be accents, signs, small capitals, italic, figures, or new characters, but they should be procured and put in case before the copy is given to the compositor.² To begin composition without the needed materials, and to "turn for sorts," is always wasteful of time and productive of error. Obeying general directions, the expert may specify the types for chapter headings, subheadings, tables, extracts, and notes, and must try to give proper directions for uniformity in the use of capitals, italic, quotation-marks, etc. Here his duty ends. He must not edit.

Copy is invariably given out to piece-compositors in portions known as "takes," which will vary in quantity from ten to one hundred lines or more. Short takes are given when work is in haste, and the compositors are required to empty composed matter on galley in a prescribed order. By this method the galley is quickly filled, and may be as quickly read and corrected. Long takes are

¹ Spelling, abbreviation, punctuation, and other matters that belong to the literary side of type-setting have been noticed in the treatise on *Correct Composition*. In this and following chapters, remarks and suggestions have to be confined to the purely mechanical side of book composition.

² It is not wise to order sorts in small quantities by a guess as to their weight. Specify the number wanted of each character.

given when work is not in haste and when the compositors are of nearly equal ability.

The compositor should give close attention to spoken and written instructions before he begins to set type. If they are insufficient, he should ask all the necessary questions. In no case should he begin composition until he knows what he must do with every uncertain feature of his copy.

Print is always more readable when each change in its description or its argument is presented in a fresh paragraph. Dialogue matter should have a new paragraph for the words of every speaker, but the paragraphing should have been settled by the author in the copy. If the compositor thinks that the matter is too solid, he may show it to the foreman and ask him or whoever is in authority to decide the doubt, but the making of a new paragraph is not in his province.

Make-up and stone-work are now performed in all American book-houses by men appointed by the foreman. Their service is paid for "on time," for make-up by the piece, which may seem the cheaper and quicker method, is too often done wastefully, apart from its imposing needless labor upon other time-hands. It is seldom well done in all details unless the time and methods of the maker-up are entirely under the control of the foreman.

Compositors deliver their copy and the matter as it is set to the maker-up, who has their galleys proved, and then passes the copy and proof to the proof-reader. Illustrations furnished with copy that cannot be proved on the galley are put by him in the proper place as attachments to the proof, and subsequently measured and allowed for at the same rate as composed type; but all the other fat matter that has been composed and arranged by the maker-up, as full-page cuts, head- and foot-lines, chapter heads and tails, is not reckoned for the benefit of the piece-compositor. The illustrations, often delayed for

many days, are seldom furnished until type is ready for make-up.

Electrotyping has materially changed the old routine and has put extra labor on the stoneman. Instead of imposing sixteen pages of octavo in one chase, the stoneman now has to put one large or four small pages in the chase, and to give more attention to many small chases than he formerly gave to one chase. When great nicety of moulding is desired, one page only is put in a chase, and additional bearers have to be added in every exposed blank. The time now allowed for the proper preparation of the pages is much greater than that heretofore given to the ordinary letterpress form.

The maker-up rearranges the copy in order, and compares it with the composed type on galley to make sure that there have been no omissions or transpositions. A proof of the galley is then taken.

Proof-paper should be thin, sized, smooth, and but lightly dampened. Ink should be stiff and repeatedly rolled on the ink-table, so that it can be thinly and evenly distributed upon the type, which should be rolled slowly and carefully to produce a readable proof. An overinked proof prevents the reader from detecting imperfect letters.

When the reader has marked all the errors noted in the proof, has put down his queries, and has checked in proper places the names of the compositors, the proof is returned to the compositors for correction. Unless otherwise directed, correction takes precedence over all other work. Each compositor corrects the errors of his own composition, and passes the galley to the compositor next in order until correction is complete. A proof for revise is then taken, and the reviser compares this revise with the first proof. If any error marked has been neglected or wrongly corrected, this error is again marked on the revise, and is returned to the neglectful compositor, who is required to correct it properly and to furnish a

clean proof. The galley so corrected is returned by the compositor with the corrected proof to the maker-up.

When the matter is a strict reprint that will not receive any change in text, the maker-up proceeds to put it in page form, and the pages so made up are then imposed in a chase. If, however, a chase is not to be had, the tied-up pages are laid on the stone, and a pounded proof is taken with the proof-planer from the pages still in the strings. This is not a procedure to be recommended, for proving in strings tends to displace thin letters at the ends of lines and to work types off their feet, but it is often an unavoidable practice. After ink on the proved type has been imperfectly removed with a brush moistened with benzine,¹ the page is inclosed in a wrapper of stout paper and is put on a letter-board or bank for future use.

For manuscript copy that may receive changes in the text, another proof should be taken on the galley, and this proof should be sent with the first proof corrected to the proof-reader, who adds his queries, stamps it with the proper date, and forwards it to the author with the copy. The author returns it with his alterations, but he may require another proof containing the correction of these alterations. It is always a great risk to make up before the author has finished corrections, or before the cuts or diagrams are ready. Overrunning of type in made-up pages is slow and expensive.

When the author has nothing more to add, and all the illustrations are in their places, the matter may be made

¹ The cleaning of proved type is usually the duty of the office-boy, who often does this work slightly. His few passes of the brush over the type may clean the face, but they push much undissolved ink over the face on the shoulders and in the counters of the type. In these places the adhering ink receives daily deposits of fine dust, and dries slowly, until it is so firmly attached to the metal that it has to be removed by steam or boiling lye. It is better to prevent than to cure this fault. A moist sponge, following the application of the brush, if properly used, will sop out the gummy deposit left by benzine and foul ink.

up in pages. At this stage the routine differs. In a few houses the second reading of the printing-house is done by the foundry-reader upon the page proof sent to the author. This can be done with safety when it is surely known that nothing more will be added to the proof by the author. A reading of the page proof by the office reader before it will be seen by the author gives the latter more time to consider queries and to approve or disapprove proposed suggestions. In other houses the final reading or the reading for foundry is given only when the author returns the proof as entirely corrected. This is a better method, but it takes more time and may compel the re-submission to the author of another proof.

All proofs sent to an author should be returned to the printing-house, even those that have been faithfully corrected and revised and are apparently of no future value, for every proof contains some memoranda of the readers on the margins that are needed for the perfection of the work.

Book-work should receive two readings at the expense of the office. The compositor is required to make his work correct to copy and to maintain uniformity in style, according to his instructions. After composition has been made correct to copy and is put into pages in a workman-like shape, the printing-house has completed the part of its contract that concerns composition. All changes subsequently made by author or publisher, whether in the type or in the arrangement of paragraphs or illustrations, including the time spent in the re-reading by copy of subsequent proofs caused by overrunning, are rated as author's alterations and are at the publisher's expense.

HAND-WORK AND MACHINE-WORK

Machines for producing composition are now common in most of the printing-houses doing a general class of book or law work.

One reason for the continuance of hand-work in type-setting is the capricious tastes of authors and publishers. Every large printing-house has to provide many faces of roman type, yet few of the faces so selected can be adapted with economy to machines. Types that are very large or very small or of any peculiar face must be set by hand. The composition of books of music, or of plain roman type that has to be interspersed with many faces of display letter, or with complex tables of names or figures, with cut-in notes, or with other odd arrangements, cannot be done economically by an unintelligent mechanism, however skilfully it may be directed. All composition that requires thought, care, and the watchful adaptation of means to ends in every line continues to be done by hand.

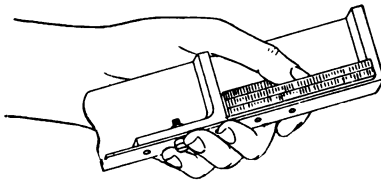
PROPER METHODS OF HAND-WORK

Expertness in composition by hand is acquired by preliminary practice at case—by attention to the trifles that conduce to excellence. Practice should begin with correct methods, and the husbanding of endurance is to be considered first. Type-setting is not hard labor, but it is tiresome, and it will be fatiguing if false positions are taken before the case and needless motions are tolerated. The height of the case, the position of the feet, the distance from the stand, and even the inclination of the stick, affect performance. Some of the positions required, like the twist of the wrist to a boy learning to write, seem irksome in the beginning, but after practice these constrained positions are followed by the least fatigue.

The case should allow a free play and reach of the right arm, but not be placed so low as to cause bending of the back. Properly adjusted, the case may seem too high, but a high case keeps the body erect, shortens the play of the arms, and prevents the weariness that follows continued stooping.

The feet should be so placed that the body can be kept erect and not be swayed too much from side to side. The work of reaching for a distant type should be done largely with the arms. The crosspiece at the base of the stand should seldom be used to rest a tired foot, for the temporary relief it gives is deceptive. The sitting posture, that may be used with propriety in distribution, is a real hindrance to quick composition.

The stick in the left hand should be so inclined that the type put therein will strike the composing-rule at a correct angle. When not exactly inclined,



false and delaying motions will follow. The stick should follow the hand that picks up the

type. It is hard to train both arms to work in concert, but when they do performance is always increased.

The eye should select the type before it is seized by the fingers, and this type should be taken, nick out, on the upper part of the body, so that it will not have to be turned in the fingers.

From a strict reprint copy, the spacing between words should be copied as each word is set. In manuscript the full sentence should be read and thoroughly understood before the first type is seized. Punctuation cannot be properly done when only half or quarter of the sentence is understood. Neglect to read the complete sentence will compel some waste of time in a more frequent inspection of the copy, and will increase the liability to make outs.

The typographic formulas of the house should be understood before composition. Many printing-houses have a printed code for the proper use of capitals, italic, points, and abbreviations, that requires close reading and memorizing.

When foot-notes appear in the copy, these notes, set in small type from another case, should be put next to the line that shows the mark of reference. The maker-up will arrange them in their places.

Justifying spaces in the last or quadrat line of a paragraph should always be put before the quadrats.

Each type should be dropped in the stick quietly, without the nervous haste that produces false motions. A quick compositor never seems in a hurry; he never allows his animation to reach a fidgetiness that deprives him of the perfect control of his hand. False motions come from excessive eagerness to be fast before the hands have been taught to keep their proper pace. The novice should make haste slowly. He should set type quietly and steadily, refrain from talking, and give entire attention to composition. Nerves must be husbanded as well as muscles. Any habit that dulls the sensibilities or disturbs tranquillity is always followed by some mental depression and feebleness in performance.

Quick motions can be acquired by working steadily. To work actively for a few hours and but languidly for the remainder of the day will not produce the desired speed. If a novice finds that he cannot set more than five hundred ems in an hour without undue exertion and a tendency to false motions, he should not attempt more, but he should not allow himself to do less than five hundred. If he works day after day with reasonable earnestness, he will gradually increase performance and will do more work with less effort. The error of many apprentices begins with the unreasonable expectation that they can acquire speed quickly. They try to push execution beyond ability, and in so doing acquire the bad habit of false motions, and become slow compositors for life.

When the compositor can control his time, he should do routine work at set hours, distributing and correcting at the end of the day.

A bright and neat-fitting steel composing-rule, a polished stick, and a clean case free from dust are great aids to composition. Good light is valuable. Light is not always to be controlled, but the rule, stick, and case may be. The workman is known by his tools. A rusted stick or a short or crooked rule will diminish the performance of any workman. Expert compositors own their own sticks and rules, and will use no other. They get used to their size, weight, and feeling, and say that they can do more work with them than with other sticks and rules apparently as good.

To seize a type readily, that type should be allowed to rest exactly where it falls in the box during the process of distribution. The case should not be shaken up, nor should the little mounds formed by distribution be smoothed down. When types are shaken up or flattened down in parallel rows, it is difficult to snap them up. The compositor has to pry them up, and perhaps to turn them around nick out or head up, before they can be laid in the stick.

The fastest compositors, or those who can be fast when they choose, do not usually set the largest quantity of type in a week. In the long race, the steadier men beat them in performance by their superior persistence. The worst compositors—and all who make foul proofs may be so considered—are usually the greatest talkers at work.

All the material needed for the day should be in or near the case before beginning work. To stop composition to distribute, or to search for leads, quads, and extra sorts, is always a hindrance.

The emptying of composed type in a stick calls for some sleight of hand, at which the young compositor often fails. His fault comes from gripping too tightly the lines between his thumbs and forefingers, and neglecting the pressure of the middle fingers at the ends of the lines, where pressure is more needed. He should begin by tak-

ing out one line only. When he takes up two or more lines, he will soon learn where to apply the pressure and how to balance the type. As soon as the type is put upon



the galley he should press it up with his composing-rule, and leave it standing squarely on its feet.

Making up the stick, or adjusting the stick by its slide and screw to the proper width of a given measure, is a work of exactness that cannot be safely intrusted to a young compositor. When two or more compositors are employed on the same work, their sticks should be made up uniformly. A very slight variation of width in the making up of two or more sticks, followed by other slight variations in justification, will give much trouble when the matter is put on stone or on press. Exactness of measure is best secured by the use of a solid metal gauge, about four picas thick, against which the slide is pushed until it is tight. When a solid metal gauge is not to be had, the width of the measure can be formed from a predetermined number of large em quadrats, against which the slide must be set tightly. A line of the letter **M**, frequently used, may not be so accurate, for the greater the number of pieces, the greater the liability to inaccuracy from unequal rubbing at the foundry or from the possible bending or corner-bruising of the types. To make up measure with leads and a thin cardboard between the lead and the slide is another unsafe method for any composition in which more than one stick will be used. Making measure by the gauge of dead matter is equally objection-

able. A fixed gauge should be used to test the stick as well as to form the measure. If this gauge shows that the stick is tight at one end of the slide and loose at the other, it is not true and should be rejected. Spacing too tight, dropping the stick on the floor, making use of the plate of the stick as a turnkey, are some of the careless practices that make sticks untrue.

jeqde st tpe outset of piz practice in tlybe
 s cjeap broof must sedrile tpe know-
 npride down. The compositor who wants
 in tpe illustration, is a reading of letters
 beading tlybe in the stick, as they appear.

The young compositor should read over every line as soon as he sets it, and at once correct any detected error. Before he empties the matter on the galley he should read it again, looking for outs and doublets. The time given to correction in the stick is not time lost. It is easier to correct there than on the galley or the stone, and it is worth a deal of trouble to acquire the reputation of a clean compositor.

The making of pi is frequently unavoidable. A standing rule in many printing-houses is that pi must be distributed on the day it is made. When the maker of this pi is unknown, it is customary to divide it equally among all the compositors for immediate distribution. The operation of this rule seems harsh, but it is for the common advantage. The small heap of pi that remains undistributed overnight invites more carelessness; it is probable that it will be larger at the end of the next day.

RECENT MANNERISMS

A questionable fashion in typography directs that the first line of every paragraph, whether at the beginning, middle,

or ending of a chapter, shall begin flush at the left side of the measure. The only indication that the line which is so treated begins a new paragraph is to be found in the blank that may be left in the last line of the preceding paragraph. When that line is full, there is no indication, and the two intended paragraphs are made one. For this reason the suppression of the em quadrat as the mark of paragraph indention is not a safe practice. It may be and often is proper enough when there is a full white line over the first line of any paragraph, but not otherwise. The em quadrat has been for years the established mark of paragraph indention, and it can be omitted with safety only when it is so ordered.

Ragged endings at the right side of all the lines of the text, as is unavoidable in type-writing, is another novelty. This new mannerism lessens the labor of spacing, but it makes an unsymmetrical page that is displeasing to the reader. Print is preferred to manuscript because it is symmetrical and orderly as well as more readable. To reproduce in print the irregularities of autographic work is an unwise rejection of the uniformity that is the great merit of letterpress printing. Lines of ragged outline may attract attention to an advertisement or an ephemeral pamphlet, but to the reader this raggedness seems slovenly.

Unleaded and thin-spaced composition is preferred by the disciples of William Morris, but it is not liked by the average reader, who does need a perceptible white blank between words or lines of print. During the fifteenth century, when thin leads and graduated spaces were almost unknown and but little used, the reading world had its surfeit of close-spaced and solid type-setting. "It is not probable that readers of this century can be educated to relish a practice that then had no excuse but that of unavoidability." Words can be spaced and lines can be leaded too widely, but a perceptible break of white between words and lines at least as great as the white between the body-

marks or stems of single letters is needed for easy reading. A solid and very thin-spaced composition may be quite acceptable in the text of types on 14-point and larger bodies, when these types have been properly printed on damp paper, for under these conditions ordinary eyesight can discern the shape of each character, but it is not acceptable in any body of small type that has been printed on dry and coated paper, where the eye has to guess at the words and does not clearly discern the forms of single types.

The dense huddling of lines of capital letters, narrowly spaced and without any leads, and the jamming of text types close against illustrations or up to large initial letters

CAPITAL LETTERS NEEDLESSLY HUDDLED BY THIN SPACING AND OMISSION OF SEPARATING LEADS

or surrounding borders, are equally objectionable. The relation of letters to one another should not purposely be made difficult when they can be composed to be read at a glance. Illustrations of all kinds, whether in the form of diagrams, initial letters, head-bands, or borders, need a decent relief of white to show their value. Ruskin wisely says that "the eye is not saddened by quantity of white, but it is saddened and should be offended by quantity of black." This remark can be properly extended to the mutual interference of bold-faced types, or to decorations of any kind when they crowd too close against letters.

Over-wide spacing of single types, of both capitals and lower-case letters, for the purpose of making the running title of a page or every line in a page of display fill the measure, is another caprice. The advantage to be gained by this explosive treatment of types is not apparent. It is never done in the text of a book in short lines of dialogue matter or in poetry. It does not make clearer

or more symmetrical the running title or any subheading. It does not add to the comeliness of a modern book, even

T H E O V E R - W I D E S P A C I N G
O F S I N G L E T Y P E S T H A T
D I S L O C A T E S T H E W O R D S
A N D P R O D U C E S C O N F U S I O N

if it was a style of the seventeenth century. If used at all, it should be only for commercial booklets which are purely ephemeral.

The uncouth letters now provided by type-founders for display sometimes appear in the subheadings of magazines, but the wise publisher forbids their appearance in a library book.¹ The reader and the student have small reason to complain of any ineffectiveness in the modest types that have been used for years with advantage to make clear the difference between the headings and the subject-matter of a book, and they have good cause to protest against rude types that deform printing. The title-page and the subheadings of a book may be judiciously decorated by inclosing their words in a rule border or in many panels of brass rule formed of single or parallel hair-lines, but in some instances the rule is of much bolder face than the type within, and more strikingly attracts the

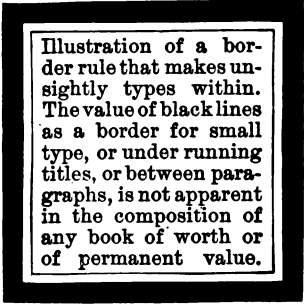
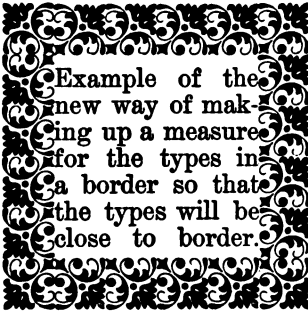


Illustration of a border rule that makes unsightly types within. The value of black lines as a border for small type, or under running titles, or between paragraphs, is not apparent in the composition of any book of worth or of permanent value.

¹ Advertisers are largely responsible for these letters. They properly represent in type the screaming "barker" before a paltry show, or the "hustler" who breaks up an interview and insists on first and immediate attention. This new typographic practice of "getting ahead" of all rivals is damaging to the serious book, for it produces the impression that there is probably an inferiority in matter that is heralded by needless display.

notice of the reader. It often requires energetic protest from author and publisher, the real sponsors of the book,



to prevent a young compositor from adorning its sub-headings with the twisted and fantastic black borders that are now in fashion in Germany, or from overloading the book with hair-line rules that often have attached scraps of decoration.

This unwise fondness for ornamentation often induces the amateur to fill the blanks in the last lines of paragraphs or on each side of the running title of a modern book with petty figments of bordering. There are books on medieval subjects, and some on modern subjects, in which decoration of this kind may be a grace, but it should be selected

REMARKS

ON THE

ART OF MAKING DISPLAY EXTREMELY
DIFFICULT AND EXPENSIVE

WITHOUT

IMPROVEMENT TO ITS CLEARNESS OR BEAUTY,

AND VERY MUCH TO THE DAMAGE

OF ITS SALABILITY

with caution. In the larger part of modern books so treated, this filling up of all blanks with decoration is a positive fault. Ornamented pages intended for printing in black ink seldom need a border bolder than the types within. It should not be necessary to repeat the platitude

that the book is bought to be read for the thought of the author and not to see the fancies of the printer or decorator, but it seems to be needed. A young compositor should always observe this rule of all architects: "You may ornament construction; you must not construct ornament." Types that represent words and thought must have first place; ornamentation of any kind should be subordinate. These mannerisms have been introduced during the last twenty years. It is not unsafe to hazard the assertion that before another twenty years has passed they will be out of fashion, and the book containing them will be in lasting discredit.

When a printer is plainly directed to make use of one or more of these mannerisms, he should do so without question or remark, for it is his plain duty to do what he is told, and to do it intelligently and helpfully, whether he does or does not like the style; but when he has a free hand and is asked to do the composition of a new book in workmanlike manner, he will make no mistake in adhering to methods of simplicity that have prevailed for centuries. It will be safer to accept the leadership of Bodoni and Didot, of Pickering and Whittingham, than that of many recent reformers of typography.

COMPOSITION OF BOOKS

Title-page . . . Preface matter . . . Chapter headings and synopsis . . . Subheadings . . . Extracts . . . Notes and illustrations . . . Running titles and paging . . . Poetry Appendix and index . . . Initials . . . Head-bands, etc.

TITLE-PAGE

Roman capitals of regular form in uneven lines of open display are preferred for the title-page by the largest number of publishers. The lower-case of roman and italic and the capitals of italic are other tolerated styles, but title-pages exclusively in any one of these series are not common. A title-page in roman capitals displayed in a plain manner is most satisfactory for the ordinary book, and it is for the plain title only that these brief remarks are made. Properly selected, their arrangement gives least trouble to the compositor.

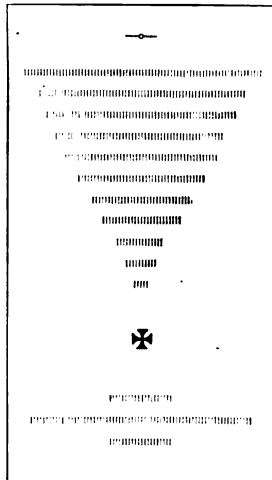
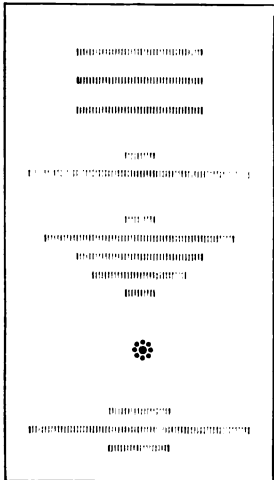
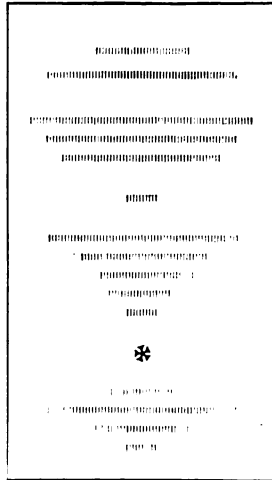
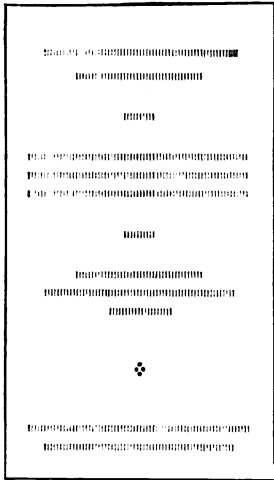
The type of the title should be of the same face as that of the text. This is easier said than done, for there are few text types provided with larger sizes of precisely the same face and fitted for words and lines of different length. This objection has been to a great extent removed, for with the radical change in the method of producing matrices the enormous expense of cutting punches has been eliminated; from one pattern the matrix cutter can produce any size from six to seventy-two points, and almost all the faces suitable for title-pages can now be furnished by the type-founder. However, the compositor must do the best he can with the faces and styles that are available,

but he must avoid harsh contrasts. He should understand at the outset that his composition will be most satisfactory when the types selected show mutual relation. Even one line of italic capitals in a composition otherwise of roman capitals only will make discord. A title-page may be entirely in capitals or entirely in lower-case (initial letters excepted), either in roman or italic, but two series can seldom be used together.¹

The copy for title-page matter should be studied before the first line is put in type. The compositor should predetermine how many lines and how much blank between lines are really needed. He should begin by sketching on a bit of paper the relative size and length of the proposed lines. The first lesson to be learned by him is that the attractiveness of a title-page depends as much on the proper distribution of blank space as on the proper display of important words.

Blanks of different widths are needed between distinct divisions of subject-matter—a broad blank between those that are not closely related, and a narrower one between those that are. To display the matter in the manner of a handbill by making frequent catch-lines and putting blanks of the same width between all the divisions will spoil any title. The broadest blank in titles without device or illustration should be above the publisher's imprint. Catch-lines have to be selected for some title-pages, but they should not be too frequent or in too small type.

¹ Exception may be allowed for a word that calls for peculiar emphasis, for honorary titles in separate lines, and for a line of display with arabic figures. Small capitals that are almost unreadable may be supplanted with small but more readable lower-case. Real old English black-letter of large size may be selected, in a title-page otherwise of roman capitals only, for the name of a book that treats of old English literature, but it is not pleasing in an imprint or for any other short line. The uniformity of face that is the great merit of a page of text should be maintained in a page of title. To mix two faces destroys the bookish feature; it degrades the title to the level of a newspaper advertisement or a handbill.



Suggestions for sketches of titles.

When it is possible to do so, all the words in a title-page should be in types that are as readable as those of the text.¹

An old method of constructing a title-page, not yet out of fashion (usually done in obedience to order of author), was to plan it with many distinct lines, and to crowd the long name of the book in one bold line of condensed type. The short name had its types spaced out to fill the line, for a full line was rated of first importance. These methods did not always give to the title the desired boldness and clearness; in many books they made it feeble and incoherent. A contrast of the old with the new method of treating the title is presented on the following pages.

The name by which the book will be identified should be the boldest line, and the words for this line are usually prescribed by the author. As this line determines the size of other lines, it should be the one first set. Its length or shortness is not of first importance, as is often supposed, but its boldness is: it should be bold enough to arrest attention at the first glance. Condensed types have to be selected for this line when the author insists on putting many words in one line, but this shape of type should be avoided when it is possible. Types slightly compressed are tolerated by the critical, but not when they are visibly pinched. At their best when their letters are not spaced, they are never entirely pleasing either for a scant or a crowded title.

When the letters for the main line of display are few they may be in one short line, but when there are too many for one line, and condensed letter is forbidden, they may be arranged in two lines. The two lines so picked

¹ Large type is not possible for prolix honorary titles, nor for some details added by the publisher, but it is practicable to make all important words noticeable. Pettiness should be avoided as much as overbold display. The strong contrast produced by putting a catch-line of small capitals of nonpareil above or below a large two-line letter, once a grace, is now a real fault. The reader values readability more than he does ingenuity

A HISTORY
OF
CLASSICAL GREEK LITERATURE

BY THE
REV. J. P. MAHAFFY, M.A.

KNIGHT OF THE ORDER OF THE REDEEMER
FELLOW AND PROF. OF ANCIENT HISTORY, TRIN. COLL. DUBLIN
HON. FELLOW OF QUEEN'S COLL. OXFORD
AUTHOR OF 'SOCIAL LIFE IN GREECE' 'PROLEGOMENA TO ANCIENT HISTORY'
'GREEK LIFE AND THOUGHT' 'RAMBLES AND STUDIES IN GREECE'
'THE GREEK WORLD UNDER ROMAN SWAY' ETC.

IN TWO VOLUMES

VOL. II. PART I.
THE PROSE WRITERS
FROM HERODOTUS TO PLATO

THIRD EDITION, REVISED THROUGHOUT

London
MACMILLAN AND CO.
AND NEW YORK
1890

All rights reserved

A HISTORY OF
CLASSICAL GREEK
LITERATURE

BY THE

REV. J. P. MAHAFFY, M. A.

Knight of the Order of the Redeemer; Fellow and Professor of Ancient History, Trinity College, Dublin; Honorary Fellow of Queen's College, Oxford; Author of "Social Life in Greece," "Prolegomena to Ancient History," "Greek Life and Thought," "Rambles and Studies in Greece," "The Greek World under Roman Sway," etc.

IN TWO VOLUMES. VOLUME II. PART I.

THE PROSE WRITERS
FROM HERODOTUS TO PLATO

THIRD EDITION
REVISED THROUGHOUT

LONDON
MACMILLAN AND CO.
AND NEW YORK
1890
All rights reserved

out should be of the same face and nearly, if not exactly, of the same size. They should not be huddled: the blank between them should be about as wide as the height of the type selected.¹ If these meeting lines are of the same length, the letters of one line may be thin-spaced to make it a trifle longer, but the spacing should be slight, so that its increased width will not be at once apparent.² The main line is well placed when it appears as the second or third line on the page. A title with its largest and longest line at the top of the page is always unbalanced and top-heavy. When copy will allow, the introductory article *THE* or *A* may be the first short line.

It is sometimes difficult to compose in an orderly manner the words prescribed when the author requires them in one full line. If the letters for this line are too few, a type unduly large must be used. If smaller type is selected, the line will be short and feeble and the letters must be spaced, but spacing to full width of measure will

¹ This suggestion opposes the practice of some designers who separate lines of large letters with very thin lanes of white space. This is often done even when there is abundance of un-filled space in other quarters of the page. Letters so treated would be more readable if they were shortened in height and more blank were put between lines. The eye has been accustomed to seeing in roman lower-case type decidedly greater relief of white space above and below each line than there is within the letter. This relief of white space is equally needed for capital letters; they need as much space without as within.

² The first line may be long and the second line short, or vice versa, but it is desirable that words closely related in sense shall be kept in the same line. It is not always necessary that two meeting lines of display shall be uneven as to length. When the words in the lines are of equal importance, they should be treated in the same manner, and be spaced or unspaced to have equal distinction, even if they are of the same length. Two contiguous short display lines of equal length are not a fault, but the display will be faulty if one line is purposely made too large and the other too small. The old rule that required a bold full line to be followed by a short inconspicuous line, even when it gave false value to the words of the author, is not observed now by the discreet publisher.

make the line still feebler. Attaching a large capital of the same face as an initial letter will make it practically a line of capitals and small capitals (never pleasing in a title-page), that does not materially increase its boldness. Nor is a large engraved initial of square form helpful; most serviceable at the head of solid text type, it always seems discordant and out of place in the open title-page.

If the letters in the line are too many, condensed type must be selected, but pinched letters make a discord with those of standard width. When two letters only of a type of proper size and shape will not come in, the measure should be widened to take them in. If this is not practicable, set the words in two lines. When types have been chosen of a size to give a proper showing to words, irrespective of the length or shortness of lines, and other details of composition are fairly adjusted, the result will seldom be unsatisfactory. Old-fashioned rules often have to be put aside. They should not be maintained when they cause mean display. Words in a title must be properly presented, even if the old rules are violated.

The copy for a title-page may specify for its main line not one, but four or more distinct words, all of equal importance and all requiring equal prominence. It may be impossible to give them proper prominence in one line or even in two lines. By old methods words of this description were set in two lines—the first line in a very large type, and the second in a smaller type, after this fashion:

A CRITICAL REVIEW
OF
PAINTERS DESIGNERS
ETCHERS AND ENGRAVERS

The only excuse for making this needless distinction in the size of type is the unreasonable rule that required two

meeting lines to be unequal in size and in length. The new method of treating these words for display is simpler, much less troublesome, and more satisfactory to the author.

**A CRITICAL REVIEW OF
PAINTERS
DESIGNERS
ETCHERS AND
ENGRAVERS**

This treatment gives equality to all the words, and the initial letters of each word line vertically, regardless of their irregular endings.

All other short lines of a title-page can be centered by putting equal blanks on each side of every line. The needed irregularity is produced by different sizes of type that make the lines of unequal length, but there should be some symmetry in the apparent irregularity; a pencil line drawn diagonally from the end of a short to the end of the longest line should touch or nearly touch the ends of the intermediate lines. A hair-spacing of one or more intermediate lines may be needed.

When the main line has to be widely spaced, as in a title-page of the Puritan or seventeenth-century style, other lines of display should be wide-spaced, and broad blanks put between the lines above and below the main line. The space between single types in any line of display should be much narrower than that of its proximate blanks. The wide spacing of single types when there are narrow blanks above and below is unpleasing, for it makes the subject-matter incoherent.

Small capitals that have little interior white space may need hair-spacing to make them more distinct. An old

THE
GRAMMAR
OF
ENGLISH GRAMMARS

FIFTY YEARS AMONG AUTHORS,
BOOKS AND PUBLISHERS

THE ART OF ILLUSTRATION
The Art of Illustration

A
SENTIMENTAL JOURNEY
THROUGH
FRANCE AND ITALY

CRITICAL AND MISCELLANEOUS
ESSAYS

ONE HUNDRED BOOKS
FAMOUS IN
ENGLISH LITERATURE
WITH
Facsimiles of the Title-pages

Old method.

THE
GRAMMAR OF
ENGLISH GRAMMARS

FIFTY YEARS
AMONG AUTHORS, BOOKS
AND PUBLISHERS

THE ART OF
ILLUSTRATION

A
SENTIMENTAL JOURNEY
THROUGH FRANCE
AND ITALY

CRITICAL
AND MISCELLANEOUS
ESSAYS

ONE HUNDRED BOOKS
FAMOUS IN
ENGLISH LITERATURE
WITH FACSIMILES OF
THE TITLE-PAGES

Modern method.

rule required every line in the title to be spaced when the main line had been spaced. This treatment is not always practicable, but it could be observed much oftener than has been done, and with advantage to many title-pages.

Lines of secondary display should not be frequent, nor set in types so large as to reduce the importance of the main line and to encroach on the wide blanks that are needed between the regular divisions. Grouping of details in a synopsis under the name of the book in readable capitals, and in short lines of a squared form or in a diamond or half-diamond arrangement, is the more approved practice. The attractiveness of a title-page is largely in the visible coherence of its words. Wide blanks that separate divisions not closely related, and narrow blanks that combine those that are related, are greater aids to a comprehension of subject-matter than many lines of bold type.

The names of author, editor or translator, and designer may be in types of graduated size to indicate the relative value of their contributions, but to preserve irregularity of outline it may be necessary to neglect the nice distinctions intended to be produced by different sizes of type. A general effect of irregularity should be maintained even if those distinctions are not at once noticeable and some lines are made a trifle short or long.

Arabic figures must be avoided in all lines of capitals. Figures of old-style face are always mean mates in the same line with their broad and tall capitals, nor is any figure of modern cut on the en body pleasing in a line of capitals of regular width. Roman numerals or spelled-out words are imperative in lines of capitals for all amounts but those of dates, yet the date following a publisher's imprint, always in a separate line, may be in arabic figures with propriety.

When the title-page is crowded with much matter, the

prefixed BY before the name of the author may be set in the same line and in the same type. Abbreviations of short honorary titles following the name may appear with that name in the same type and same line, but when there are many honorary titles this prefixed BY has to be in a separate line. Honorary titles are not pleasing in small capitals by the side of the name; they may be spelled out, to appear in a separate line below the name, in small capitals or in two or more lines of small lower-case. Spaces are not needed after the periods in abbreviations like A.B. and LL.D. Custom requires the name of the author to be in larger type than that given to his coadjutors, but there may be special reasons for neglecting this practice. When superior distinction is required for an illustrator, editor, or translator, his name may be larger, or even appear in small type as the first line of the page.

The motto of a title-page always seems in the way. It must be placed where the author directs, but if put as is usual in the middle of the page, it may need a hair-line dash above and below to separate it from other parts of the title. When the title is crowded, and the author permits, it may be put at the head of the page or on the leaf that precedes or follows the title-page. One or two lines of a motto may be in small capitals; three or more lines are better in small lower-case letters. It always appears to better advantage in a purposely narrowed measure, but modern practice does not inclose it in a border-line.¹

¹ Two or more long quotations selected to serve for the motto should be put on a separate page, and roman lower-case of a small size is usually selected for this purpose. It is not necessary that the lines of a motto should be the full width of the measure; it is always more pleasing when its first and last lines are full. This may compel frequent overrunning, but the ungainly appearance of indented and broken lines will be prevented. When two or more distinct quotations appear on the same page, they may be separated by a white line, not by dashes. The reference to the book from which the quotations have been taken should be in a separate line, in smaller type, and not preceded by a dash.

Curved lines, ornamental dashes, a sprinkling of odd initials, or decoration of any description, should never be added to a title without order.

The Morris title is made by crowding at the head of the page all its words in a few lines of thin-spaced and unleaded capital letters. It is not a modern but an old method, apparently devised by an illuminator who wanted nearly all the page for his own handiwork. When the blank so made is not filled with decoration, the page is unsightly.

Explanations concerning the publication of the book and specifications about the edition, as of the number of copies printed, are usually put on the title-page, but these additions always prevent orderly arrangement. A displayed title-page overcrowded with lines that must be read more slowly and thoughtfully than lines of the text matter is a mistake. It should be so composed that the hasty reader can take in its full meaning at a glance.¹

The title-page of but few lines that presents a ragged and meagre appearance may be improved by inclosing it in a brass-rule border of parallel hair-lines or of one firm line about one point thick. The bold-faced rule with face much thicker than the stem of the largest type in that title is not to be commended, for it makes the words within

¹ No part of the book is subjected to more capricious treatment than the title. Although the largest number of publishers and readers prefer the plain title, there are others who ask for black-letter with medieval mannerisms, or for eccentricities of arrangement with brass rules and grotesque types. To give directions or even suggestions for the composition of the fantastic title would be useless, for the lover of novelty too often wants his title-page in a style that is entirely new. For composition so ordered the compositor can do no more than follow specific directions given by the author. Even when it is requested that a new title-page shall be in imitation of a given model, it is seldom that the words to be used (which may be too few or too many) can be accommodated to the style of that model. The fantastic composition that may be admired in an old book or in the pamphlets of advertisers always seems out of place in any book of permanent interest.

seem insignificant. The single hair-line border is equally objectionable, for it is feeble and is electrotyped and printed with difficulty. Putting title matter in two or more panels of brass rule may or may not be an improvement; it is always a hazardous experiment that may degrade the title instead of improving it. The wishes of the publisher should be consulted before this experiment is tried.

Some title-pages have their words and phrasing so arranged that they are difficult to put in type in an orderly manner even when they receive the benefit of suggestions from the author and the advice of experts. Every attempt at improvement seems to make them more unpleasing. To prevent this disappointment the abandonment of display is advised. Set the matter in large type (all capitals, all italic, or all lower-case, as may seem best), in half-diamond indention, after the methods of the early printers, or as a plain paragraph with hanging indention. When this can be done without gross faults of spacing or in the division of words, the result will seldom be unsatisfactory.

DEDICATION

The dedication is not a necessary part, and is now seldom required. When used, it is put on a separate leaf with a blank verso, and is oftenest set in small capitals with all its lines centered, as is done in the displayed title-page, with large capitals only for the name of the person to whom the book is dedicated. It is never improved by types of eccentricity. The matter is usually divided into lines of unequal length, as may be directed by the author, but it is most satisfactory when it does not show a marked irregularity in the length of proximate lines. The short line of one or two words only, following or preceding a line the entire width of the measure, destroys symmetry

in composition. A long dedication can be made more readable by setting it as a letter in italic lower-case.

TABLE OF CONTENTS

The table of contents, usually on a separate leaf, is often set in small capitals one or two sizes smaller than the type of the text, with capitals for the first letter of important words, but roman lower-case is sometimes preferred. Small capitals of the large type of a text are not a good choice, for they make the page seem needlessly coarse. The number of the chapter, the name of the chapter heading, and the page figures referred to, appear at their best when they can be put in one line. This line should begin with the number of the chapter in roman numerals of small capitals. The initial letters of the chapter should be kept in a vertical line.

A table of contents needs wide leading to make it readable. When the subjects provided fill the page too compactly and leave insufficient blank at its head, the matter should be double- or treble-leaded to occupy two or more pages. This leading should not be strictly uniform, for when the words of a chapter name make two or more lines they should be kept visibly together, separated by one lead only, even if three leads or white lines are put between the matter provided for different chapters. When other parts of the book are wide-leaded, and it is desirable that the contents should occupy two or more pages, the numerals that define chapters may be put in a separate line in the centre of the measure, and there should be still broader blanks between the names or legends of the chapters. This treatment should not be attempted in any book with solid text, for some uniformity of compactness or of openness should be maintained throughout the fore part of the book. When the words of a chapter heading are many and make a second line, the two lines may be braced and

the page number put at the point of the brace, but the brace selected for this purpose should not be blacker than the type of the text. The leaders provided by the type-founders to connect letters with figures are not so pleasing as periods placed one em apart.

TABLE OF ILLUSTRATIONS

This table, more irregular in its matter than the table of contents, usually contains in its first line the legend of the illustration, and near its ending the name of the designer, engraver, or photographer. Under the legend line are often put one or more lines of added explanation, which may be in small type. When space and matter will permit, an attempt should be made to keep the names of the artists in vertical line, so that the casual reader will note the distinction. Not a little ingenuity may be required to keep the matter straight. The lines may have to be reset repeatedly before the composition is presentable.

PARTS AND HALF-TITLES

Each large subdivision of book or part or canto takes a separate leaf in the sumptuous volume, and its name or number is put in the centre or a little above the centre of an otherwise blank page. The back of this page is always blank. The type that defines the part need not be large. Roman numerals are used to specify its number, but to give it a due prominence and equality with the wider and bolder capitals in that line, the thin types for numerals II and III will need a thin space between them.

For the cheap edition a separate leaf for each part is not often allowed. The number and name of the part may be ordered to be put at the head of its following chapter page, and if that page has a long synopsis, a hair-line dash may be needed under the line that specifies the part, but the

dash should be suppressed when the relative importance of the different headings can be made clear without it.

The half-title, which is a repetition of the name of the book, was once put over the first chapter of every book, but it is rarely used now.¹ When a head-band, an engraved initial, and a long synopsis have to be inserted, the half-title is impracticable.

CHAPTER HEADINGS

A crowded first page is as unsightly as a crowded title. If it contains head-band, half-title, number of chapter, chapter heading, synopsis, subheading, and initial, the first page cannot be composed in orderly manner, with proper subordination of types to show their distinction.

The number of a chapter heading is usually set in capitals of the text type, but the numbers only may be larger. As the numerals I II III are thin and relatively insignificant by the side of the letters in the word CHAPTER, that word is often omitted, and the chapter is defined by numerals only. The head-band that surmounts a chapter heading may be sunk two lines, so that its top will register with the first line of text on the following page, and not with the running title. If the text is wide-leaded, about half a page of blank space may be given to the chapter heading; if thin-leaded, one third; if solid and without a head-band, one fourth or one fifth of the page.² The space allowed for the first chapter heading may be

¹ The half-title should not be confounded with the bastard title. The half-title follows the title and begins the first page of text; the bastard title, usually a single line in capital letters, precedes the full title, and takes a separate leaf with blank verso.

² The amount of blank often has to be governed by the amount of matter in the synopsis that may follow, and by the size of the initial letter, if an initial is used. There should be at least two and preferably four lines or more of text below the large initial. The synopsis is a disfigurement when it overruns on the next page and prevents needed lines of text on the first page.

used for all the following chapter headings, and should be distinctly marked on the gauge of the maker-up.

The type for the words that give name to the chapter (which should be the same in all the following chapter headings) may be in capitals of the text type, or larger, if its letters will come in one or two lines. If its words are too many for one line, do not select black-letter or any form of condensed type; make two lines of the matter, but shorten the first line and place the overrun words in the centre of the second line. The words in this first line need not fill the measure. To make the first line full, and to put in the second line one word or syllable only, will be a great blemish. When there is no synopsis, and the name of the chapter will make more than two lines, do not use capitals: small capitals or italic lower-case will be a better choice, and the lines may be arranged in hanging indentation or in half-diamond shape.

SYNOPSIS

This abstract of the contents of the chapter is often set in small capitals of the text type, but in this position the small capitals of a large body show too much space between lines and seem needlessly large and coarse. Small capitals on a body two or three sizes smaller than that of the text are a more approved selection, although they are dense and too often indistinct. A small size of plain roman lower-case is more acceptable. It must be set in small type when it crowds the space needed for the initial letter and the text type. Sentences in a synopsis are often separated by an em dash, but the period before the dash is not needed; a thin space before and after is better. Two or three periods a thick space apart and without any dash make a more pleasing mark of separation. The synopsis is usually set in hanging indentation, which should not be greater than that of the paragraphs of the text.

The long synopsis, in lower-case italic, with its clauses separated by semicolons, is sometimes put on a separate leaf with blank verso before the chapter.

PREFACE AND INTRODUCTION

The size of type for preface and introduction is frequently determined by the author. When the printer has the right of choice, and space will allow, the preface may be in large type, or in the type of the text made distinctive by a change in its leading. A book on a bibliographical subject may have its preface in italic lower-case, as was once customary. As the preface often contains more or less of personal explanation, it needs some distinction of type, which can be varied to suit the occasion. When these personal explanations are of minor importance, and the matter for the text has exceeded its intended limit, the preface may be in small type. A book of many editions may have as many distinct prefaces, and it is the general practice to give to each one its beginning on an odd page, even if this treatment makes many blank pages. A short preface is pleasing when in large type, but large type is seldom ordered when the matter will make many pages.

The long introduction is often set in smaller type and with thinner leads than those for the text, but its type should be of the same face and have similar treatment. A solid introduction before a leaded text is unpleasing. When head-bands have been selected for the regular chapters, a head-band may be used for the first page of the preface or introduction, but it may be narrower than the head-bands of regular chapters.

As the preface and introduction are usually set after the text has been printed, it is necessary to give them separate paging with numerals of roman lower-case. The roman numerals need not be used for any reprint on which press-work begins with the preface.

Careful composition is of importance in the first part of the book, for a neglect in workmanship is there most noticeable. The sumptuous book must have its chapter headings begin on odd pages, but in a book without pretence to superiority each new chapter may begin on the verso, or left-hand page. The publisher may not consent to what he calls a needless waste of white paper. In some books the chapters are as brief as they are in the Bible, under which condition the new chapter must closely follow the previous chapter. To prevent unsightly gaps of white space, it is often necessary to overrun many pages previously made up. Paragraphs must be made longer or shorter by a wider or narrower spacing of lines, and an unequal amount of blank must be put between the chapters. Hymn-books and collections of desultory poems in different measures often require similar treatment. No fixed rule can be laid down for the amount of blank between chapters, but it must be large in the sumptuous and small in the compact book.¹

SUBHEADINGS

Subheadings, of the same class, intended to relieve the monotony of plain type, should be in the same face and size of type throughout the book. For a subheading of one or two lines only, the small capitals of the text are commonly used. For subheadings of three lines or more, italic lower-case of the text in hanging indention of one em only will be a better choice. The indistinctness of compact small capitals can be made less offensive by hair-spac-

¹ The rule that requires every chapter heading to begin on the odd page often meets with unexpected difficulties. The end of a previous chapter may overrun three lines on an odd page, leaving the lower part of that page and the page following entirely blank. The proper treatment of this difficulty will be considered in a future chapter on making up. The intervention of the author or publisher may be needed to add or cancel matter enough to make a sightly page.

ing the letters, but this treatment is not recommended for subheadings of more than one line. If the italic of the text is not large enough, use the next larger size. The subheading in italic is also used in school-books or any didactic work containing rules or propositions that serve as texts for following remarks. In school-books these subheadings often appear in light-faced antique or title type, but this overbold display is not to be recommended in the standard book. The distinction desired for a subheading is secured more effectively by putting about it a generous relief of white space. In some books long subheadings are set in lower-case type two or three sizes smaller than that of the text. Small type and abundant white space about the subheading are enough to arrest the attention of the reader.

Paragraphs below the rule or proposition that serves as a text are often numbered or lettered, but the number or letter need not be inclosed in parentheses that lessen its prominence. Old-style figures are objectionable, for they are weak and of irregular form. The number or letter need not be followed by a period. The en quadrat is enough to show separation, as in the versification of the Bible.

Side-headings may be set in small capitals or italic, but they do not need an em dash to follow the closing period. For dictionaries, gazetteers, or work of like character, that contains frequent paragraphs, the side-heading of title or antique type is preferred. It is not necessary that the type for this purpose should be very bold, nor should it have marked eccentricity of shape to annoy the critical reader, but it will present a much neater appearance when it is on line with the type of the text.

Copy is sometimes formally divided into paragraphs and sections, and the signs for these divisions may be ordered instead of spelled-out words. The sign should be separated from its following figure by a three-to-em

space. The abbreviation of SEC. for Section is not wise. If space has to be saved, the sign § is better.

EXTRACTS

Extracts and notes should be leaded when the text is leaded, but always with a thinner lead for each decreasing size. The text that has six-to-pica leads should have its extracts in type one size smaller with an eight-to-pica lead, and the notes at the foot of the page should have a ten-to-pica lead.

Short extracts and questions may be run in the text and yet be kept distinct by using the ordinary marks of quotation. When there are four or more lines, the quoted matter can be more distinctly defined by putting the reversed commas at the beginning of each line, and apostrophes at the end of the last line, but this old fashion is used now only when extreme precision is compulsory. The approved practice is to set extracts of four or more lines in type of the same face but one size smaller than that of the text. Types two or three sizes smaller are too petty.

When the extract is set in a separate paragraph and in smaller type, it does not need the marks of quotation; the change in size is a sufficient indication of a change in authorship. A new method of indicating extracts indents them one em on each side of every line. Long extracts that make two or more pages are frequently an annoyance to the reader. When it can be done, the verbose extract should be remanded to the appendix.

Extracts in prose or long quotations of poetry in smaller type are kept separate from the text by leads placed above and below. If the text is solid, two leads may be enough to mark this separation. Italic is occasionally selected for poetry, but not to advantage. To prevent the overrunning of very long lines of poetry, always a blemish, a smaller size of type may be selected.

If the extract has been ordered in peculiar type or in the style of a document, it may be inclosed in a rule of hair-line face, which will show that it is an illustration as well as an extract. Another way, more generally pleasing and not so troublesome, is to begin the document with a plain two-line letter, which clearly shows that it is not a part of the text.

NOTES

Foot-notes usually appear in a type two or three sizes smaller than the type of the text. Four sizes smaller, but not less than 6-point, may be a better choice when notes are prolix as well as profuse. When the note is merely the specification in abbreviated words of an authority, it may be set in broad measure; when it is explanatory and makes many lines, half-measure is better. The two columns of this half-measure will be properly separated with an em quadrat of the type of the note. A brass rule to separate the two columns of a half-measure note, or a broad-measure note from the text above, is seldom used now.

Side-notes in type three sizes smaller than that of the text are usually made up to a measure of eight nonpareils, but they may be wider for notes that have many words. Sometimes specifications of authority are set in italic lower-case type, but italic is not a wise choice, for its kerned letters are easily damaged in this exposed position, and the upright arabic figures too often used with it do not accord with inclined letters.

Cut-in notes are in measures of variable widths, and they usually appear in small sizes of plain roman lower-case type. Light-faced antiques and condensed letters are common in the texts of school-books, but are not a betterment to a library book. A modern fashion for cut-in notes is to begin them on the first line of the paragraph,

but this treatment gives to that paragraph a ragged and unsightly outline. The page will be more comely if the first line of the cut-in note is opposite the third line of the paragraph.

ILLUSTRATIONS

Engravings on wood have practically disappeared. Plates of zinc or copper etched by photo-engraving process now contain the illustrations provided for printing with type. With the providing of these illustrations, mostly furnished by the publisher, the printer has little to do, but to some extent he is made responsible for their proper appearance in print, and it becomes him to examine the plates critically, for the photo-engraver's proof on coated paper may be deceptive.¹ The plate to be examined should be proved again on paper that must be used in the proposed book, and this proof will show whether the plate is or is not proper for the paper. Common faults in process plates are lines broken or thickened at their extremities, shallow etching, and imperfect blocking. These process plates are often blocked on wood, but the wood may be soft, warped, too high, too low, out of square, or an insecure support for its plate. These defects must be amended before fair presswork can be done, and the amendments should be made before the plates are sent to the press or to the electrotype foundry. Hard type-metal is better than wood for a base. The cut of irregular shape should be nicked for the admission of type before it is given to the maker-up.

Illustrations (or cuts, as they are oftener called in the printing-house) that come within the measure can be

¹ Photo-engravings by the so-called half-tone process should never be selected for type-work that must be printed on paper with a dull or rough surface or that has to be dampened before presswork. Much as it may be disliked by the critical, a supercalendered or a coated paper is needed for the full development of the delicate work of a half-tone plate.

placed by the compositor in their proper order on the galley that receives his composed type, but this cannot be done when the cuts are small or of irregular shape, and the types have to be rearranged to conform to their irregularities and kept within the limits of the page. No one can foresee where the cuts will have to be placed. Lines of type can be divided almost anywhere at the end of the page, but the cut must be intact. It is customary to set the type of every book to be illustrated to the full width of the regular measure, and to have the maker-up put the cut in its proper place after he has divided the type matter in pages. To do this neatly, the type previously set by the compositor must be overrun and led down in a narrow measure by the side of a small or diagonal cut, and this overrunning may have to be done repeatedly before the type and cuts are fitted to each other and to the page.

RUNNING TITLES AND PAGING

Small capitals of the text type, often thin-spaced, with arabic figures in the same line, have been for many years an approved form for the running title, but they are not in high favor now, largely on account of their pettiness. When the words for the running title are few and repeat the name of the book or the heading of the chapter, roman capitals of full size or a body one or two sizes smaller than that of the text are often selected. If it has many words and defines the contents of its page, italic lower-case is to be preferred. A line in italic capitals only is not so well liked. Small capitals of the text can be used when the type of that text is large, but if the text is small and leaded, its small capitals will need hair-spacing, and its paging figures will be indistinct. Old English black-letter is sometimes used for the running title, but this style is at its best in a medieval or bibliographical book. A large

size of roman lower-case letter is another approved style. The running title in mixed capitals and small capitals is not a favorite.

To prevent capricious changes in the capitals of a running title in lower-case, capitals should be confined to the initial letter and to proper names.¹ The running title is in an exposed position where it first shows the wear of the press. To withstand this wear, school-books, hymn-books, and all works frequently reprinted from plates often have running titles in capitals of light-faced antique.

A new fashion in running titles is the very wide spacing of their letters. This must be done when it is so ordered, but a spacing of single types with em or two-em quadrats is no grace to leaded and a real blemish over a text of solid composition.

The running title is usually separated from the text below by one line of the quadrats of the text type, but if that text type is of 12-point the blank so made will seem needlessly wide. A new fashion separates the running title from its text with two leads only, which may be satisfactory for solid, but is not pleasing for leaded matter.²

Lower-case type of small size has been used for running titles, but the general preference is for a type larger than that of the text.

¹ The earliest printed books had no running title or paging figures. The first attempt to supply this need of the reader was to repeat the number of the proper chapter at the head of each page, and this treatment was then supposed to meet all requirements.

² The blank space under the running title seems to invite a meddling treatment. The hair-line cross-rule, sometimes of half the width, but oftener of the full width of the measure, is the favorite, but parallel rules of full width are almost as common. For the page intended to be remarkably spruce, a thick double rule has been used. The value of those additions to the page is not apparent, for a succession of unmeaning rules soon wearies the reader. For this purpose the hair-lines, as usually made upon single, parallel, and double rules, are annoyances to the electrotper and pressman, and of small benefit to the reader.

Sometimes the running title is not centred, but is set flush up to the inner margin of facing pages, at the end of the left and at the beginning of the right page. The chapter and the section of the book may be specified in the running title,—the chapter name on the left and the section on the right page,—each fenced off from the words of the running title with brackets. This revival of an old fashion is now a common practice, but it cannot be considered as a grace to any modern page.

The running title that consists of the very long name of the book is sometimes divided so that one half only of this name will appear on one page and the other half on the facing page. Nor is this a commendable fashion, for a line of many words can seldom be evenly divided; if it is not so divided, one heading will be longer than the other.

The continuous repetition of the name of the book in its running title, when that name is well known to the reader, is a wearisome and needless formality. This title is most useful when it explains or to some extent defines the matter on the page, and this explanation should refer not to the first but to the last paragraph on that page.

In pamphlets or books that have no running title, the paging figure is put in the centre of the head-line, but it need not be inclosed in parentheses or brackets, nor have attached colons, dashes, or any other attempt at finish. If the first line of type contains nothing but the paging figure, this first line and the blank below it must be reckoned in the imposition of the form on the stone as a part of the head margin of the page. If these practical blanks are reckoned as a part of the page of type, the margin at the head will seem much too large in print, and the page so treated will have an unworkmanlike appearance.

Old-style figures are disliked for paging. The irregularity of petty types like 101 on one page and 396 on

another is offensive to every reader who respects symmetry and uniformity. Some type-founders have remodelled these figures and made them uniform in height and line.¹ It is the rule now that figures for paging should not be smaller or less distinct than the figures used in the text. They should be of readable size, even if it is necessary to justify in the line figures of a larger body.

Paging figures at the head of a full-page cut are forbidden by artists and editors as derogatory to its intended effect. It is, however, necessary that this page have its proper paging figure to prevent a possible mistake by stoneman, proof-reader, or pressman. The maker-up puts it in the foot-line, and there it remains until ready for press, when it is withdrawn by the stoneman. If the page is to be electrotyped, the paging figure remains, but the proof-reader marks it to be cut off the plate by the electrotype finisher. He scratches or engraves the proper page figure on the plate so that it will not appear in print, yet will serve as a guide to the pressman. This precaution will prevent delay and annoying blunders in laying plates.

As a rule, paging with arabic figures begins with the text of the book. The matter before the text (as the

¹ One of the novelties of reformed typography is the omission of all paging figures, both at the head and at the foot of the page. This omission gives needless trouble to the folder as well as to the reader. Paging figures are guide-posts that prevent the folder and binder from making crooked folding and irregular margins. Paging at the foot of the page is a common, and in many instances an unavoidable, practice. In this position the figures may be of small size, but they should be of a face that will enable the gatherer of the sections to distinguish them from the figures of the regular signature. The proper page figures should be put at the foot of every page that has a lowered chapter heading or a cut at the head of the page. It is a mistake to assume that the early makers of books did not number or letter the leaves of their books to show their regular sequence. William Blades, a most diligent searcher, has shown that the leaves were numbered or lettered at the foot and that their marks were trimmed off after all the leaves had been gathered and sewed.

title, preface, introduction, etc., which are printed last of all) is paged with roman lower-case numerals. This paging is supposed to begin with the bastard title or the first printed page of the book; but neither on that nor on any other very open page are these roman numerals printed, yet they are always reckoned in the table of contents as if they had been paged.

Appendix, index, and all additions to the text take arabic figures for paging, but publishers' advertisements at the end of the book should receive their special paging in a figure of different face. Maps, portraits, and illustrations made on separate leaves by copperplate or lithographic process for insertion in the book never receive printed paging, although they may be reckoned as pages in the table of contents or the index.

APPENDIX AND INDEX

The appendix of letters, extracts, documents, or tables that are too long for the text is usually in type one or two sizes smaller than that of the text. It may be set close and solid when compactness is desired, but its sub-headings should not be too compact. They should have around them enough of white space to invite the reader's attention.

The index breaks the rule of strict uniformity of treatment, for it is set solid in small type, even when every other part is leaded. Two columns of 6-point type are common for the duodecimo, and three or more of 8-point for a large octavo or quarto. As its merit is largely in compactness, some abbreviations that are improper in the text are permissible in the index, but the full names of persons should be spelled out, wherever it is possible, to prevent a misleading direction.

The hanging indention of one en is enough for an index in two or three columns. There need be no rule

between the columns. In the copious index, the first word of every reference, or the two or three words that follow, may be set in the slightly bolder type of a light-faced antique, but the body of the reference should be in plain roman lower-case. The old method of making a separate line for each subdivision of that reference, and of connecting it by leaders to figures at the end of the line, is obsolete. References in an index to different volumes are often put in roman numerals of capitals, but they are large, wasteful of space, and not the clearest guides to the searcher. For this purpose arabic figures of title type or light-faced antique should be preferred. The period at the end of each subdivision of the general reference is not needed; the semicolon is a better mark of separation. Commas before page figures should not be omitted. Cross-references and note-references should be in italic.

POETRY

A three-to-em space is wide enough for the proper separation of words of poetry in solid or single-leaded composition. The en quadrat may be used for double- or treble-leaded matter, but it is not an improvement, and spaces of greater width are a positive blemish. To avoid the turning over of a long line, very thin spaces have to be used occasionally, even when they mar the general uniformity of spacing in the page, for the turned-over line of one syllable, often unavoidable, is a greater misfortune than too thin spacing. When it is practicable, the word or syllable turned over may be put at the end of the preceding line or following line after a bracket. This may be done when the matter has to be kept on one page or in a specified number of pages, but it is not to be advised for open composition in a generously planned book. The word turned in a separate line should be so deeply indented that it cannot be mistaken by the negligent reader

for a new line. A modern practice permits this turned-over line to be set flush with its preceding line, but it does not meet with general approval. Lines from which words are turned over should never be spaced out to full measure.

The variable indention of different lines is usually determined by the author. When his intent is not clearly expressed, give a similar indention to the lines that rhyme. Sonnets are sometimes indented artificially in the copy without regard to their rhyme. Odes are another form of verse not to be controlled by arbitrary rules, and they must be set with the irregular indention directed by the author.

Indention should be so graduated that there will seem to be an equal amount of blank on each side of the page. In making up pages of short poems in different metres, the indention may have to be changed for each poem, so that the entire body of verse on that page, and not one or two stanzas only, shall be fairly centred. The different measures on different pages of the same book of poems cannot be indented by any inflexible rule.

The running title is the one line that can never be changed with safety. Never move it or the paging figure at the end of the line either to the right or the left to make the body of an irregularly indented mass of poetry seem in the centre of the page. The paging figures are often the only safe guide the pressman has in making register when he prints the sheet on the reverse side. If paging figures are put out of place it is probable that the pages will be badly registered, and that the incautious folder of the printed sheet will so fold it as to make uneven margins.

Single quotations are a new fashion for poetry, but they are feeble; they make unsightly gaps of white, and should be used only in strict reprints or when especially ordered. It is the more acceptable practice in poetry, as in prose, to

make use of the single quotation-mark for the quote within a quote.

“Curse on him!” quoth false Sextus;
“Will not the villain drown?
But for this stay, ere close of day
We should have sacked the town.”
“Heaven help him,” quoth Lars Porsena,
“And bring him safe to shore;
For such a gallant feat of arms
Was never seen before.”

In all stanzas put the quotation-marks in the space made by indention, so that the first letters of each verse shall line vertically as they would line if the quotes were not used. Do not allow the quotation-marks to make irregular the vertical lining of capitals. The quote-marks are not integral parts of the sentence, and when they are treated as if they were, the intent of riming indention is obscured. The neat making up of pages of poetry is always difficult when the stanzas are unequal. Division of a stanza between its rimed lines, or after its first line, or before the last line, are faults to be avoided by overrunning and by increasing or decreasing the blanks in previous pages. These are troublesome expedients, but they cannot be evaded. Fixed rules for preventing these irregularities are entirely impracticable. The compositor should study the make-up of poems in good editions of standard authors. An examination of the authorized edition of a hymn-book will give useful suggestions.

INITIAL LETTERS

Large initial letters at the beginning of chapters or important divisions of a book are old and useful devices for

adding to the attractiveness of print. They should be used oftener. For the ordinary book the plain two-line initial of standard width is in most favor. Its form should be that of the type of the text, but perfect harmony is not always attainable, and the compositor often has to be content with one that is not an exact mate. An initial letter that spans two lines of solid composition is to be had of type-founders, but it may be difficult to find one that will close the greater vacancy made by leaded lines. Yet it is important that it should fairly fill this vacancy. To be a real improvement to the page, the top of a two-line initial should line with the top of the types in its following first line of text, and the foot of that initial should also exactly line with the foot of the second line of text. An initial that does not neatly fill the gap made by lines of type is not a merit but a blemish.

THIS INITIAL is on line at top and foot, and fairly fills the vacant space.

WHEN NOT ON LINE an unsightly gap is left at the top and above the third line.

This gap over the third line of text is often caused by unwisely selecting the broad-shouldered capital of a very large type. This fault can be prevented by cutting off this shoulder when it has to be used as a two-line initial.


When the text type is small, a plain initial that spans three lines of text may be selected to advantage, but this selection is made troublesome by the steadily increasing width of large types, and especially of types like A, L, Y, etc., with strokes that do not fill the body, and that do make ungainly patches of white. To lessen this blemish in type a moderately condensed letter may be selected, but an extra-condensed initial is never a betterment.

The types that immediately follow a large initial may be small capitals or full capitals. Small capitals should be

preferred when they make perfect lining. Full capitals of a large text-type after a large initial are not always pleasing, for they suggest newspaper advertisement display, and in a narrow measure may compel hair-spacing.

If the first word or first line following an initial is ordered in italic, the rule of exact mating may require the special engraving of an italic initial. A roman initial before italic letters is not pleasing.

THE high initial, that lines at the foot and projects upward as here represented, was frequently used in poetry and open composition by printers of the eighteenth century. It is not suitable for compact composition, but it can be selected with advantage for some forms of open catalogue matter, or for paragraphs divided by lines of quadrats.

 **M**EDIEVAL initial letters of uncial form, that have curved strokes and claw-like terminations, were common in early books with texts in roman character. Black-letter initials were not always used with black-letter texts, for the curved lines of uncial capitals seemed better adapted for the decorative work about the initial. They are preferred now in the reprints of old books, and are frequently used in England and Germany, in their smaller sizes, as occasional capitals for the text of devotional and ecclesiastical books.

**ECCLESIASTIC LETTER
MONASTIC TYPE**

For ordinary books the engraved initial should be on a square or right-angled body. When it has straggling lines

of decoration that project in the margin or toward the chapter head, this irregularity is never rated



as a fault, but it is distinctly unpleasing when these lines project at the right or at the foot and give ragged endings to lines of type. The beauty of the initial is in its fittingness, but it does not fit when it distorts the lines out of their proper places, as is shown by the side of this initial R.

The last novelty in designed initials is an upright parallelogram, the upper part containing the letter, and the lower part the decoration. When the initial is so drawn, the lines of the types of the text can be kept trim and square, and the initial will seem to be a proper mate for the type.



THE pierced initial, with a hollow centre in which any letter can be placed, is a good substitute for the plain two-line letter, but at head and foot it should have true alignment with its corresponding lines of the text. It is an acceptable form for general service, but repetition makes it unpleasingly monotonous.



THE fac initial, the typographic substitute for the eighteenth-century pierced initial, may be used now with propriety in imitated reprints of the books of that period, but it is whimsically out of date in any modern book. A pierced initial made up of small flowers of recent design is no better than

the old fac, for it always has a mechanical appearance, even when it has been most skilfully composed.



AN initial letter inserted in a hollow square made from four corner flowers that fill a full circle may be quite as objectionable as the pierced initial. The connected lines easily made by the expert designer are rarely produced by the combination of movable types.



THE PROFUSELY ORNAMENTED INITIAL of black-letter with interlacings of flowers or vines, or with long, straggling streamers of tracery, once in high favor, is now deservedly neglected. It had, and may have now, some fitness for the open composition of poetry or in a very open piece of display where its streamers may stray into a blank margin, but it is entirely unfit for any kind of square-set composition. To the critical reader its riotous decoration is a discord by the side of the trim formality of symmetrical lines of type.



TYPE-FOUNDERS' specimen-books have engraved initials of merit, but in selecting a series for general use the closeness or openness of the engraving in that series must be considered. The initial should be adapted to the type with which it will be printed. A text in 6- or 8-point type may be graced by an initial of good design that shows fine and close engraving; but it may be disappointing if the letter has not been made to be printed in red ink, as the uniform grayness does not allow it to stand out from its surrounding ornamentation and the eye is puzzled in trying to catch the first word of the paragraph.



TEXT in 12- 14- or 18-point needs an initial of bold and firm lines, with broad spaces between the lines. The engraving of the selected initial should mate with the type of the text in its color and general effect; it may be dense and gray when used with small type, but it should be black and solid when it is an initial for large type.



BOLD-FACED initials with a black background and white letter may be used with advantage for small or large type, but an initial surrounded with dense and delicate lines that obscure the clearness of the letter is not at all pleasing by the side of large type.



ONE LARGE INITIAL with open decoration can be selected with good effect for a text in 10-point or of larger body, but it will be made more effective if the white within the letter is made red by the use of a specially engraved O to cover the naked white. Some of its merits will disappear if this decorative letter is much reduced in size and used with large type.



ONE LARGE DECORATED INITIAL is enough for the gracing of a page. Two or more small initials may appear with propriety on the same page (as must be done in the Bible, hymn-books and ecclesiastic manuals), nor is there any valid objection to small initials in a text under a large

initial, but the selection of two or more large decorated initials of the same size and style for any open composition, as in a title-page, is a mistake. They nullify one another.



LARGE ORNAMENTAL INITIAL can seldom be used with good effect within a broad floreated border. This method of treating a title-page that seems bleak may present itself to the compositor as a good filler of vacant space, but it will rarely prove satisfactory. The designer may do so with propriety when he connects it to the border or gives it a similar ornamentation, but the compositor who has to make selection from a type-founder's specimen-book will seldom find an initial that suits the border. When it does not suit, the initial should be omitted. Ornament is the wine and spice of typography, and must be used with discretion. Good arrangements of composition are often spoiled by the too lavish sprinkling of initial letters and ornamentation of like nature that make the text insignificant.



THE fault of many initials is in what artists call their niggling, in overworking them with too many dense lines that put them in unpleasing contrast to the clearness and openness of text type. The size of the initial should be selected with reference to the size of the page: for 24mo and 18mo it may be small; for 8vo or 4to it must be large. Initials that are petty always give a petty appearance to the page. Plantin had for his books in folio some that were nearly three inches square. A small initial may be selected with pleasing effect for lines under subheadings, but the initial for the opening of a chapter or for any important division should be large and memorable. If the initial letter has been cut to show white, the decorative lines about it should give the color effect

of pale gray or of full black. If the gray so produced is too pale, the white letter can be made red by special engraving. Distinctiveness of the letter always should be considered when black ink only can be used.



OR general adaptability the odd initials designed by William Morris for his Kelmscott books, and reproduced by the American type-founders, will be found satisfactory, even if they do seem coarse as well as quaint. They deserve study for their intelligent contrasts of black, gray, and white color. A black letter is usually ringed with a thin band of white, and its rude lines of decoration



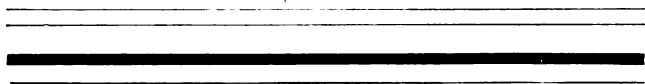
are made by white lines on black, that produce the gray effect. The white initial letter in outline only is surrounded by decorative lines, that give the effect of dark-gray color. The letter always has proper prominence, and the decoration is kept subservient.

In the specimen-books of type-founders are a few forms of small ornamental capital letters that may be used to advantage as small initials, but those that are too profusely ornamented or grotesquely obscure should be avoided.

HEAD-BANDS AND TAIL-PIECES

After useless attempts at the reproduction in two or more colors of the elaborate decoration of the fifteenth-century illuminators, the early printers of books confined their attempts at decoration to designs that could be printed in black only. The broad border and a centre-band between columns had to be abandoned, for they wasted paper and helped to make the book of high price. Some new form had to be devised, for the method of beginning a chapter at the head of a fresh page was then almost unknown and seldom practised. Obeying the old practice, each printed

chapter closely followed its predecessor, and the two meeting chapters were separated by a big initial or a line of large type as the first line of the new chapter. This did not seem to be enough. Then came a simpler fashion of a plain or decorated band between the chapters as the proper mark of separation.

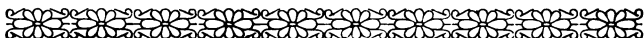


When pages were small and the chapters were not too short, each chapter was placed at the head of a new page under a broad blank. This treatment left the head of the page disagreeably bleak. To fill up the blank space, a head-band of brass rule or of type border was inserted. Sometimes the head-band was designed by an expert who mated it in style with the following initial letter. It also became necessary to fill the vacant space left at the end of the chapter, which might be one half or two thirds blank. For this purpose the tail-piece was devised. Conforming to the old fashion of setting the last paragraph of a chapter in funnel shape, the tail-piece was made in the form of a triangle, with its broad side nearest the type-work.



This method of decorating the book, introduced in the sixteenth century, has never gone out of fashion, although

it is seldom used now for books of serious subject-matter. When properly selected, the head-band and its mated initial letter and tail-piece are welcomed reliefs to the dullness of text type. They clearly mark important divisions and fill space that might be unpleasingly vacant.



There is no rule that arbitrarily prescribes the shapes, sizes, or styles of these decorations. The head-band may be a pictorial illustration that fills one third or sometimes one half of the page, but when it is very large the type-work below must be correspondingly reduced in size. The form now in fashion is an oblong strip of decorative lines that varies in height from a quarter of an inch to two inches, but there is a general agreement among designers that it must be the exact width of the page of type. When narrower or broader, it does not seem an integral part of



the book; it does seem a bit of added and superfluous patchwork. It usually has square endings, but the ends may be rounded with propriety; or it may have a rounded projection at the top in the centre, for the presentation of a portrait, sketch, or medallion. It should be flat or nearly so at the base, and should not be connected with the in-

ital letter, nor should it have projecting lines that droop to interfere with the type below and make insignificant the type-work of the chapter heading. Straggling vines or



lines of tracery may project from an initial letter into the margin, but not from the head-band.

The sumptuous book always has its head-bands, initials, and tail-pieces designed by the same artist, so that all shall show a general similarity of treatment and be in agreement with the subject-matter. Properly treated, they are a grace, but when head-bands have been selected from those that have been made at different times by designers of unequal merit, of different sizes and in various styles of engraving, they are positive blemishes. The beauty of the proposed book depends upon harmony in decoration as much as on uniformity in type.¹

Grayness or blackness and density or openness of decoration are features to be pondered. Head-bands and initials to be used with the types of 12-point or larger bodies should show some correspondence in color with the types, in the closeness and fineness or in the openness and firm-

¹ The printer who is asked to provide a series of decorations for a proposed book should have its designs made by an artist who is qualified as a decorator, for decoration is an art by itself and cannot be done properly by any one, however high his merit as an artist, who has not studied decoration as an independent art. Decoration drawn with pen and black ink on paper can be reproduced at small cost by the photo-engraving process. If the printer intends to make use of these designs for that book only, he can have emblematic devices appropriate to the book incorporated in the decoration; but if he proposes to use them afterward for other books, he must exclude all emblems of special significance and instruct the artist to make the designs generally applicable.

ness of their engraved lines. A text type in bold-face may have decoration in nearly solid black, with touches of white-line ornamentation only; but if the text is to be in 6- or 8-point type of roman face, a closer style of engraving that matches the general effect of gray color in the type will be more pleasing. Sharp or dense lines in a



head-band over types that are relatively coarse or open seem badly selected. When lines too coarse are put by the side of delicate types, the effect produced is also unpleasing.¹

For a book of many chapters the engraved head-bands of type-founders are seldom suitable, for they may be found too short or too long for the intended measure, too dense or too coarse, or improper mates for the initial letters that may have been previously chosen. They are more serviceable as marks of division in pamphlets that do not require a large number of similar size and design.

Head-bands made from combinations of flowers or small borders are vain substitutes for special engraving. Their ineffectiveness as decoration is apparent in the facts made by French and English printers of the eighteenth century.

¹ It is customary for artists to make designs for decoration on a large scale, but their largeness may be deceptive. What is clear and entirely satisfactory in the drawing may be petty, foggy, and disappointing when it has been reduced by the photo-engraver to the size that is needed for printing. This disappointment may be foreseen and prevented by examining the design under a reducing-glass. The sketch on a small scale may be enlarged with some loss of delicacy, but with no loss of value, but the sketch on a large scale with dense lines will be monotonously gray when reduced, and may make an unprintable plate.

Made-up head-bands are rejected by all discreet publishers, but there are compositors who still take delight in making them from little bits of border. The time spent in their composition is not justified by the result, for the head-band so produced is always labored, mechanical, and unsatisfactory. A clever designer can produce in an hour a pen sketch of more pleasing decoration than can be made up by a compositor from bits of border in a day.

Parallel rules, or sometimes thick double rules, have been selected as appropriate head-bands for the chapter heading of a new page, but a feeble rule is petty in that prominent position, nor is it pleasing when it divides two short chapters on the same page. The blank made by lines of quadrats is more generally acceptable. Thin strips of border on 6- to 18-point body can be used with better effect, but the border selected should fill or nearly fill the body, and should have no corner flower. For poetry and very open composition a border of light and open lines should be selected; for solid or single-leaded composition a border of strong contrasts of black and white should be preferred. Carefully avoid the selection of the overworked typographic borders of the eighteenth century, for the reading world has had enough of the feeble gray effects visible in these old-time typographic decorations. The borders now provided by type-founders are not yet hackneyed; they have more grace, and show a proper contrast of light and shade. Borders in the so-called Elzevir style, or in the Byzantine or Turkish style, of strong black and white, entirely free from dense lines and overworked gray shading, will be found useful material for typographic head-bands for books that do not warrant the expense of special engraving. The larger pieces are most satisfactory. They are not improved, but are really damaged, when surrounded on all sides, as is often done, with a narrower and lace-like border.

The typography of a book should show a visible agree-

ment with its subject-matter. If addressed to the thinking and reasoning faculties of a mature reader, as is the case in treatises on law, theology, or science, it needs no bold type and no decoration; but if it has been prepared for the study of young students, the severity of a too plain style may be modified. Its subheadings of prominence or its rules or propositions may be set in a bolder type, and two-line initials or other trivial changes that will make the text more comprehensible may be added. Yet it does not need decoration. Bold display, eccentric lettering, and fanciful arrangements are attractive in certain kinds of job-work, but they are out of order in any book intended for a permanent place on the library shelf. It is the thought of the author, and not any grace of the decorator, that is most prized by the reader who is also a student. It follows that the type-work of a book should be kept in strict subordination to the main intent of the author.

In the ordinary book, avoid decoration and odd types that do not make the subject-matter clearer. The great masterpieces of printing are the simplest. Plain types correctly composed and neatly spaced, with strict attention to petty details, clearly printed in strong black ink on unobtrusive paper with appropriate margins, have a charm that is recognized by an inexpert. He may not know why they are more restful and attractive than the profusely decorated book, but he will see that the book so treated does show marked superiority in its workmanship.

Yet books with decoration are needed. Those that are classified under the name of light reading, not intended for study, but for amusement or information, may receive ornament in many forms, from occasional lines in red ink or border lines of brass rule to elaborately engraved headbands, initials, and tail-pieces, broad borderings of flowers or rules, explanatory illustrations, inks of many colors, or a text letter of some eccentric or peculiar design. These are some of many methods of making a book attractive,

but most of them call for an amount of skill, patience, and expense that seems out of proper proportion to the result attained.

An amateur soon finds that profuse ornamentation which must be treated in a painstaking manner by every contributor from the designer to the book-binder is too expensive, and quite prohibitory. It often has to be abandoned. Yet he hopes to get the desired result by the selection of eccentric type for the text, which seems to be the cheapest of all his attempts at improvement. On the contrary, it may be the most hazardous.¹

In the narrow compass prescribed for this work it is impossible to describe with clearness the typographic details that will be appropriate for every variety of book. It should be enough to offer this suggestion: before undertaking the composition of any new book of merit, the typography of good editions of similar nature should be studied, and their good features should be imitated wher-

¹ Ornamentation is not to be undervalued, but he who undertakes it should be sure that it is ornament and not pure meddlesomeness. A page of print, like an engraving or a picture, can be spoiled by fussy additions that divert the attention from the main subject. The common fault of the amateur is the filling up of blank space with needless decoration. The running title of the book, when not spaced out to the extreme width of the measure, is filled with bits of border that make it and its paging figure insignificant, or it is fenced off from the text below with rules that annoy and do not help the reader, for the rule is more prominent than the type of the text. The last line in every paragraph may be filled with bits of incongruous borders. Even the title-page of the book may be filled with flourishes, or divided into panels with borders of brass rule. Ornament of this description, often made still more conspicuous with many colors, is sometimes demanded by the publishers of advertising pamphlets and ephemeral books, in the belief that this treatment will make the book attractive and help speedy sale. When the decorations of type-founders fail to meet the need, recourse is often had to the pen drawings of amateur designers, and it is largely from examples set by men who do not see the full scope of the work and do not appreciate the need of general uniformity that the compositor receives bad lessons in decoration.

ever imitation promises to be of service. The designing of entirely new styles should be discouraged. It may be assumed by the novice that it will be safer to copy the best features of books of high merit than to attempt the invention of new forms.

Over-decoration is a common fault. In no case should much ornament be added, unless especially ordered and unless it is certain that the type, paper, and presswork of the book to be made will be of the best. Even when ornament is ordered, there should be a leaning toward simplicity. Appropriateness should be considered. Eccentricities that are pleasing in one book may be positively tawdry in another. The young compositor is especially warned against the hackneyed decorations of the printers of the seventeenth and eighteenth centuries. They may be used occasionally with advantage when the old designs have been redrawn and recut; they will seldom prove of real value if not mated with text types of their own period.

DIFFICULT COMPOSITION

ALGEBRA

When composed from types cast upon irregular and un-matable bodies, algebra is emphatically a difficult form of composition, for it requires much time-wasting justification with thin leads or pieces of thick paper. It can be composed with more facility if the needed types and rules have been made on the point system, but under the most favorable conditions algebra will be troublesome. It has rules of its own for spacing and division that must be observed, and the compositor needs some skill in the art of combining in a workmanlike manner, yet by new methods, the rules, fractions, and abbreviations of different bodies. A text in 10-point may require characters varying in height from 5- to 72-point. The composition of algebra also calls for the cutting of brass rule to be used as extensions of the radicals, which, if not accurately done, will cause faulty alignment.

The table shown on page 66 exhibits the algebraic signs provided by type-founders as a full assortment for ordinary work, but some of the characters are needed only in books of higher mathematics.

Before he begins composition, the novice should learn the names and uses of the signs, and should closely study their arrangement in some approved treatise. Alphabetical letters and the figures that usually accompany them need no explanation, for they are provided in every complete font

of roman and italic type. For use as exponents or indices, thus x^n , $x^{(n)}$, x_n , italic lower-case letters are generally preferred.¹

TABLE OF SIGNS PROVIDED BY TYPE-FOUNDERS
FOR ALGEBRAIC COMPOSITION

+ plus	= nearly equal	Δ triangle
- minus	to	\int integration
\times multiplied by	\approx difference	\oint integration
\div divided by	\cong difference between	of a quaternion
= equal to		
: ratio	\propto variation	\mp minus or plus
:: proportion	$\sqrt{\quad}$ square root	\therefore hence, therefore
\pm plus or minus	$\sqrt[3]{\quad}$ cube root	
< less than	$^\circ$ degree	\because because
> greater than	' minute	∞ infinity
\nless not less than	" second	\perp right angle
\nless not greater than	\bigcirc circle	\perp perpendicular to
	\square square	
\Leftrightarrow equivalent to	\square rectangle	\equiv identical with
\neq not equal to	\sphericalangle angle	\doteq approaches

The signs in the above table are on 10-point body, but these signs are also made on 5- 6- 8- and 12-point bodies. Two

+ - \times + = : :: \neq * < > \nless \nless \circ \mp \approx \cong $\sqrt{\quad}$ $^\circ$ ' " \square \square \sphericalangle Δ

Characters on 5-point body.

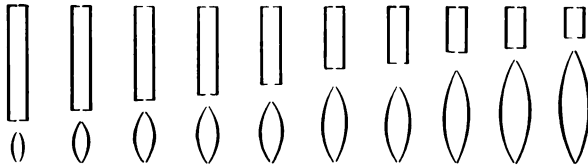
bodies are often used together. The radical sign $\sqrt{\quad}$ is required on many bodies ranging from 5- to 72-point, and

¹In some formulas there may be an occasional capital, or a letter of the Greek alphabet, or inferior letters in roman, but they are rare. When roman letters are used for superiors, the inferiors always appear in italic, or vice versa. The tendency now is to the selection of but few alphabetical letters.

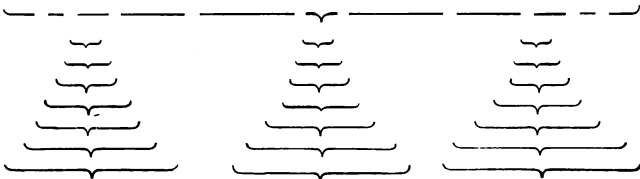
the small figure that defines its power should be nested in its angle.



Different sizes of parenthesis and bracket, varying from 12- to 44-point; will be needed to inclose the different divisions of a compounded formula.



Braces of light but firm face, in sections as well as in one piece, are made of different lengths from 10- to 72-point. Like the parenthesis and bracket, they are of different lengths, but on 6-point body.



Piece-fractions are often required, and special care should be taken to get those that are very distinct.

$$\frac{1}{4} \frac{1}{2} \frac{3}{4} \frac{1}{3} \frac{2}{3} \frac{1}{5} \frac{2}{5} \frac{3}{5} \frac{4}{5} \quad \frac{1}{4} \frac{1}{2} \frac{3}{4} \frac{1}{3} \frac{2}{3} \frac{1}{5} \frac{2}{5} \frac{3}{5} \frac{4}{5}$$

A much-used notation for the fraction nowadays is the "solidus," as 2/3, where 2 and 3 are printed in the same font as if integers.

Superior letters (usually in italic) and figures must be provided for each one of the two bodies that have been selected. Inferior letters and figures are not so common, but the assortment is not complete if they have not been provided.

a b c d e a b c d e 1 2 3 4 5 1 2 3 4 5

Superior and inferior letters and figures on 10-point body.

The brass rule to be preferred for the dividing line is on 2-point body, for it will give the least trouble in justification. Labor-saving rule of this body cut to even ems and ens of the text type, and in abundant supply, will be a valuable aid to neat composition.¹

Algebraic expressions that show the two lines of numerator and denominator, or of dividend and divisor, separated by the usual dividing line, may need root signs, braces, brackets, and parentheses twice and sometimes thrice the height of the text letter. If the text type is on 10-point body, the radical sign will be of 20-point body when small figures are used below the vinculum, as in the upper example. If figures of a larger body are ordered under the vinculum, then a radical sign of 25-point is needed for neat presentation of figures.

The characters needed for a treatise on algebra comprise sorts on many bodies that cannot wisely be stowed in one case, for which reason the diagram of an algebraic case is omitted. The laying of sorts for the composition of algebra is governed by personal choice. The quarter-section case that can be placed by the side of the italic cases

¹ It is not good policy to allow the compositor to cut rules as he needs them. Rules so treated are liable to be irregular as to length, with burs on cut edges or slight bends in the body, and these defects tend to insecure justification, and give needless trouble to maker-up, stoneman, and electrotypist. With proper forethought, algebraic composition can be made as solid and secure as that of ordinary roman type.

most needed will be found of good service. The order of laying should be exactly the same for every size, and a clearly written label should be pasted on each box to prevent wrong distribution.

The composition of algebra differs from that of the ordinary text in its spacing, purposely made uneven. The italic letters that serve as symbols for quantities must always be set close together. Superior or inferior letters, figures, and fractions are controlled by the same rule. But the signs $+$ $-$ \times \div $=$ $>$ $<$ must be treated as distinct words, and be separated from the context by spaces of noticeable width:

$$\begin{array}{r} 2 \textit{ abx} - x^2 = 14 \textit{ ab} - 7 \textit{ x} \\ 6 x^2 + 3 \textit{ ax} = 2 \textit{ bx} + \textit{ ab} \end{array}$$

Superior figures are always set close up to their proximate letters, but the larger figures of the text type should be separated from following italic letters by a four- or five-to-em space. The space may be omitted only in a very crowded line:

$$x^5 + 4 x^4 + 2 x^3 + 9 x^2 - 4 x + 4$$

In algebraic formulas that have mutual relation or dependency, the figures of whole numbers must be kept in strict vertical line according to the rules of arithmetical

$$\begin{array}{r} 8 \textit{ x} + 9 \textit{ y} + 8 \textit{ z} - 2700 \\ 12 \textit{ x} + 12 \textit{ y} + 10 \textit{ z} - 3600 \\ \\ \textit{ ax} + \textit{ by} + \textit{ cz} - \textit{ d} \\ \textit{ a'x} + \textit{ b'y} + \textit{ c'z} - \textit{ d'} \\ \textit{ a''x} + \textit{ b''y} + \textit{ c''z} - \textit{ d''} \end{array}$$

notation. In formulas that have many consecutive lines with few or no figures, the signs $+$ and $-$, which separate distinct terms, must be kept in vertical line. This rule

for vertical lining sometimes applies also to the sign \times for multiplication and to \div for division.

It often happens that a long formula cannot be put in one line of the type selected for other formulas. When great compactness is desired, as is important in some school-books, it is customary to set this long line in types of a smaller body that will take in one line all the characters. When it can be done, it is better practice to put the matter in two lines in large type, but the composition cannot be divided arbitrarily. The place selected for division should be at one of the signs $+$, $-$, or $=$, for they represent transition points at the end of distinct terms. The part turned over in a second line must be placed in the centre of the measure:

$$ax^2 - bx = cx - d$$

Expressions that would divide badly are frequently put intact in the middle of a following line.

Connective words like *as*, *in*, *again*, that precede the expression in that line, are placed at its beginning, and a

or again

$$y - x = 4$$

broad white blank follows, to show that the connective word is not a part of the formula.

Figures inclosed in parentheses or brackets that are inserted to refer to other formulas or terms in the same book must also be separated from the formula in that line by the same method. They may be at the beginning or end of the line. If a mark of punctuation is needed, it must be put after the bracket or parenthesis:

or

$$ax + by + cz = d \quad [1];$$

Whole numbers expressed in many figures are not separated by the comma in triplets, as is usual in arithmetical

notation, but in a decimal number the integral part should be separated from the fractional part by the decimal point. These fractions and the decimal point that precedes them must be kept in a vertical line in all the rows of figures, without regard to the irregular lining at the beginning or ending of the lines :

$$\begin{array}{r} 927.67892254 \\ 3643851.5468 \\ 22982.657462 \end{array}$$

When many characters must be put in one line, the spaces between terms and signs may be relatively thinner. The space before or after a sign like + or - may be omitted when this sign is next to a superior or inferior character, but it is better practice to use the space in all places where it will add to the clearness of the expression.

A visibly wider space must be presented between distinct expressions shown in the same line :

$$54 a^2 b^3 (a^2 - 2 ab + b^2) \quad , \quad 36 a^3 b^2 (a + b) \quad .$$

No space should be put between alphabetical letters and superior figures that are grouped in one term and inclosed in parentheses or brackets :

$$28 a^6 b^5 c d^3 x^3 \quad 6 ab(a + b) \quad (6 a^2 b c^3 x^5)^3 = 216 a^6 b^3 c^9 x^{15}$$

When an author wishes that an expression in the text should have noticeable distinction, he orders or marks more space before and after that expression, as it here appears :

$$\text{The quotient of } 18 a^4 b x^2 \text{ by } 6 a^2 b x \text{ is } 3 a^2 x .$$

As a term cannot be divided with part of its characters at the end of one line and the other part at the beginning of

the next line, some irregularity of spacing has to be tolerated.

Thus the quotient of $15 a^2 b^3 x$ by $3 a^2 b$ is written $5 a^0 b$; but we have seen that the quotient should be $5 b x$, as the factor a^0 does not alter the product, since a^0 is equal to 1.

The points of punctuation that separate clauses in the text have a broad space before them in any clause that ends with an algebraic term.

When a long algebraic expression cannot be put neatly in a single line, it may be divided, but the characters in a term inclosed within brackets or parentheses must not be divided at all. It may be again repeated that the proper place for division is at the signs of operation + or -, occasionally \times or \div :

$$(am + a'n - a'')x + (bm + b'n - b''')y + (cm + c'n - c'')z = dm + d'n + d''$$

To prevent the improper division of characters in the middle of a term, the first line may be made shorter than the second:

$$0 = -2 (p'' p' N'')$$

$$- \frac{1}{\Delta'} \left[n'^2 (1 - v'') + N'' + n' (n' n'' - N'') \frac{\pi''}{p''} \right]$$

In the following example the entire expression within the vertical braces is to be multiplied by the fraction at its left. The arrangement of the terms within the braces is suggested partly by the length of one of these terms, the second, and partly by considerations of symmetry. Ob-

serve that the fraction at the left is so placed that its dividing line meets the central point of the brace.

$$\frac{q'}{(n' - 1) p' p''} \left\{ \begin{array}{l} 2 n' (p'' + p' N'') \\ + \frac{n'}{\Delta'} \left[n^2 (1 - v'') + N'' + n' (n' n'' - N'') \frac{\pi''}{p''} \right] \\ - p' [n'^2 (1 - v'') - (n' - 1) N''] - (2n' - 1) p'' \\ + \frac{(n' - 1)}{p' p''} N'' \end{array} \right\}$$

The rule that separates the numerator from the denominator, or a dividend from a divisor, must be exactly of the length of the longer term, as is customary in arithmetical notation, and the shorter term must be placed over or under the longer term exactly in the centre:

$$\frac{2}{15} \quad \frac{268}{10000} \quad \frac{c-by}{a} \quad \frac{B}{0.00001}$$

When one of two terms is simple and the other is double, the point of punctuation, if one is ordered, should be opposite the dividing rule of first term:

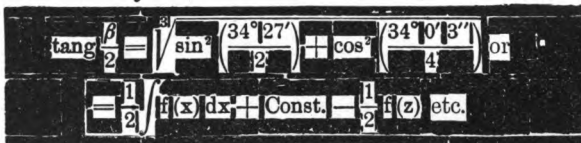
$$x = \frac{17 + 7}{2} = 12, \quad x = \sqrt{\frac{-b + \sqrt{b^2 - 4ac}}{2a}};$$

The preceding illustration shows the value of the point system in algebraic composition. In the first formula we have, in the middle of the term, two lines of 10-point and one dividing rule of 2-point, that make its full height 22 points. The characters $x =$ before, and $= 12$ after (each on 10-point body), are easily made to centre with the cross-rule. If this formula were the only one in the mixed line, these characters could be solidly justified in that posi-

tion with an upper and a lower line of 6-point quadrats, but the second formula in the line is of greater height, for it has two lines of 10-point and three rules of 2-point, and must be 26 points in height. To justify this second formula solidly with the first, an upper and a lower lead of 2-point must be added to the first formula. Point bodies simplify justification. If types and rules are not on the point system, the exact justification of two formulas in one measure will be much more troublesome.

The solid manner in which algebraic formulas can be constructed is plainly represented in the following diagram, copied with slight alteration from the *Katechismus der Buchdruckerkunst*:

$$\begin{aligned} \tan \frac{\beta}{2} &= \sqrt[3]{\sin^2 \left(\frac{34^\circ 27'}{2} \right) + \cos^2 \left(\frac{34^\circ 0' 3''}{4} \right)} \text{ or} \\ &= \frac{1}{2} \int f(x) dx + \text{Const.} - \frac{1}{2} f(z) \text{ etc.} \end{aligned}$$



When a short but complex formula is incorporated in the middle of a line of plain descriptive matter, it is customary to begin the work by setting up this formula first, which is then temporarily put aside in another stick.¹ Then the descriptive text that begins the line is set in the first stick. If the text is of 10-point, and the formula is 22 points high, this difference of 12 points must be made up by setting a line of 6-point quadrats under the text matter, and adding over that matter another line of 6-point, or two lines of 7-point can be used. This treatment will bring

¹ A second stick with knee adjustable by a clasp (Grover pattern) will be helpful in the composition of complex formulas.

the text matter on the central line of the formula, where it should be. Then the formula temporarily put aside in another stick can be added, and the remainder of the text for that line can be composed in like manner. To produce solid justification, leads and cards must be avoided wherever it can be done safely.

The incorporation of a short complex algebraic expression within a line of descriptive text in plain roman type unavoidably produces wide blanks between the lines of that text. Some authors prefer to have short expressions in the centre of a separate line, but this method cannot be resorted to when they appear too frequently in the copy.

The two expressions $\frac{2N}{N+n^2}$ and $\frac{N+n^2}{2n^2}$ are equal when N is equal to n^2 ; and when N is nearly equal to n^2 , the expressions $\frac{2N}{N+n^2}$ and $\frac{N+n^2}{2n^2}$ are nearly equal; therefore their arithmetical mean is nearly equal to their geometrical mean.

The vinculum that projects from the root sign must be of the exact length of the expression it is intended to cover:

$$\sqrt{a} \qquad \sqrt{162 a^7 b x^4}$$

In an expression which involves two radical or root signs, where the vinculum of one root overlaps that of the other root, as will be seen in the illustration that follows, the superior vinculum must show a visible separation from the lower one:

$$+ \sqrt{-\frac{p}{2}} - \sqrt{\frac{p^2}{4} + q}$$

Index figures are often needed as exponents. When the signs provided are solid and not slotted, the compositor must have them properly nicked for the insertion of the figure. This nicking can be done with knife or chisel, if the compositor is handy with tools, but it will be made in a more workmanlike manner with proper tools by the electrotyper. In either case the nicking causes annoying delay.

Exponents, whether integral or fractional, should be in italic, and be placed as superiors on the upper line of the symbols that they define.

$$a^{mq} \quad a^{\ddagger} \quad \frac{m\beta}{a^{nq}} \quad \left(e^{(a-x)^{\ddagger}} - 1 \right)$$

Inferior letters, or subscripts as they are sometimes called, are less frequently used, but they should be in italic, and be placed below the line of the letters to which they are attached.

$$S_{m-1} \quad C_{m,n} \times P_n = A_{m,n}$$

Formulas may be written in which the same letter will take an exponent and a subscript, as it does in $X_i^{(n-1)} = 0$. There are a few that require two subscripts, as in tang =

Integral signs may take a letter at the foot and at the top. Sometimes these letters have exponents or subscripts arranged thus:

$$\int_0^1 (T-R) \quad \int_{x_0}^x V dx$$

The abbreviations sin, log, cos, tang (for sine, logarithm, cosine, tangent) should be in roman character in all formulas, and should not be followed by an abbreviating

period. The superior figure that may follow the abbreviation of sin, cos, etc., must not be separated by a space.

$$x = p \left[\left(\frac{1 - \cos c}{\sin c} \right) - q^2 \left(\frac{1 + \cos c}{\sin c} \right) \right] + p^2$$

Parentheses, brackets, and integral signs that precede or inclose a fractional expression must be of the exact height of the expression, including dividing or vinculum rules.

$$\left(\frac{p^2}{4} - q \right) \int \left(a + \frac{1}{x} \right) \left(\beta + \frac{1}{x} \right) dx \left(p'p'' - (n' - 1) \frac{p''}{\Delta} \right) q$$

This must be done if but one of the parentheses, or but one of the brackets, comes immediately after or before a fractional term. It must also be done when one or more of the intermediate terms of the expression are fractional, the first and last terms being integral, as in

$$\left[n'n'' - N'' \left(\frac{\pi''}{p''} \right) - p'^2 N'' \right]$$

But if the brackets or parentheses inclose integral terms only (as shown below), they should be on the same body as that of the characters within them:

$$n'[n + (n'n'' - N'')p'p'']$$

When radical signs occur within parentheses, the parentheses should be of the same height as the radical sign:

$$\frac{a(p - \sqrt{q})}{p^2 - q} \cdot \frac{(\sqrt{a})^2}{(\sqrt{b})^2} = \frac{a}{b}, \quad x = \left(\sqrt{\frac{a^2}{2g}} + at - \sqrt{\frac{a^2}{2g}} \right)^2$$

When many parentheses have to be employed, one within another, they may be selected of different heights accord-

ing to relative importance, but they make an awkward formula. It is better practice to use a bracket for the exterior sign of inclosure, and this bracket need be no higher than the interior parentheses.

In a logarithm the short stroke that overlaps a negative integral figure or "characteristic" must not be wider than the figure. If the characteristic have two figures, the stroke should overlap both.

$$\overline{2.3010300}$$

$$\overline{15.1345769}$$

In the expression of fractions continued in many different lines, the figures selected for the divisors should be placed

$$\frac{1103}{887} = 1 + \frac{1}{4 + \frac{1}{9 + \frac{1}{2 + \frac{1}{1 + \frac{1}{1 + \frac{1}{4}}}}}}$$

exactly under the figures used as dividends, and the divisor rule should exactly overlap these figures, as is shown in the illustration.

Manuscript copy of algebra is usually prepared with care: the writer makes clear

the difference between the ordinary and the superior characters, and tries to put no more letters and figures in the manuscript line than can be properly expressed in one line of type. Yet it often happens that the compositor may be perplexed by the inequality in the length of the characters above and below the dividing rule in a complex formula. Will it come or not come within the measure without wrong spacing? The old way was to set all the characters (those above as well as below the dividing rule) in one long line and put them aside upon a short galley, where the spaces could be rearranged.

It is a better way to begin and complete the composition of the fractional portion of the expression in a Grover stick, which readily allows a readjustment of the measure and of the spacing between terms or factors. If this

fractional expression consists of two lines of 10-point and one 2-point rule, the height of the formula will be 22 points, which must also be the height of the larger brackets or parentheses, if they are needed. When these signs have been reckoned, the compositor can mentally determine the spacing of the term that precedes or follows the complex part. He puts in the stick of full measure two blank lines of 6-point quadrats (one above and one below the 10-point line), and then adds to them the complex part already set in the stick.

The building up of a formula of complex expressions would be easier if the italic lower-case letters could be cast on adjusted sets with spaces that exactly make up their deficiencies. Too many letters, not fractional parts of the em, have to be justified to make solid composition.

MAKING UP

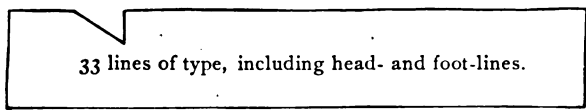
The running title . . . Signatures . . . Notes and illustrations

GENERAL RULES

Before the making up of type from galleys is attempted, the maker-up should have for his instruction a diagram of one page, which should be pen-drawn upon a regular section, properly folded, of the paper that will be used for printing the book. On the first leaf of this section should be outlined in exact position the length and width of the page to show the margins required; written directions should be added concerning signatures, types for running title, subheadings, style of folios and whether they should be at head or foot of page, the sinkage of chapter heads, the blank space above and below extracts, and other details about which there may be uncertainty.

The first duty of the maker-up is to cut and notch a gauge of cherry reglet to the length of the page ordered. The gauge should be a full page of the regular text type only (without cuts, extracts, tables, or blank lines), upon which should be written the number of regular lines. In a correctly printed book the lines on every page should be in exact register with the corresponding lines on the back of that page, but it will be impossible to attain this nicety if the proper marking of important divisions on the gauge has been neglected. Many compositors now use the "line-gauge" provided by the type-founders. While this method has its merits, experiments have proved that it is quicker to use the cut reglet, as the length can be seen at a glance,

while having to look for the figures on the line-gauge, unfortunately not always clear, causes pauses in the operation.



Gauge for making up pages.

In most printing-houses making up is done from the type that has been read and corrected on the galleys.¹ Before cutting the gauge for pages intended to be printed direct from type, ascertain the length of the furniture in stock that will be needed for the gutters of the back margins. Each page of type should be a little longer than the gutters, but when the gutters in stock are only a trifle longer, the foot-line should be set in a larger size of quadrats that will make the page project a trifle beyond the gutter. This forethought may prevent the needless cutting of wood furniture in case the correct size of standard metal furniture is not available.

The galleys of composed type that will be needed for the making up of a full form of letterpress should be assembled in front of or near to the maker-up before he begins his work. These galleys should be accompanied with the copy and proof, as well as the cuts, tables, maps, or any other irregularity that may be needed in the form. When there are no such irregularities to an even make-up as are produced by cuts and tables, the maker-up can approximately measure and mark off on the proof the proper

¹ A book or pamphlet ordered in great haste may have to be made up before its reading and correction, but this method is not to be recommended. If any compositor has made a very long out or doublet, or if the author chooses to add new or to cancel old matter upon the proof of the made-up page, every page following in that chapter will have to be re-made up. This means an unnecessary waste of time and serious expense.

length for each page before he begins to separate the composed matter, but he must regulate its division so that the last short line of a paragraph in a descriptive text shall not appear as the first line on a new page. In this position the short line is a blemish to be prevented. Poetry and short dialogue matter are unavoidable exceptions.

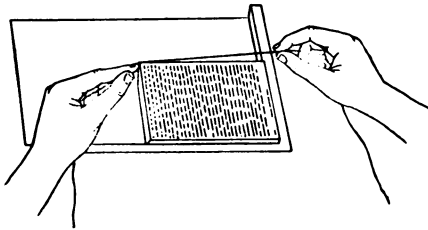
When it is required that a pamphlet of one or two sheets shall consist of or not exceed the prescribed number of pages it may be necessary to shorten or lengthen the page. For this possible departure from written instructions on the folded pattern sheet explanation must be made to and permission for change be had from the foreman. The space occupied by composition must be carefully computed, and the matter must be arranged and divided so that it can be kept within the limit. In matter on galley, leads or blanks can be added when it is necessary to drive out, or they can be withdrawn with facility when the matter has to be taken in; but if pages are made up unthinkingly, without some previous calculation of the space to be occupied, they will have to be made up anew.

The maker-up is measurably responsible for the justification of composition passed by him. If he finds that it has been slackly justified, or if type has been set up in an unworkmanlike manner, he should return the galley to the compositor in fault, and require him to amend it.

The maker-up should be in an alley where he has ready access to leads of different thickness, quadrats of different bodies, brass rules of graduated length, and to quotations, or electrotyping bearers, and all needed kinds of blanking-out materials. The running titles, foot-lines, and blanks that are required for one full form should be set before making up begins, and be placed on small galleys within easy reach. It wastes time to set them separately during the process of making-up.

A quarto galley of brass with a low rim should be preferred for making up and tying up the ordinary page.

The page cord, which should be thin, strong, and long enough to surround the page four times, is first placed at the outer lower corner of the page, and is there tightly held by a finger of the left hand while it is successively stretched with increasing tightness around the four corners. The free end of the cord is made secure by thrusting it between the tightened cord and the type with the nib of the composing-rule, in a loop at the place of its beginning, and drawing the loop tightly toward the near corner. The free end of this cord must be left exposed upon the face of the page, so that it can be easily seized and unwound by the stoneman when he has protected each page in the form with surrounding furniture.



Quadrats with nicks at the ends of the foot-line should have the nicks turned inward to allow a free up-and-down movement of the page cord. The nib of the composing-rule can be used to push the cord up and down at diagonally opposed corners to increase the tightness of the cord and give it a broader bearing against the centre.

Each lift of type put upon the make-up galley should be pressed upward and compacted sidewise to make the composition square and solid. If this is not done, the type may be tilted slightly or made up "off its feet." This fault is hard to rectify on stone or press. The page of type off its feet is sure to make a faulty electrotype plate.

The copy and the proof should be continually before the maker-up, who must see that the beginning of each paragraph in type tallies with the same paragraph in copy. To neglect this precaution is to hazard the risk of an omitted or a transposed paragraph.

Making up includes much more than the division of matter in pages of uniform length. The maker-up is required to set the running titles, with their paging figures, blank lines, and foot-lines, to adjust the variable widths of the blanks, properly to place notes, tables, extracts, illustrations, and finally to put the made-up pages in proper order upon the stone. In some printing-houses he is required also to set chapter headings and subheadings.

THE RUNNING TITLE

The pages known to bibliographers as recto and verso are respectively called by printers odd and even. The figures for odd pages, as 1, 3, 5, 7, etc., are set at the end of the line; the even pages, 2, 4, 6, 8, etc., are set at the beginning of the line. The white line that separates the running title from the text, as well as the foot-line at the end of the page, is often composed with quadrats of the type of the text, but when the running title has been ordered in small capitals over a text of large type, the white line so made will be found too wide, and a narrower blank will be more approved. In some recent books of good workmanship two leads only are used in place of the white line.

The words and the type for the running title at the head of every page are usually determined by the author. When this running title is a summary of the contents of the page, which cannot be written before the page has been made up, it is customary to set up a quadrat line with paging figures only and to ask the author to write the running title on the proof of the made-up page.

Some books are ordered without paging figures in the running title. Paging is made with small figures in the foot-line, where they may be an annoyance to the gatherers of the folded sections by confusing the figures of the signature with those of the page. The thin figures that are cast upon the en body may not be sufficiently legible. When it can be done, distinctive figures should be selected, that cannot be confounded with the signatures.

— 16 —

(362)

* 468 *

[17]

When there is no running title, the paging figures may be put in the centre of the head-line in the type of the text. It is not an improvement to inclose them in brackets or parentheses, or to add to the figures dashes or decoration of any kind.

Paging figures on a smaller or larger body than that of the text type may be justified in and made solid with the quadrat line below them by the use of a properly selected thin space. The large figure for paging is generally preferred. Quadrats are better for the blank line below the running title; two leads may be allowed, but three or more tend to make composition spongy and will cause trouble in lining up form.

Some pages need no running title. It is never placed over a chapter heading or over a full-width illustration that appears at the head of the page, but the paging figure that is needed should be put in the foot-line. In centring a running title, paging figures must be rated as blanks or quadrats.

In some books the selection of type for the running title is left to the maker-up, who should find variety enough in the different sizes and faces of roman and italic capitals or lower-case. Black-letter may be occasionally selected to advantage. Monotype and light-faced antiques are permitted in running titles that may receive

64 THE INVENTION OF WRITING

A running title with more words than can be crowded in one line must be divided to appear on two facing pages. When the chapter ends upon an even page, a condensation of the title matter should be supplied by the author.

462 HISTORY OF ENGLAND CH. XV

Standard histories often have their running titles in full capitals on a body two sizes smaller than that of the text. Specifications of chapter or of date are sometimes added.

176 ZEAL AND IMPRUDENCE CH. XXIII

In other histories the mention of the chapter, book, or canto is made a shoulder-note to line with the first line of text, but this is done to best advantage on pages that have side-notes.

66 A SENTIMENTAL JOURNEY

When the text type is leaded, the running title may be thin-spaced with good effect, but avoid em quadrats.

78 *BABYLONIAN LEGEND*

Italic capitals are not a wise choice, for some of their types are kerned and liable to break, and some letters do not neatly mate with other letters. They often show gaps and unequal inclinations that are unsightly.

86 *MOLINOS THE QUIETIST*

Another novelty in running titles is the placing of the words close up to the back margin of each page.

EGYPTIAN HIEROGLYPHICS 65

The division of over-long matter for the running title should not mangle phrases. Closely related words should be kept together, even if one word only appears on one page. A long word should never be divided with a hyphen.

1689 **WILLIAM AND MARY** 463

Sometimes the specification of the number of the chapter, book, or canto in the running title, at the end of the line, is needlessly fenced off with brackets.

A.D. **OF THE CHRISTIANS** 177
362

If side-notes are used, the page figure should extend over them. If it can be done, keep the specification of chapter over the side-notes, but it is not an improvement to separate it from notes with a three-em brace or dash.

THROUGH FRANCE AND ITALY 67

A wide-spaced running title over a compactly set page of text makes an unpleasing contrast.

OF THE CREATION 79

In this illustration the unsightly gaps have been concealed to some extent by judicious spacing. A wider spacing is not recommended. It should never be forgotten that spaces between letters should compel wider spaces between words.

MOLINOS THE QUIETIST 87

This method of treating the running title may be used with black-letter.

832 *The MEMOIRS of Book VIII.*

This facsimile of the running title of a London book of the early eighteenth century fairly exhibits the taste of early printers in the selection of type and the use of rules.

I 8 MODERN PRINTING

Thick-faced rules, apparently first used by the Strawberry Hill Press, and afterward more boldly by the Lee Priory Press, have been recently revived. They seem an attempt on the part of the printer to compel attention to subject-matter that would otherwise pass unnoticed. It is the imitation in print of an obsolete school of elocution, in which the orator was taught to change his voice from whispers to shrieks, and to give the greatest emphasis to

74 *Les heures Gothiques*

Whoever selects brass rules as cross-lines for the running title must be prepared to meet unexpected difficulties in the making of electrotype plates and largely increased expense in the securing of uniform presswork.

242 *A Sequel to the Confessions*

Black-letter in the running title should be always a face of true old style to make it acceptable to the bookish reader.

Chap. VI. PHILIP de COMINES. 833

In the displayed circular or advertisement, dashes are commendable, but they are of doubtful value in a serious book. The eye is wearied with their continued monotony.

The Correct STYLE 19

trivial words. The speaker compelled attention, but he soon tired his hearers. This attempt at display, entirely proper in a handbill, advertisement, or tradesman's circular, is not really needed in any book. It may attract, but it irritates. Black dashes ordered by the publisher must be inserted as directed, but the compositor will make a serious mistake if he inserts them without order. Italic, lower-case, and small capitals are here needlessly combined.

Heures de Simon Vostre 75

The modern amateur who prefers straight lines and plain types should not authorize in one line a mixing of capitals, small capitals, italic, and lower-case types that would not be tolerated in one line of descriptive matter in the text.

of an English Opium-Eater 243

Modern designs of black-letter, ornamented or with marked eccentricities, are forbidden by publishers of library books.

undue wear, but ornamental types and pen-drawn lettering are never acceptable to the discreet publisher.

For dainty little books very small capitals were once in high favor, but when the word was short and over a page of type of a body three or four sizes larger, the running title in this style was feeble.

Thin spaces make the running title of small capitals a little clearer, but the figures for pages are usually too small, and the cross-rule underneath does not compensate for this feebleness. In the running title of many words, thin spacing of small capitals is impossible, and unspaced small capitals are not easily read, nor is the effectiveness of a running title in small capitals improved by selecting full capitals as initials for important words. Small capitals of pica are small enough for an octavo page.

The running title of one word only may be in capitals of the text or of one or two sizes larger.

64

VOLTAIRE

The spacing out of the letters of a short word until it fills the measure is one of the many freaks of modern practice that have been found attractive in advertising pamphlets, but it is not commendable in the running title of any library book.

V O L T A I R E

Running titles that indicate the subject-matter of each page are most acceptable in the lower-case italic of the text. Capital letters may be used in a running title of lower-case for its first letter and for strictly proper names, but not as emphasis for important words. Italic larger than the text may be used with advantage on a large page, but an italic of smaller body than the text type is never pleasing.

The space to be allowed for the sinkage of a chapter heading, as well as for the width of blanks above and below a table or a quoted extract in the text, is fairly indicated by the general direction to set solid or leaded. Blanks may be wide in leaded but should be narrow in solid matter.

162 Trimalchio's Dinner

Lower-case of roman has some favor as a proper selection for running titles. The size selected is usually larger than the type of the text. It is not improved by hair-spacing.

When great compactness is ordered, a new chapter may closely follow the end of the preceding chapter, as is practised in making up the Bible. If a foregoing chapter ends a few lines above the foot of the page, it will be necessary to make more lines in previous pages by over-running, wider spacing, and driving over the last lines of paragraphs, or by a new re-making up that slightly increases the blanks between the chapters. These methods will bring the end of the faulty chapter to the foot of the page, yet they may make a new difficulty in the compactly set book of short chapters. To begin a new chapter flush with the first text line of the page does not make that page pleasing, but there are occasions when this treatment cannot be avoided. When this happens, it is customary to emphasize the irregularity by putting one more blank line over the new chapter.¹

¹ To the inexperienced the making up of composed type in pages of uniform length seems simple work. It would be simple if the copy had words enough and no more, without head-band, synopsis, or initial, to fill neatly the first page of the chapter; if there were words enough to allow that chapter to end in the middle of an even page; if the last short line of a paragraph did not occasionally appear at the head of a new page; if the gauge that defines the length of the page did not

 ARCHIV FÜR BUCHGEWERBE

A running title with black decorations on either side and with cross-rules above and below is thereby made insignificant. This treatment compels the paging figures to be put in the foot-line, but consistency requires that they should be obscured with side decoration of similar peculiarity. Decoration pleases more when it is lighter than letters.

When a new maker-up has to continue the unfinished work of a predecessor, he must carefully examine the proof and copy of the type already made up, and make sure that the work he is about to do is its proper continuation.

SIGNATURES

Bookbinders need signatures as guides to the orderly arrangement of the different sections of the book. Paging figures in the upper corner of the leaf are unhandily placed for the convenience of the gatherer, who needs the guide at the foot of the leaf, where the section is first seized. The sequence of guide-marks made by alphabetical letters, or by figures following in numerical order, is more quickly seen than the sequence of page figures that have to be compared with the pages of a preceding section.

American printers prefer arabic figures for signatures, for they can be protracted indefinitely for the largest book, but British printers prefer alphabetical letters, and add to them a new specifying figure when the letter has to seem to require the division of a cut or a table. These are a few of the many annoyances that delay making up. They require the continual exercise of forethought and the adaptation of means to ends in many ways that cannot be provided for by any arbitrary rule. Some of these irregularities are too difficult for the maker-up; they have to be adjusted by the author, who often has to add new lines or cancel lines already set to make a sightly page.

be repeated. Following the usage of early printers, the letters J, V, and W are never selected for signatures.¹

The number of pages allowed for a section and its signature is governed largely by the thickness of the paper to be printed: for very thick paper, eight pages; for the ordinary thickness of book paper, sixteen pages. The double twelves of twenty-four pages can be used with safety only on very thin paper, and their insettings of eight pages (usually a cut-off, separately folded) take a star after each repeated signature. Sheets of four pages folio and of twelve pages are selected only when the form has to be printed upon a paper of peculiar quality, size, or shape. Publishers and bookbinders prefer sheets of eight or sixteen pages, for they permit neater folding and sewing. Too many pages in a section of very thick paper create wrinkles in the central folds, and too few pages in a section of thin paper make the back bunched with thread.

Every book of more than one sheet has a signature-mark in the foot-line of each completed section. If the section has an inset, cut off and separately folded and inserted, this cut-off inset should take the same figure as its outset, with the addition of a star, thus: outset 2, inset 2*. When the book makes two or more volumes, the number of the volume must be specified in the signature-line, as in Vol. II, 2. The numerals defining the volume should be in capitals,² so that they may not be confounded with the arabic figures of the signature.

¹ In many old books the signature of a section of sixteen pages was repeated on some of the following leaves. B was the proper signature for the first text page, B i for the third page, B ii for the fifth, B iii for the seventh, with intent to show to the folder the proper position of consecutive leaves. These additional signatures for the inner leaves of a section, inserted as helps to unpractised folders, are no longer used.

² One of the new fashions in book-making is the neglect of a signature-mark in the foot-line. Some authors order it in a separate line about an inch below the regulation foot-line;

When page figures and signatures cannot be used, and when the text lines are of uneven length, as in poetry, and blanks are of uneven height, as in forms of prefatory matter, all the customary guides for exact folding have been removed.

New guides for exact folding can be produced by inserting in the centre of the gutters (as between pages 1-8 on the half-sheet of octavo, and in the head-bolts between pages 1-4 on the same sheet) a short bit of hair-line rule, which will definitely mark the places where the sheet should be creased for folding. The printed guides so made will be hidden in the book by sewing, or will be cut off at the head or front by trimming.¹

When the number of pages for a full form has been made up, the maker-up should plainly mark on the proof and on the copy before him the last word in the form. This mark is needed by the reader and by the maker-up who may follow him.

A table of signatures is of some service to the maker-up, but it must not be trusted unthinkingly. The book made up, for the greater part, in sections of sixteen pages may have here and there sections of more or less pages, so made by printing one section out of order, or by the use of a different kind of paper for maps or illustrations.

When the imposing-stone is free, the maker-up puts his made-up pages thereon in proper position for the stoneman. If the stone is not free, he puts them in a wrapper of stout waste paper, and stows them in piles as may be directed by the foreman.

others omit it entirely, but this omission makes added expense and gives needless trouble to all the workmen from compositor to bookbinder. It is admitted that the appearance of the page is not improved by the signature in the foot-line, but its entire omission is dangerous, especially so when paging figures also have been omitted. More than ordinary care will have to be given to the gathering of the signatures to prevent disorderly arrangement.

¹ See Scheme 19 on page 155.

A page of text is trim, square, and symmetrical when its first and last lines are of full width. The short line that ends a paragraph is tolerated at the foot of a page, but it is a blemish when it appears as the first text line of a new page. Even the beginning of a new paragraph, with its slight indention of one em, at the foot or the head of a page is rated as a fault by the critical. As the maker-up cannot add or cancel words or transpose lines, it is impossible to avoid these faults in some measures of poetry, in short dialogue matter, or in any kind of composition that has to be made up in haste. Yet this fault can be amended in some kinds of composition, when time is allowed, by the observance of the following methods.

To prevent a short line at the head of a page, these expedients are often adopted: (1) Take out a line from the space allowed for the chapter head, and re-make up all the following pages until the objectionable line falls at the foot of the page. This is a tedious method, and it may cause a similar bad break upon another page. (2) Pick out a paragraph in any preceding page that could be spaced thinner, so as to make it one line less, and thereby provide the room for a new line. (3) Reverse the process: overrun a previous paragraph with wide spacing that will make a new line, and so drive over the objectionable short line and make it the second line on a new page. (4) Make the page a line short or long; but the two pages that face each other should be treated in the same manner: it is well not to repeat this too often. (5) Ask the author to add or cancel a word in any paragraph that will prevent the short line.

In the strict reprint the last expedient is impossible. When it is clearly unavoidable, as it is in some forms of composition, as in an ode or in short dialogue matter, no attempt should be made at change, for the apparent fault carries with it its proper apology.

Another alleged fault in make-up is a divided word broken with a hyphen on the first or last line of a page or a paragraph. To try to correct this fault by thin or wide spacing will make a much greater fault. In many lines it is impossible to do so. It can be corrected wisely by the author only, who can add, cancel, or substitute words that will prevent the use of the hyphen, but there are few authors who will take this trouble.

NOTES AND ILLUSTRATIONS

Pages that must contain illustrations, long notes, or tables of irregular size present many difficulties. Author and reader prefer that these additions shall be on the same page as the explanatory text, or at least on a page facing it. When the page is small and the note is large, the note and the text interfere, and the maker-up is often puzzled to decide the problem of precedence. The last line of a regularly made-up page may contain the reference-mark for a long note, which cannot appear on that page, and must overrun on two or more pages. When obstacles like these are foreseen, it is the custom to send to the author clean galley proofs, marked to show the limits of each page and the obstructiveness of the note or illustration. It is to be expected that the author will add new matter to close a gap, or cancel matter already set to prevent an unsightly break. He is expected to cut up the proofs and paste them in the order he prefers on the prepared paper within the prescribed lines. He may not be entirely successful, but he can give a clue to orderly treatment that will be helpful.

When the irregularities in the text are tables or notes of full width, the new arrangement desired can be made by the author; but when these irregularities are illustrations of small size and odd shape that compel an over-running of type that must be led down the side, the

author's calculations of the space to be occupied by the type are seldom correct. His order for a make-up of matter is unavoidably tentative and experimental. The maker-up is often obliged to make up the matter in a way differing from that of the author before it is finally approved.

Foot-notes are often more annoying than cuts or tables. They must begin at the foot of the page that contains in its text the mark of reference, but they may overrun two or three pages. They can be separated from the text by a white line, or by a short or long brass rule. The white line is to be preferred, for a hair-line rule of any length is objectionable because it is seldom properly electrotyped and printed with uniform thickness of face. When the width will permit it, the general appearance of the page will be improved by setting the notes in half-measure without the dividing brass rule. Each note should begin with the repetition of the reference-mark in the text. The marks furnished with the font of type are ungainly, but the superior figures frequently used in their stead may be so small as to be objectionably indistinct.

Long notes that overrun one page and appear on more than two pages can be avoided by giving up the page that follows the reference entirely to the note, but this treatment should not be attempted without the permission of the author.

Foot-notes should follow one another in the order indicated by the references in the text. A third or fourth note following a very long first note, all referred to on one page, can seldom be inserted on that page. The first line of the first note must be kept on that page, but its overrun must be transferred to the foot of the next page, and this transferred matter should be placed over the regular notes for the succeeding page, and be separated from them by a thin white line. This unfortunate alternative is a clumsy procedure, but it can be avoided

when the author rewrites or rearranges the text and notes so that they can be kept near one another.¹

In a page of two or more columns the notes of a column may be kept at its foot, but when there are many notes in the last column that interfere with the placing of a cut or table on the page, the notes may be put in the first column.

A side-note in the margin should begin opposite the first line of the paragraph referred to. When these notes are too many and too long, superior figures or letters have to be used to indicate the relation of text to note. When the margin will allow, the side-note should be at a visible distance from the text.

Side-notes are usually set in type three or four sizes smaller than that of the text. Four picas is a favorite width of measure for side-notes, but when notes are frequent and margins are wide, the measure may be five or more picas. A side-note should not be indented, nor should its letters be hair-spaced or its words wide-spaced to make full lines. Composition should be even at the beginning of every line, but may be irregular at its ending, both on the odd and the even pages.

Abbreviations are tolerated in side-notes that are not permissible in the text, but capitals should not be used to give distinction to the initials of important words that are not proper nouns.

The names of books, papers, and documents cited in the text often appear in side-notes in italic. This is not a wise selection, for italic letters have many kerns, and the kerns may break off in this exposed position.

Cut-in notes are placed at the extreme end of the first, second, or third line of the paragraph. When they begin on the first line they give an unnecessary ragged-

¹ Prosper Marchand's *History of the Origin of Printing* (Paris, 1740) has in its first chapter one overrun note that appears at the foot of the six following pages, and that is further elucidated by thirty-four subnotes set in a different measure.

ness to the outline of the page. The width and height of a cut-in note must vary with the fulness of the note, but the white space about each one should seem the same in all notes.

To arrest the eye, the cut-in notes of educational works are sometimes set in small sizes of antique or condensed title. The bolder face of these types produces the desired distinction, but a critic may say that the change spots the page unpleasantly. For general use the ordinary cut of roman lower-case of small body will prove most acceptable.

One of the features of a profusely annotated old book was the inclosing of its text with notes on the top and side as well as at the foot, but this can be done with satisfaction only when the copy has been very carefully prepared by the author.

The legend line or verbal description of a large illustration, often set by the maker-up, can be in many styles. An old method set the legend in small capitals of the text type (often too large for the words) in one or two lines. When small capitals of a smaller body were selected, the legend so treated became indistinct. When the legend line is followed by a more particular description, as in the numbers or letters that refer to anatomical illustrations, this minuter description may be arranged in columns and in a very small size of roman lower-case. A very long legend of two or three lines of small capitals may be indented in half-diamond fashion. When it exceeds three lines hanging indention is a better choice.

A more approved style for the legend line is plain roman lower-case of small size (about three sizes smaller than that of the text type), with capitals only for proper names and for the first letter of the line. To capitalize its apparently important words is to invite from author or publisher repeated changes of these capitals. Roman lower-case should be clear enough for the legend line

without trying to aid that clearness by means of petty display of capital letters. It is largely to prevent capricious alteration in capitals that the printer prefers small capital letters for this descriptive line.

Italic lower-case, gothic, and thin-faced antique, in capitals or lower-case, are occasionally selected to give to the legend line increased distinction, but all types of display are of doubtful propriety in a library book. The significance of the illustration cannot be improved, but it can be damaged, with black or eccentric lettering. The reader who does not fully comprehend it with an unobtrusive legend line will not be aided by bold type.

Illustrations that fill an entire page seldom need to be described in bold types. In sumptuous books the legend of a full-page illustration is often printed on a separate leaf of transparent paper, to be attached facing the illustration, for there are many engravers who protest against the insertion of any type-work below the cut.¹

Legend lines are usually centred, but when the illustration is of irregular shape, its legend may be placed in a lower corner within any vacancy that promises a proper relief of white space, and the plate may be slotted or mortised for its insertion. To prevent wear of type in this exposed position, the legend line in very small type can be put over a cut that must appear at the end of a page.

Over a cut at the head of a page the customary running title of that page should be suppressed.

The blank space to be allowed above, below, or by the side of cuts or narrow tables must be governed by the general openness or closeness of the composition. For double-ledged type the blank should be not less than a

¹ Although illustrators protest against explanatory legends in type at the foot or head of a full-page cut as damaging to their work, they see no impropriety in affixing to the half-page illustrations of articles in magazines descriptive lines in letters of large size and uncouth form that belittle the cut as well as the types.

great primer wide; for very open composition two or even three picas may be used; for solid composition about one pica. An illustration is damaged in appearance when it crowds the type of the text.¹

When the cut is very small and compactness is desired, type may be overrun and arranged on one or both sides, but the setting of type in measures too narrow should be avoided, as in any blank less than eight em quadrats of the text type, uneven spacing cannot be prevented.

Illustrations of irregular shape should be blocked on metal bodies and notched by the automatic machine recently invented for this purpose; if blocked on wood and notched by the hand-saw and file, the wood may warp, the notches will be out of square, and the types inserted in them are liable to work off their feet, causing delay on the press.

One of the modern methods of make-up is the placing of very small cuts or illustrations entirely in the outer margin, where they will not obstruct the text.

When it is ordered that two or more illustrations shall project beyond the regular measure of the page in the margin of a letterpress form, all the pages of that form should be made up to the full width of the widest page. This can be done to best advantage on the make-up galley. A centring in exact position of pages of different width can never be done quickly, and rarely ever accurately, upon the stone.

If the pages are to be electrotyped, the blank spaces above and below an illustration or a table (and indeed all the blanks) should be filled with bearers to insure the making of a good mould.

¹ These remarks do not apply to composition in black-letter, ostensibly in the Morris style, which favors the jamming of type close to the initial and even against a broad engraved border; but this contraction of the relief of a needed white space should never be allowed in any composition of roman type that always needs much openness for its fair presentation.

Illustrations of irregular shape that require types to be rearranged about them necessarily compel the overrunning of the composition. This process is always more tedious than the original composition, for the lines so treated must differ in length and may have to be repeatedly changed to prevent bad division or uneven spacing. Before overrunning is attempted, all alterations desired in the text should be made on the galley proof. To add or cancel words after the type has been fitted to the illustration and made up in pages will cost more than the original composition. To preserve decent uniformity in spacing, it may be necessary, even after overrunning, to ask the author to change one word for another to make a line longer or shorter. The position of illustrations on a page is a question of taste usually determined by the author, but there is a general agreement as to the propriety of the following rules:

A very small and narrow cut may be put in the centre of the measure, with the type rearranged on each side, but the type so rearranged should be treated as two distinct columns, to read down the page and not across the cut.

If the cut is wider and will not permit decent spacing on each side, put the cut at one end of the measure, so that the type will be on one side only.

Two or more cuts, not dependent on one another, appearing on the same page or on pages that face, should be kept far apart.

When it can be avoided, an illustration should be put on the page so that it will not back another illustration on the following page, for this backing of two cuts against each other increases the labor of presswork and may produce a "set-off" of black ink where it is not needed, to the damage of each illustration.

The cut that is not wide enough to fill the measure, but that is too wide to have type put on one side, may have its

appearance improved by surrounding it with a rule border. A rule with face about one point thick is better than the hair-line rule, especially if it is intended for a red-ink line. Parallel or concentric rules, one for black and one for red ink, are finical niceties; it is difficult to print them on a large sheet in exact parallel.

Two illustrations of the same size that have been prepared as mates to face one another on opposing pages should be made up to face with exactness. Cuts that are not mates can be placed at the head or side or foot of the page, to avoid the appearance of monotonous uniformity.

When a cut of full width is put at the head of the page, the running title and the folio figures should be suppressed, and the folio of the page may be put in small figures in the foot-line.

When a table or cut of full broad measure must appear in a page of two or more columns, each column of type must be made up to read continuously from the head to the foot of the page, and without regard to the separation made by the cut or table.

In poetry, lines that rime should not be put on separate pages. Quoted lines of poetry should not begin a page when it can be avoided.

When the gauge shows that the chapter will end with two or three lines only on the last page, and the maker-up has been ordered not to lengthen previous pages, he must ask the author to add more lines to give a decent fulness to that page; or he may ask him to cancel some lines on previous pages, so that the chapter will have a neater ending.¹

¹ To an impatient author the time taken for making up the illustrated pages of a chapter often seems unreasonably long, but it is unavoidable, for illustrated pages can be made up by one person only, and he may have to undo repeatedly what he has done. Yet forethought will prevent some wasted labor. The type, cuts, and notes for each page should be cut out of an extra proof and be arranged in page form on the pages of a dummy before the practical work of making up is attempted.

A long quotation in a foreign language with its translation in a parallel column should have the number of words for each column carefully counted. When the words are unequal in number, the columns should be made of unequal width, so that the two columns will end on or near the same parallel. If this treatment is not possible, the column that contains the excess matter may be put in broad measure after it passes the parallel. This is troublesome, but it will prevent the unsightly appearance of one column huddled by the side of its mate that has a long gap of unbalanced white space.

The full-page illustration that occupies the broad way of the page often has its legend or descriptive line near the gutter or back margin. It is expected that the reader will turn the book half-way around, from right to left for the odd page and vice versa for the even page. This arrangement must be varied when two facing cuts are intended to explain or supplement each other. They should face one way, so that they can be read from the same position.

The adjustment of blanks before and after extracts, cuts, and regular or irregular subdivisions of the text is another duty that calls for nice discretion. These blanks may be of irregular width,—the more important divisions separated by wide, and minor divisions by narrow blanks,—but the blanks assigned to each class should be of uniform width as far as is possible. It is difficult to maintain this appearance of uniformity when blanks have to be increased to drive out, or diminished to take in, an extract, subheading, or quotation that comes at the head of the page. In this as in other cases, the best help is to be had from the author, who should be asked to change words or lines that interfere with orderly arrangement.

When a large piece of matter, as in a long motto or quotation of importance, has to be set in a narrowed

measure, the appearance of the composition will be improved if all the lines are made full, without indention in first line and without break of white in last line. It will be necessary to overrun the matter repeatedly in different measures before this can be done properly.

When a dash is used for a subdivision, to make that dash seem in the centre, one or more added leads must be put below the dash. The shoulder of the last lower-case text line must be reckoned in blanking-out as one lead or more.

Type for the pages of a book should not be made up while it is wet or even damp. The wood-blocking of electrotype illustrations, and even the wood furniture that meets wet type, will be swelled by contact with moisture.

The exact placing in an open page of one or more lines of type selected for red ink upon a page in two colors will be made easier by putting a clean proof, on thin paper, of the entire page face downward on the make-up galley. The maker-up can then see the proper position of the red-ink lines. If this color page is made up solid, and of the same length as the page of black, avoiding a too free use of leads that yield under pressure, the pressman will be aided in making register.

It is not practicable to give suggestions for every peculiarity that may present itself, for make-up is a study without end. The workmanship of well-printed books should be critically examined for a study of the best methods.

PART II

STONE-WORK

Stones and chases . . . Adjusting margins . . . Locking up
Taking proofs . . . Corrections . . . Clearing away

STONES AND CHASES

One of the most conspicuous pieces in the composing-room is the imposing-stone, a thick, smooth slab of hard marble, bonded with an iron tire, or bedded on plaster in a frame of oak wood. It is used as a table for making up newspaper forms that have to be printed on flat-bed presses, for adjusting book margins, and for locking up and correcting previously made-up pages of books or jobs.¹ The space unused below the stone is usually fitted up with drawers for the stowage of furniture, or with racks for chases. Stones can be had of supply houses in many sizes, from 18 × 23 inches to 38 × 96 inches. The larger sizes, which are weighty and liable to be broken or gouged by shooting-sticks, have been supplanted in many houses by tables of iron, that are of truer surface and every way stronger. The best iron tables have the edge rabbeted to the thickness of the ordinary brass galley, so made to give the galley a rest when pages are slid off of the galley.

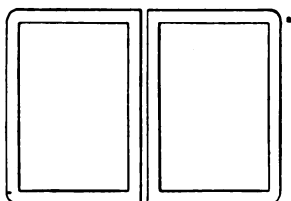
The chase is a square iron frame in which composed type is locked up and kept secure, so that it can be lifted from the stone and carried to the press. It is made of cast- or wrought-iron, to suit the construction of a printing-

¹ See "Imposing Tables and Lock-up Appliances," Part I, No. 4.

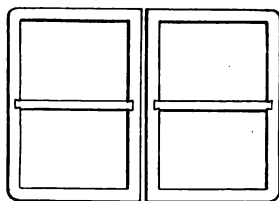
machine or the shape of a form. The cast-iron chase is cheaper, but it is relatively weak, and serviceable for small jobs only. Its greatest defect is incomplete squareness. The stereotype or electrotpe chase, usually of cast-iron, is planed and squared to a true right angle on one of its inner corners. The cross \times marked in one corner indicates the corner against which the head and the left side of the page should be laid; this will insure the squareness of the page on at least two sides.

Wrought-iron chases are sometimes selected for large and light forms. When the chase is a plain iron frame without cross-bars or dovetailed slots for the bars, it is known as a skeleton chase. This serves fairly well for posters that have much wood type, for patent blocks and open forms, but it is not serviceable for any large form of great weight. Forms of four hundred pounds are not uncommon in newspaper work, but they have to be handled at great risk. When tightly locked up, the heavy form sags in the centre,¹ and the chase bends outward on one side, putting the form more or less out of square. When two very large pages have to be printed together (as is customary in the ordinary weekly newspaper), that are too heavy to be made properly secure in one chase, twin chases are preferred. The twin chases give additional safety in handling, but the sides of these chases are often made thinner on the meeting side. For large pages of quarto form, twin chases are made with one cross-bar.

¹ It is difficult and sometimes impossible to lift from the stone large and heavy forms of type that have not been strengthened with cross-bars in the chase. In his *Hints on Imposition* (page 91), Williams recommends that "a smooth board which will extend fully across the form and chase may be nailed securely to the furniture near the centre of the chase. The space at each end and between the board and the chase should be tightly filled up before lifting the form. The [face of the] type should be protected with soft paper." I have never tried this expedient, which seems good, but I should recommend screws instead of nails. One hundred and forty pounds is enough within a skeleton chase.

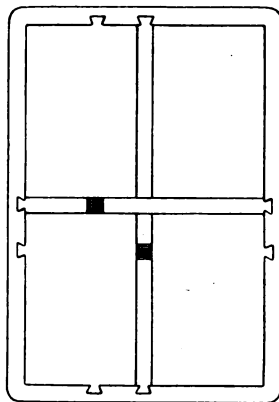


Twin chases.

Twin chases with one
cross-bar.

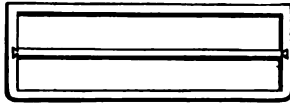
The cross-bar is sometimes welded in the frame, but it is oftener a movable bar of iron, cut with projecting dovetails on either end that accurately fit in slots cut in the chase. It is known as the short cross.

To prevent the bowing outward on the narrower ends, and to insure accurate register on book-work, it is necessary to use another bridge or connecting-rod, known as the long cross, which is firmly connected to the outer frame by the same device of slots and dovetails. As it has less resistance to overcome, the long cross is a narrower bar of iron. This variety of chase is known as the shifting-bar chase, or the book-chase. The side-sticks and quoins are placed nearest the chase-frame, and the pressure on

Book-chase with two shifting
cross-bars.

the pages of type, when properly locked up, is evenly resisted by the truly squared cross-bars. This illustration shows the position of the bars as they are used for ordinary forms of 8vo, 16mo, and 32mo. For forms of 12mo, 18mo, and 24mo, that require a folding of the sheet in three parts, the long cross (and sometimes the short cross)

has to be put in another position, as is indicated by the places for slots in the illustration.

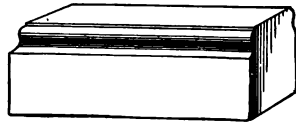


Heading-chase.

Long and narrow chases are supplied for headings and bill-heads. They are sometimes used on the beds of printing-machines as a better substitute for many pieces of wood furniture, which always has a tendency to bow

or spring upward on the bed, often to the damage of the machinery.

The planer is a stout cube of hard wood, which can be used with propriety for making level a form of type only before the form is locked up. When used

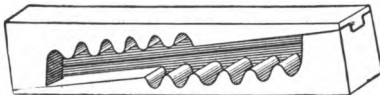


Planer.

to level type after locking up, it becomes a tool of damage.

The proof-planer is the ordinary planer covered with thick elastic felt. It is used for taking pounded proofs of forms too large to go on the ordinary proof press. Great care must be taken to avoid smashing the type and illustrations while pounding a proof.

The iron quoin most approved of is in two pieces, each having two small inclined planes of equal length, with cogs or teeth on the interior sides. A key-wrench, that grips the interior



The Hempel quoin.

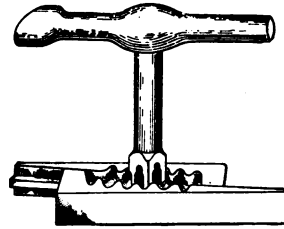
cogs or teeth, expands the two pieces to a wider parallel and gradually tightens the type in the form. A tongue on one half of the quoin, fitting in a corresponding groove in the other half, prevents either half from being twisted out of line. The power that can be exerted by this wrench is greater than that usually obtained with the mallet and

shooting-stick. These patent quoins are better than quoins of wood in preventing the slackening of pressure after the form has left the press, but they are not so efficient while the form is on press. The jarring made on some kinds of cylinder-presses tends to their gradual loosening.

A strip of thick blotting-paper or of thin pine reglet between a Hempel quoin and the chase will often prevent the loosening of pressure

which is produced by the continued vibration of the press.

Another variety of iron quoin consists of two stout cubes of iron that can be pushed apart by working a ratchet against the nuts of a right and left screw fixed between the cubes.



Hempel iron quoin with its turnkey.

ADJUSTING MARGINS

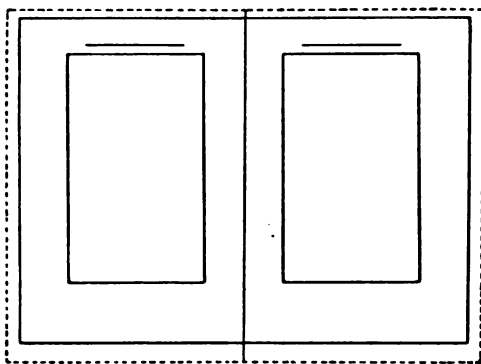
One of the duties of the stoneman is the making of margins. In some printing-houses it is the custom to have him determine all margins from scant verbal instruction without a plan. This custom is not to be commended, for it leaves too much to his discretion. As the margins on three sides of the proposed book may be unequally reduced by trimming, and on one side by some methods of sewing or stitching, about which he is seldom fully advised, it seems proper that the determination of head and back margins for every page should be made in the counting-room by the person who has taken in the order for the book and has explicit instructions from its publisher about the margins.

For this purpose a pattern sheet should be made with carefully drawn pen lines that describe the width of back

and head margins upon the leaves of any two mated pages of the paper that will be used in printing the book. These mated pages will be 1 and 8 in the half-sheet of 8vo, or 1 and 16 in the half-sheet of 16mo. The pen drawing should be made upon the outer leaves of a full section of the book, which consists of as many leaves as the binder folds together at one operation. It is usually eight leaves (sixteen pages) of ordinary paper, but it may be only four leaves (eight pages) of thick paper. If paper of the prescribed size is not in the house, a larger size may be selected, and a piece of this large size must be cut down to the exact size of the paper needed for one section. The paper for this model should be folded with great accuracy to make even folds without waste. So folded, it will show the leaves as they will appear before they have been sewed and trimmed.

Before any attempt is made to draw the lines for the head and back margins, it should be known whether the intended book is to be sewed, centre-stitched, or side-stitched, whether it is to be trimmed much or little, at head and tail only, or all around, or left with uncut edges. Fair allowance must be made in the pattern sheet for the paper that will be wasted in trimming, or taken up and concealed in the back by different methods of sewing or side-stitching, as may be more apparent in this diagram. If the book is to be trimmed (or, even if untrimmed, it may afterward be rebound), begin by marking off at the head, front, and tail of the leaf the paper that will be wasted in trimming. For the head margin of an octavo allow for waste one eighth of an inch, for the front margin one quarter of an inch, and for the tail margin three eighths of an inch. These are approximations; a careful binder takes less, a reckless binder more. Then consult the binder as to the loss of paper taken up in the back by wire-stitching or sewing, and mark off the width of the paper so concealed. The paper taken up in the back by binding

will be variable: in some kinds of sewed books it will be too small for allowance; in the side-stitched book it will



Outer dotted line indicates the full size of the untrimmed leaf; the black connected line near it, the leaf as it will appear after trimming; the outlined square in the centre of each leaf, the position of the page.

vary from one sixth to one quarter of an inch, or more if there are many sections in the book.

Having determined the dimensions of the leaf as it will appear after sewing and trimming, mark on the leaf, with clear pen lines, the size and shape of the page in exact position. Custom requires that the margins of a page shall be uneven: least at the back, but little more apparently at the head, much more at the front, and most of all at the tail. A page so placed on the leaf will be most acceptable to publisher and book-buyer. The proportions may be roughly expressed by these figures for the plain octavo: for visible back margin (after sewing) 4 to 5 picas, for head margin 5 to 6 picas, for front margin 7 to 8 picas, for tail margin 8 to 9 picas, it being understood that these will be the measurements of the leaf after sewing and trimming. The width of the paper lost by trimming or concealed by sewing must be estimated and allowed for in the proposed margin on the pattern sheet.

These apportionments will be satisfactory for the ordinary book, but a publisher, for peculiar reasons, may require margins to be wider or narrower. If so, they must be changed to meet his wishes, but the rule of a steadily increasing width of margin, beginning at the back, increasing at the front, and greatest at the tail, is seldom departed from in the ordinary well-made book.

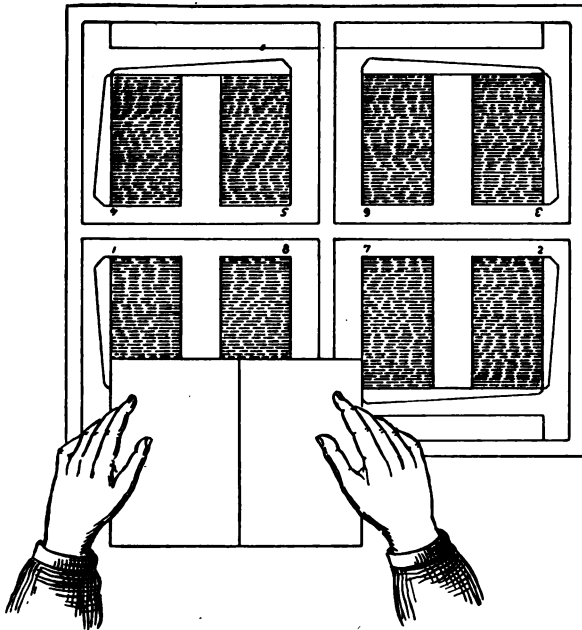
The head and back margins should be first determined. If they have been considered with relation to their waste by trimming and sewing, they will be seldom changed. If correct on the pattern sheet for the two mated pages of a section, they will be correct for all the pages in the form, whether that form is an 8vo of one section or a 64mo of four sections.

Front and tail margins can be most accurately made by the stoneman, for they cannot be predetermined with precision by guesswork. The pages in a form should be so disposed on the stone that they will fairly fill the sheet, without any waste of paper, and yet present the needed inequality of margin about every page when the sheet has been printed. In other words, the form must be made up to fit the paper. It may have sixty-four pages, to be divided by the binder in four sections for separate folding. For the form of many pages more blank must be put in the places where the sections have to be cut, but under all conditions the blanks must be so adjusted that the front and tail margins in all sections will be exactly uniform. So adjusted, every section can be folded evenly, without waste or protruding bolts or edges at the fore edge and tail.¹

¹ One method of ascertaining proper front and tail margins for the 16mo begins with accurately folding a sheet of its own paper to a section of eight leaves, leaving unopened all its folds or bolts. Then place a page of its type upon the first leaf of that folded section, and pencil a line all around the page on that leaf. With a sharp penknife stab each line in two places at wide intervals through the folded section. That done, unfold the paper: the distance between parallel stabs will show the

The diagram on page 113 is useful as a guide to the maker-up, but it is not enough for the stoneman. It does not sufficiently indicate the proper margins between meeting fore edges or meeting tails in the form of many pages. The form of 12, 16, 24, or 32 pages needs a surer guide.

The front margins for the form of eight pages can be determined by taking two leaves of the pattern sheet

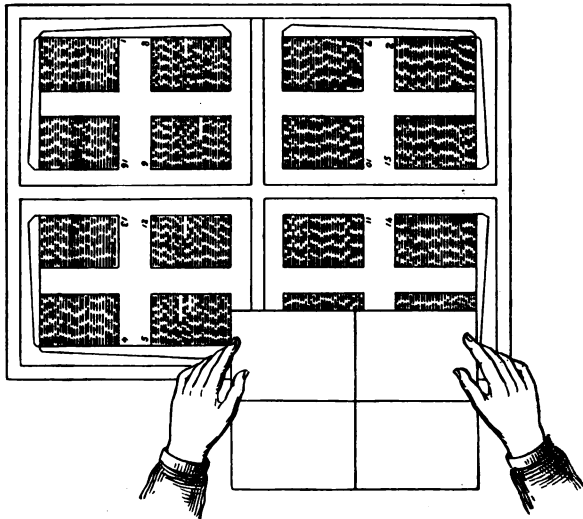


Making front margins for a form of eight pages.

previously described on page 113, and lapping them over any two mated pages so that the edges of the paper shall width of the blanks needed for proper margins. This method, of some service to a novice in margin-making, has its disadvantages. The adjustment of margins by measuring pages from extreme points with the paper to be used is a more common method.

accurately meet similar sides of pages in different quarters of the chase, as is shown in the diagram on page 115 between pages 1 and 7: Give to the front margins all the blank not already covered by type or by the furniture of back margin. The tail margins will be regulated by the pressman.

For the half-sheet of 16mo use the same method for determining the front margins, which, in this instance, will be between pages 1 and 13. For the tail margin take a quarter-sheet of the paper, which must overlap from the tail of page 3 to the tail of page 5, accurately meeting the extreme ends of full pages, and all the surplus of blank must be given to tail margins on each side of the short cross-bar.



Making tail margins for a form of sixteen pages.

When the pages in other quarters of the chase have been margined in a similar manner, all margins will be

correct. The sheet printed therefrom can be folded correctly by print or by the edges of paper. Forms of more than 16 pages must be treated in the same way, for they are usually combinations on one sheet of different sections of 8 or 16 pages. Margins approved for one must be correct for all.¹ In the book intended to be trimmed upon two or three sides, the leaves that are slightly over-wide or over-long may not be rated as faults, for the cutting machine that trims off the bolts also cuts off every other chance excess of paper and makes all the leaves of uniform size. But there are buyers who insist on uncut leaves of full size, with bolts unmarred by the knife. To them the protruding leaf is a serious blemish that must be removed. How to remove it neatly after printing is a puzzle. It can be "rough-cut" by tearing each sheet down against a sharp straight-edge, but never by the scissors or knife; by rasping off in the folded section the excess of paper with a rotary haggler; by grinding it off with a rotary circular knife. But all these methods call for needless labor, and none of them gives to the finished book the desired neatness. It is better to prevent than to correct.

If the ream of paper sold as 30 inches long and 20 inches wide contains occasional sheets that are $20\frac{1}{6}$ inches wide, take the largest sheet as the safer guide for making margin. Make the distance between pages 3 and 15 in the half-sheet of 16mo $10\frac{1}{12}$ inches instead of 10 inches. This means putting an added nonpareil reglet by the side of the long cross-bar. So treated, the excess of one sixth of an inch will be fairly divided in folding and apportioned to

¹ It may happen that all the sheets of the ream of paper to be used are not of the same size. The ream sold as of 20×30 inches may have some sheets that are one eighth or one sixth of an inch longer. Short sheets are rare. This slight excess in measurement, disregarded in ordinary newspaper or job work, may be a real annoyance in bookbinding. When an over-long sheet has been properly folded, its excess on some leaves of one eighth or one sixth of an inch will project ragged leaves beyond the folded bolts, much to the annoyance of the reader.

each half of the sheet. The sheets that are but 20 inches wide will have leaves that are one twelfth of an inch shorter than sheets with bolts of folded leaves which must come flush up to the fore edge. In the form so made up there will be no ragged or protruding leaves. The deficiency in the short leaves will be almost imperceptible.

LOCKING UP

The locking up of pages in a form of type seems as simple work to the unpractised as the driving of wedges. This common belief is a serious error: pages cannot be truly squared and properly prepared for printing by brute force only. Locking up calls for unusual discretion in the selection of the quoins, chases, and side-sticks, as well as in the graduation of pressure.

Before made-up pages are laid down, the imposing-stone should be made perfectly clean. Particles of dust adhering to the stone will prevent an even planing down of the type, and the mould taken from types of uneven height will produce uneven electrotype plates.

Correct stone-work depends primarily on properly justified lines and exact make-up, but the stone is not the place to remedy the grosser faults made by the compositor. When faults have been discovered, or belated corrections in justification are required after imposition, the pages should be sent back to the galley. The readjustment of make-up on the stone is always difficult and is seldom done in a satisfactory manner.

The chase needs an examination. It may have on the cross-bars blotches of rust, or adhering card-board put there by the pressman as a makeshift aid to exact register; it may be warped or twisted, so that it does not entirely rest flat upon the stone; it may be out of square, with bent or sprung cross-bars or bruised dovetails thrust in badly fitting slots. Chases with crooked or twisted bars

often cause types to get "off their feet"; they work up spaces, and produce bad register.

The chase should be selected to fit the press upon which it will be printed, large enough to give free play to the quoins, but not so large as to compel the use of an excess of interior wood furniture. Its corners in the angles of the frame and in those of the bars should be tested with a steel square before it is accepted. If it is not truly square, exact register is made difficult and is often impossible.¹

A steel square and a long straight-edge of steel are needed for exact book-work by the stoneman as much as they are by a carpenter or a machinist.

The pressman who has to print a letterpress form should not be required to correct the skewing of pages by inserting bits of cardboard between the chase and the furniture. A book form of many pages can be and should be prepared on the imposing-stone to produce perfect register.

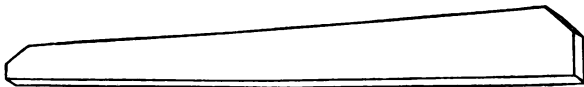
A form of four or eight small pages may be truly locked up in an ordinary cast-iron chase, but the form of twelve or more pages of 12mo or of larger size needs a wrought-iron chase with true cross-bars. The chase without cross-bars, whether of wrought- or cast-iron, will bend outward in the centre, where pressure is great and resistance is small. Cross-bars are added to the chase as a means to maintain a uniform resistance on each side of the bars

¹A jobbing electrotyper of New York City, who received every day from different printers forms varying in dimensions from five to one hundred square inches, reports that many forms delivered to him were not truly squared and properly locked. The deviation from a true right angle was usually slight, not to be noticed in a print on one side only of the paper, but noticeable enough when many plates were printed together upon one sheet and the pages backed each other. In some of these forms, out-of-squareness was produced by locking up the form against the wrong corner, so that the pressure of the quoins had to be resisted by the unsquared inner angle of a cast-iron chase; in others, by too much pressure on one side and too little on another, or by worn and warped furniture of wood.

against the even, all-around pressure of locking up. If the pressure is unequal, and is greater in one half or one quarter of the chase, the cross-bars at the over-tight part will bend. Slots are cut in the chase and dovetails are put in the bars to prevent this outward bending of type and to aid in giving squareness to the form.

A large form of one page only that contains a great mass of heavy type needs a chase with frame of extra thickness. While a tight locking up is needed to prevent the sagging of type in the centre of the form and to provide for its security in transit to the press, too strong pressure is sure to bend the chase and to bow outward the type in the form. To keep all lines of type square or in parallel, the pressman may have to unlock the form after it has been placed on the bed of the press, to put a thin reglet between the chase and the centre clamp on the bed of a cylinder-press, and then relock the type in the form as well as relock the chase upon the bed. The stiff resistance of the centre clamp on the bed of the press is needed there to prevent the bowing outward of the chase and to preserve the straightness of the lines of type.

Furniture of wood that has been water-soaked and warped, frayed at the edges or rounded at the corners, should never be used. The outer furniture between the side-stick and the chase should be of one piece only, fully as long as the resisting side-stick or foot-stick. The fudging of two or more small pieces of wood as resists to the quoins, or the selection of two small quoins, compels needless labor and makes unsatisfactory work.

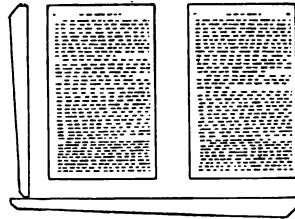


A side-stick properly cut.

Side-sticks of wood should be cut diagonally at the ends, so that they will present the longer side to the type, and

not to the quoins. This will prevent the use of the side provided for quoins against the type, and will preserve the smooth side for the type only. The side-stick or foot-stick at its narrower end should be as long as but no longer than the type it presses against: neither one should cross the other, nor should the head-bolt, gutter, or any other piece of furniture in the chase be so long that it will bind against the side- or foot-stick. The accompanying diagram shows an improper selection of the side-stick. When one bevelled stick crosses another, the form is locked and unlocked with difficulty, and always at some risk of squabbling the type.

Metal furniture in one piece only should be preferred for the head-bolts as well as for backs or gutters. Side-sticks of iron, or even of type-metal, are better than those of wood. Guttered furniture for back margins should be a little short of the full length



Improper side-sticks.

of the page, and head-bolts a little narrower than the width of the measure, but if the head-bolts are cut too narrow the type near the corners of head-lines may be insecurely held. For ordinary work the furniture outside of the type and nearest the chase may be of wood, but metal is safer for interior work, for color-printing, for rule borders, or for any work that will require accurate register. When suitable garnishings have been selected and adjusted, the quoins may be put in. They should be selected with care, for much wrong locking up is caused by the forcing of quoins into positions for which they are not fitted. Any quoin selected that does not rest flat on the stone and that will not move snugly against the side-stick should be rejected at once. It is bad practice to

allow quoins to project at an angle so that they can be struck direct with the mallet, and not by the shooting-stick. The flat side of quoins should always rest upon the stone. When the side-stick is thin and has a slight bevel, it will be necessary, as increase of pressure may require, to change the quoins first selected for others of larger size. A thin side-stick will need more quoins than a thicker one, as its thinness will permit it to bend and therefore it will not hold the type all along its whole line.

As the cord that ties the page is gradually unwound, the quoins should be gradually tightened, by the pressure of the fingers, so that the side-stick will be kept close to the type and prevent the thin letters at the ends of the lines from hanging or dropping. At this stage the mallet should not be used; the pressure of the fingers is sufficient. The quoins should be fairly equidistant and no more force used than is needed to produce a gentle pressure.

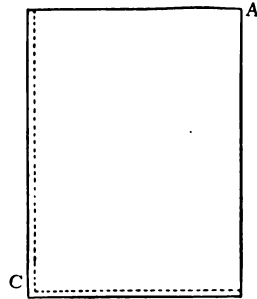
When the page-cords have been removed and the pages have been cautiously and securely pressed by side-sticks and quoins, the form may be planed down. Before this operation the face of the planer should be examined and brushed off. Some printers wrap its face with smooth clean paper. The planer should be held firmly in the left hand, so that it cannot be moved sidewise by the blow of the mallet. It should always have a full bearing on the type, and never be allowed to hang over the side or over an open page that offers no resistance. It should be struck in the centre, not with the head but with the end of the handle of the mallet. In composition that has been fairly prepared, very little force is needed to press down the few types that may be too high, and taps with the end of the handle are enough for the purpose. When the planer is struck by the head of the mallet, it is usually struck at an angle, so that the force applied is unequally diffused; most of that force is exerted on the side of the planer nearest the striker, and the far-off side gets but little. When the blow is

struck vertically by the handle, less force is needed, and that force is more equally diffused.

A violent planing down of the form is always damaging to the type, especially so when the striker works rapidly and makes his blows fall upon a planer which may be occasionally held at an angle that does not give it a full flat bearing on every part of the type. Violent planing down is wrongly supposed to hide some of the mischiefs produced by loose justification and over-tight locking up. In all forms that have been locked up too tightly, the type will bow or curve upward slightly about the centre of the form, and will not rest fairly upon the stone. The form that is so locked up may be repeatedly planed down until the types meet the stone in the centre, but they will spring back again in this or in another quarter, and will soon carry upward with them the spaces that blacken the sheet.

The slightness of the pressure needed to secure a properly justified form is fairly illustrated by patent iron quoins. Slight twists of the wrench on the quoins will tighten the type more securely than uneven blows with the mallet.

In this diagram the outer black line represents the outline of a page before locking; the inner dotted line, the same page after locking up. The distance between these lines indicates approximately the "give" or compressibility of the type, which, in a long page of leaded type, is usually greater from the head to the foot than from side to side. The single types in the corner A are but slightly moved by locking up, but those in the corner C will be moved much more, and in a diagonal line toward that corner A. To lock up properly, the pressure applied to the type must be gradual and even



on each side. When the pressure is not even and gradual, one page or one quarter will hang or crook. If the quoins at the foot of the form are made full tight before any pressure is put on the side, the types will give in that direction only. If the types have been made needlessly tight by too much pressure at the foot, twice as much force must be exerted to move them in the contrary direction. Under this pressure, the types will bow upward or hang in one quarter, the cross-bars may be twisted, or the chase may be strained or cracked. In forms too tightly locked up the types will bow upward; then follows a violent planing down in a vain effort to keep them on their feet.¹

The tightening of quoins should begin at the tail of pages by pushing up the quoins with the thumb. The pages should be next tightened on the side in the same manner. Each quarter should be separately treated. When the quoins cannot be moved by the fingers, the shooting-stick and the mallet may be used for this purpose. The first strokes of the mallet should be light, and should be given in regular order to the quoins in each quarter of the chase. For a large and heavy form of many pages to be locked up against cross-bars, it may be necessary to go around the form two or three times, gradually increasing the pressure. The stoneman should try to lock up type continuously and slowly; to do it hurriedly or recklessly is to do it badly. When the form is supposed to be tight enough, it should be tested by straight-edge and square, which will show where there may be too much pressure. In any form that has been truly justified and evenly locked, the pressure required will not be great.

¹ Careful pressmen often find it of importance to slacken the quoins of a too tightly locked form as soon as it is laid on the bed of the press, so as to allow the types which are curved upward in the centre to rest on their feet. If this precaution is neglected, and presswork begins before the types in the form rest on their feet, an even impression cannot be had. Types will receive injury, spaces will work up, and the work will be delayed.

The difficulty of locking up is always greater in forms that contain tables with brass rules crossing at right angles or with brass borders. Forms full of thin leads, or that have columns of types set to different measures and at right angles, with cross-justification, or that are comparatively solid and incompressible on one side and open and spongy on the other side, are always troublesome. In forms like these the fault begins with careless justification, but is sometimes increased by badly cut and crooked brass rules that have not had the bur removed from the cut edges. Bent leads and foul or badly washed types are other hindrances.

If a form has one solid and one spongy side, as may happen in the ordinary form of bank-checks, a line of properly matched quadrats or quotations should be put on each side of the form as a guard. The side-sticks will then have an even and solid bearing against the guards so provided, and will not bend the types at one end or in the centre.

When mitred brass rules do not join, the accuracy of the mitring should be tested. Even when the mitring is exact, there will be difficulty if the rule is too thin, or if the form is locked with wood quoins and a thin wood side-stick. A large form of pages with mitred brass-rule borders can be truly locked up only by making use of an accurate chase, metal furniture for all divisions inside of the type-work, perfect justification, iron side-sticks, and patent quoins. To these must be added extra care on the part of the stoneman.

The art of locking up may be summarized in a few words: Justify and make up accurately with types squarely on their feet. Use strong and true chases. Prefer metal furniture for all interior work. Make composition solid, and avoid a too free use of leads. Use iron side-sticks and patent quoins. Lock up slowly, gradually, and not too tightly.

Locking up is done for newspaper-printing machines by means of a wrench applied to screws in the chase. The pressure so exerted is great, and may make the type half a point higher. I have seen types humped upon the back of each body in places where this body opposed the nick of the types in a preceding line that relieved this pressure.

When the form has been finally locked up, the planer may be gently used, not to beat down a few types that are supposed to be over-high, but to ascertain whether the types rest truly on their feet and do not bow or curve upward. A solid sound, that will be readily recognized in the shock of a firm resistance, is always produced when types are on their feet, and the form that gives this sound and touch seldom needs any more planing down. The hollow sound produced by the planer over any portion of the form is evidence that the type has sprung upward from over-tight locking up. When this hollow sound is heard, it will be useless to try to put types on their feet by more planing down, for the bowing upward will reappear in another quarter. The only remedy is to slacken the quoins: if this makes the form insecure, faults in justification or make-up should be searched for.

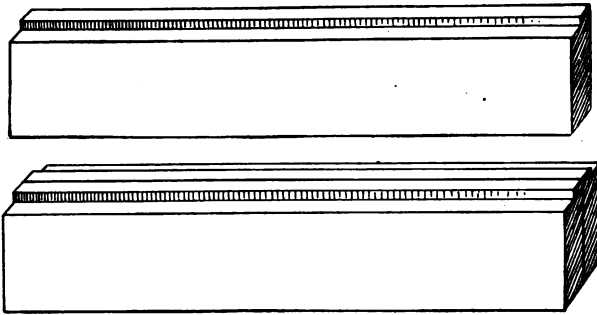
Forms of type surrounded by furniture of wood that may be kept in the chase for many days will require a frequent retightening of the quoins. If this precaution is neglected, the gradual shrinking of the wood may cause the form to fall in pi.

Patent quoins of iron, firm as they may seem in their hold on type when the form is laid on the press-bed, sometimes work slack or loose by the constant jarring of the printing-machine. A careful pressman tests their tightness repeatedly.

Pages intended to be electrotyped are usually imposed in small chases of cast-iron, truly squared, but large enough to hold four or more pages of ordinary 12mo. Small types and half-tone photo-engravings need more pressure

than large types. The large 4to or 8vo, or any page that contains a large illustration, is most satisfactorily moulded in the chase of one page only. A page of type and a full-page illustration should not be moulded together when they can be moulded separately, for each page requires different pressure.

To prevent the spreading of the wax over the sides and ends of pages, guards are provided by electrotypers. These guards are rudely cast slugs of type-metal, type-high on one side and of variable width and length, cut to suit the size of page required. When two pages are imposed in one chase, the form of guard is changed so that the plates made therefrom can be separated with ease. It is possible to mould type without any bearer or guard, but the plate so made will be imperfect. When proper guards have not been attached by the stoneman, the electrotyper tries to lessen this defect with hasty indentations in the wax, but they never do the perfect work of guards or bearers.



Guards for electrotype work.

The guards of metal furniture provided by the electrotyper to surround every page are intended to confine the moulding wax so that it will not spread outward, and to assist in forming the needed bevel that is afterward planed on the side of the finished plate. The best electro-

type plates are made from types set up with high spaces and quadrats that are of even height with the shoulders of the types, and that prevent too much of a downward escape of the moulding wax. A further safeguard is provided against imperfect moulding by inserting in every open space on the page type-high bearers or resists to pressure. These bearers are routed off the plate when they have served this purpose. The page so formed with bearers will lighten the work of the electrotyper and materially aid him in producing a printable plate.

TAKING PROOFS

Pages to be electrotyped should be proved on a hand-press; one with a bed-plate of 13 × 16 inches will be strong enough for two pages of large 8vo. Proofs on press, that do not damage the type, are preferred by readers to those taken by the proof-planer.

Letterpress forms, too large for the small proof-press, have to be proved by beating with the proof-planer after this manner: A sheet of sized paper, dampened on a clean stone by sponging it evenly on one side, is carefully laid upon the previously inked form of type. Then the stoneman takes the proof-planer in his left hand and lays it down squarely but quickly upon the inked form. Beginning at the nearest corner, with the end of the handle (not with mallet head) he strikes a quick blow usually in the centre of the planer. From that page he moves the planer to other pages, renewing the striking until he sees the print of the types faintly indenting the moist sheet. In like manner he beats all the pages, taking care not to slip the planer or to wrinkle the sheet or to beat too violently on blank pages or exposed lines to their injury.

Proofs of large forms are sometimes taken by beating the sheet with a stiff brush. Beaten proofs are wearing to

the type, but the brush wears more and does not give so fair a print. The blanket on a proof-planer needs frequent renewal, for it becomes hard and inelastic after continued usage. The sheet so proved, when dry enough to handle, should be carefully folded by the print, so as to show uniform margins on each page. The surplus of paper, if any, at the ends should be torn off with a straight-edge, but the bolts that close the paper at head and fore edge should not be opened.

The reader or foreman who first examines the proof unfolds the sheet and tests it for correctness of margins. This he cannot do if the bolts have been opened. With the folded proof should also go to the reader's desk all the copy for that sheet laid in regular order. The stoneman, or the boy that helps him, then cleans the type with a brush moistened with benzine, and afterward sops out with a wet sponge the undissolved residuum that clings to the shoulders and counters of the type.

This duty of the stoneman is often half done. It is a mistake to think that proved types have been fairly cleansed when ink has been wiped off their faces with benzine. The type is not clean even if the face shows fairly white. The dirt of half-dissolved ink, and the gummy matter always left after benzine has been swept from the face, gradually fill up the counters of all the letters. Type that has been treated so repeatedly will show raggedness and dirtiness about all its lines, and the shallower counters of letters like a, e, s will fill up. The electrotyper will be censured for faulty plates, and the pressman for his muddy and overinked presswork, when the fault has been created by the stoneman's neglect to keep the types perfectly clean. Type often is condemned as worn out when it is only filled up with accretions of hardened dirt.

Types so neglected that have received a bath of boiling lye (which softens the dirt so that it can be brushed

out) and a thorough rinsing with water will be restored to usefulness. Benzine is a useful detergent, but it does not supplant lye. Caustic potash, shaved or in powder, slowly dissolved in alcohol, is an excellent cleanser of choked-up photo-engravings.¹

The paper selected for the proof should be thin, smooth, well-sized, and evenly dampened. Proofs taken on dry paper are not so satisfactory to the proof-reader. The roller should be kept clean and tacky, and evenly coated with a film of good ink that has been protected from dust. Little ink, but much rolling, is required; a proof that is a trifle pale in color is always helpful to the reader in his search for bruised type. An overinked or strongly indented proof prevents the finding of bad letters.

Proof is returned, when read, to the compositor, with his name marked in the margin at the beginning of each take, and he is required to correct it immediately, for it is a general rule that corrections take precedence over all other work.

The tools preferred for correction are the bodkin and the tweezers.² Some compositors use the point of a pen-

¹ Neglect to clean type and wash forms began with the more extended use of engravings on wood. Engravers forbade the use of water that swelled and of lye that softened the wood. Alcohol and a weak solution of ammonia were the only cleansers allowed. This treatment made difficult the proper cleaning of the type near the engravings. The photo-engraver of half-tones, fearful of the fragility of his lines, advised that the surplus ink left upon an illustration be wiped off with soft flannel moistened with oil. His purpose was served when the ink was rubbed off the face, but not removed from the form. He could not foresee that the residuum left would in time damage type as well as cuts. Instructions like these have indirectly taught compositors to sacrifice the durability of types for an immediate benefit to the cuts. No cleanser can be a perfect substitute for alkaline water. The form of type intended for the foundry or for press should be drenched with water.

² The bodkin and the tweezers most frequently used are too frail; they often slip and bruise adjacent letters. When a letter has to be withdrawn from the form, the straight, thin-nosed pliers preferred by jewellers are better tools. Two bod-

knife and the nib of a steel composing-rule, but they are mean substitutes; yet all correcting-tools will be destructive unless they are carefully handled.

The corrections of turned letters or substitutes of one letter for another of the same thickness can easily be made, but when the marked letter is of a different thickness, or when one or more letters are to be added or withdrawn, the line in which these changes are needed should be taken out and put in the stick for correction. Justifying on the galley or on the stone should never be attempted.

Correction on the stone is always an unpleasant duty, but the work may be lightened by carrying corrections to the stone in a paper tray which contains an assortment of justifying spaces.

The composing-stick, shooting-stick, and mallet should never be laid upon the face of the form. Each compositor should remove rejected type as soon as he has finished correction, and should notify the compositor whose work follows to go on with his share of the work.

Outs and doublets are difficult of correction, for they require the overrunning of the paragraph in which they occur, and sometimes the re-making up and always the re-reading of the form. These errors are usually caused by the carelessness of the compositor, who does not read the matter in his stick before he puts it on the galley, but the penalty he has to suffer is severe. In many offices it is a rule that he must not only make his work correct, but he must pay for the added cost of the re-make-up and re-reading.¹

kings with sharp, curved points, put at opposite sides of the body, will enable the corrector to lift one type or an entire word in a vertical line. Types need not be seriously damaged in correction when they are pulled up squarely and are not pried out at an angle.

¹ On hurried newspaper work the slow correction of an out or a doublet may be evaded, if the reader can supply words enough to make the lines come out even, but this liberty can never be taken in a faithful reprint or in any text of importance.

When corrections have been made, a new proof is taken, which is called the first revise. The reader compares the first proof with its revise. If marked errors have not been corrected, or if corrections have been made in wrong places, or lines have been transposed, or spacing has been made uneven, these errors are marked on the revise and sent back to the compositor in fault. After they have been corrected a new proof is taken, which is intended to be and should be literally correct to copy. This proof, known as the first author's proof, is sent to the author with the copy, after it has been annotated with queries made by the proof-reader.

The author's proof often comes back marked with alterations from copy. As these alterations are not caused by the negligence of the compositor and have not been provided for in the price agreed upon for composition, the expense of making the changes becomes an additional charge to the author. The author's proof is corrected by a careful time-hand, who marks on the proof the time it has taken and the date, and signs it with his initials.

Preparatory work that can be done on the stone should be done there before the form is ordered to press. To allow the pressman, whose time is more valuable than that of the stoneman, to correct gross faults in margin, to alter the position of pages, or to insert the points that may be needed for register, is not far-seeing management.

Points for type forms should be inserted on the stone. They are not needed for trimmed paper, as an expert feeder can make register by carefully laying the sheet up to the side-guides, but they are needed for hand-made papers of rough edges and of irregular size, and may be needed for machine-made papers that have been unevenly trimmed.¹

¹ When crookedly cut paper cannot be retrimmed, fair register may be had if the paper can be fed on its first side to the left guide, and on the second side to the right guide, so that the same edge will always be presented to the guide.

The common form of point is a short, round iron wire, pointed on one end and a little more than type-high, which is usually inserted in holes drilled in the centre of the cross-bar of the chase. Another kind of point has a screw base that allows it to be inserted in the wood furniture.

When the first side of the paper has been printed, the points are withdrawn. The perforations made by them serve as guides to the feeder for the placing of each sheet upon the spring points attached to the feed-board. Properly used, the points insure exact register. Points should be placed in the form as may be directed by the pressman—about fifteen inches apart. For paper intended for a folding machine, exact position is of utmost importance, and points must be made immovable by accidental disturbance. Register may be impossible if the marginal furniture and points are moved on press.

Forms to be printed on a cylinder-press should have the type at a fixed distance from the edge of the chase-frame, on the gripper-edge of the chase. The distance will vary from two to three inches, according to the set of the cylinder. To allow the type to come within this distance is to expose it to the risk of being crushed by the iron grippers. The stoneman should have a gauge made by the pressman that accurately defines the distance.

The paper provided for a form should have at least half an inch of margin on all sides of the type. It is practicable to print type on the extreme end of one side only of the sheet—the side opposed to the grippers. The half-inch allowance is needed for the grippers that seize the sheet, as well as for the bands that keep the paper close to the cylinder.

CLEARING AWAY

An important duty of the stoneman is the clearing away of all dead matter. The form that has been electrotyped

or printed and is ordered for distribution comes back to the stoneman or his helper to be broken up. The electro-typed form is unlocked on the stone, but its furniture and quoins are carefully removed and kept together in good order, so that they can be used again for other forms of the same size. Its type is put upon the standing galley reserved for distribution after it has been relieved of its head- and foot-lines and other blanks that may be needed for future use on the same work. The large form is usually laid upon the letter-board.

The letter-board, which is a movable board of wood, is intended to hold dead type after the chase has been removed. It is made to slide upon cleats under the frames of stones or stands. For posters containing much wood type and forms of patent blocks the letter-board is useful, but for forms of small type it is a mischievous device, for it gives no proper protection to composed type and invites the making of pi. Forms of small pages not intended for immediate distribution should be tied up as soon as they are put upon the letter-board. A better method would be to put all tied-up or standing jobs on the top of the table of a low case-rack, where they can be seen: the placing of dead type in dark corners or on an obscured letter-board delays new composition and promotes disorder.

Dead matter that will not be distributed soon should be prepared at once for papering and storage in the type-closet. This work begins by taking out lines of quadrats and capitals, and everything but the ordinary text type. Leads, lines of quadrats, capital letters, display letter, and unusual sorts of every kind in masses should be laid aside for immediate distribution by time-hands. After the rejects have been culled, the matter saved should be re-made up in paper packages, uniform as to either length or width, so that they can be neatly piled one over another in the type-closet, without danger of breaking. The paper wrapper should be plainly marked in ink with the proper

name of the face and body of the type, not omitting the number of nicks. A package so made up and labelled need not be opened for a reëxamination. Display letter, quadrats, figures, and any sort in limited supply, should never be papered when there is room for them in the open cases. Materials for regular use should always be made accessible.

The old rule that required piece-compositors to clear away all the matter in the dead form, and to distribute large masses of strange types that were not immediately needed, is no longer enforced. It is now the custom to have dead matter that is overfull of italic, accents, display letter, small caps, etc., distributed by the time-hands. It is expected, however, that the piece-compositor will distribute type taken from the closet, and not be too punctilious in refusing the distribution of a moderate amount of unusual sorts. It is to the interest of all persons that these sorts should be returned at once to case, for it is but just that the compositor who has been provided, as is usual, with special sorts from the storage case should return them to that case.

The type-closet should have separate compartments of stout wood for each face and body of type that may be kept on storage or out of case, each compartment firmly braced and fitted to sustain heavy weight. A printed label should be affixed in proper place, specifying on each compartment with exactness the name, face, and body of the type, and the number of nicks.

The chase-rack is reserved for forms of type that await reading or distribution. It is often placed under the imposing-stone. For electrotypes of the same size, a chase-rack can be made by screwing to the floor and to the bottom of the imposing-table parallel rows of stout oak cleats about two inches broad. The chase nested to stand upright without other support will slide and be secure in the grooves made by the cleats. For all chases of irregular

size it is necessary to attach the upper cleat to a frame that has diagonal divisions and inclined shelves or supports. Small chases can be arranged in two tiers. If space will allow, the chase-rack could be advantageously placed against a dead wall, if that dead wall receives a fair light. It is a mistake to put it in any dark place, where the forms must be examined with inconvenience and possible injury.

In some book-printing houses the different duties of the maker-up and the stoneman are made interchangeable so that they may be done by one person. In all houses the stoneman should be a compositor of experience and intelligence, who knows how to adapt means to ends, and is not content to work by rote and rule only. He should work in concord with every contributor to the book, from publisher to bookbinder, for he can help or hinder them in many ways.

IMPOSITION

Elementary principles . . . Schemes for various forms from two to one hundred and twenty-eight pages . . . Inset forms . . . Oblong pages . . . The leaflet . . . Small pamphlets . . . New method of collating . . . Folding-machines
Concluding remarks

ELEMENTARY PRINCIPLES

Imposition is a puzzle to the novice. He does not see why pages apparently laid out of order on the stone fall in order on the printed and folded sheet. He may learn to impose by imitating the practice of an expert or by copying schemes from some printers' grammar, but knowledge so acquired has limited application. Large sizes and strange shapes of paper, combinations of two or more sections for printing on one sheet, rotary printing-machines, and new forms of folding-machines compel the occasional devising of new schemes; the stoneman would not be able to do this unless he had learned the principles that govern the arrangement of the pages. It is better to begin with the study of customary methods of folding.

Begin with folding blank paper for three different sections of 8, 16, and 32 pages (without cutting open the folds or bolts), and by pencilling upon the leaves so produced the numbers of pages in proper order. The sheet so treated when unfolded will show the relative position of mated pages, and this will give insight into the rudiments of imposition.

The first lesson to be learned is that too many pages cannot be properly folded together in one section for correct book-work: 8 pages are enough for thick paper, and 16 pages for paper of ordinary thickness. Whoever tries to fold correctly by one operation 32 pages of paper in one section will find that the paper buckles at the head fold of inner leaves, and that they are thrust outward at an angle that makes the type-work seem crooked.¹

Sheets of 24, 32, 48, 64, 96, and even of 128 pages can be, and often are, printed in one form, but for the sewed book they are never imposed to be consecutively folded together by one operation. The printed sheet of many pages is subdivided, and each section is separately folded.² The newer styles of folding-machines made for pamphlet-work can fold a form of two or more portions simul-

¹ The central double leaf (pages 15-18) is unavoidably thrust outward by the thickness of its preceding seven leaves. This leaf is held tight at the head by unstretchable paper where it has been creased for the head fold, but it is thrust outward at tail more than the thickness of the preceding leaves. When stitched and trimmed, the front margin on this inner leaf must be narrower than that of the outer leaf. On a large page this difference in margin may be unnoticeable, but when paper is thick and the page is small it will be noticed. The inner leaves of the section must be crooked, narrower at the top than at the bottom. Making up the form in two sections of 16 pages will prevent the crookedness, but the margins of the interior 16 pages must be narrower.

² Sometimes, as in the 12mo, the section consists of two unequal parts, one of 8 and one of 4 pages, and each part is separately folded, so that the smaller can be inserted in the larger part. In cheap pamphlet-work a section of 32 pages may be made by inseting one subsection of 16 pages within another section of 16 pages, but these thick sections are not tolerated in book-work. The library book must be sewed with thread, either by hand or by machine, and sections must not be too thick in the back. Even in the ordinary sewed section of 16 pages, to stop buckling on the inner fold, it is often necessary to slit the paper on the cross-fold at head before the last fold is made. This prevents wrinkling, but it does not entirely prevent an appearance of slight crookedness in the margins of the inner leaves.

taneously and inset one within another, but each portion receives separate treatment. It should be understood at the outset that in book-work an imposition of many pages in one form is not for one consecutive folding; it is a combination of two or more portions to be separately folded and afterward united.

When the different sections of a book have been gathered, folded, sewed, and trimmed, each section is resolved into a combination of double leaves nested one within another and held together and to other sections by thread. The double leaf that permits the binding-thread to pass through the fold of each section in the creased centre of the back margin is the most approved method of giving proper security to the binding. It may be assumed that in all schemes of book imposition (the half-sheet of 18mo excepted) each section must contain double leaves. The leaves are always in doubles, and the number of pages in approved schemes of imposition are always multiples of four.¹

The double leaves in each section show that they bear relation one to another. In the ordinary 8vo, pages 1-2 and pages 7-8 constitute the outer double leaf; in the 16mo, pages 1-2 and pages 15-16 constitute the outer

¹ The single leaf of two pages that may appear in the pamphlet of a half-sheet 18mo is pasted down on an adjacent leaf. This single leaf also has to be accepted for inserted maps or prints made by different processes of printing, but pasting or tipping on is always regarded as a misfortune to be avoided. To prevent the bad workmanship produced by pasting down the single leaf of a map or print, it is often printed separately on a wider paper, and a narrow lap is creased on its extra width, so that it can be neatly fastened by the sewing-thread through the centre of the lap. Single leaves of two pages can be securely fastened to other sections by side-stitching with wire or thread through the back margins of all the sections. Side-stitching is a method of binding at present unavoidable in magazines of large edition or in pamphlets that have to be made in great haste, but it has serious defects: it reduces the width of the back margin, and prevents leaves from opening flat. It is never used for library books.

double leaf. Schemes for laying pages differ greatly, but the relative position of the first two and the last two pages of a section is unalterable in any scheme. A closer study of the different schemes yet to be presented will show that these pages and other pages have relations to one another that cannot be disturbed by any variation in the scheme of imposition.

All schemes may be grouped in these four classes:

1 *Forms of 4, 8, 16, 32, 64, 96, and 128 pages.* The sheet of 16 pages is usually imposed to be folded together as one section, the sheet of 32 pages is often cut to make two sections, and that of 64 for four sections.

2 *Forms of 12 or 24 pages, and their multiples.* In forms of this class one third of the paper is cut off and folded separately as an inset to be nested in the two-third portion. In the form of 12mo the cut-off is on the narrow side; in the 24mo on the wide side of the sheet; but forms of duplicate twelves, as in 48 and 72, are seldom imposed for offcuts and insets: it is customary to impose them as sections of 16mo. Preference is always given to the 16mo section wherever its use is practicable.

3 *Forms of 18, 36, and 72 pages.* Sheets printed on forms of this class are usually cut in unequal sections taken respectively from the broad and the narrow end of the paper, and are separately folded by hand. The 18mo of one signature, never used in careful book-work, contains a single leaf that must be tipped on the section.

4 *Forms of 20 and 40 pages.* Printed sheets of these forms have one fifth of the paper cut off from one end of the sheet, and this one-fifth subsection of the sheet is separately folded for an inset.

The consecutive folding of a sheet, first through its narrower diameter and next at right angles with its previous fold, as is done in 8vo and 16mo forms, is the simplest method and produces the best work. Forms of the second class are more troublesome, but they have to be

used when paper permitting the 16mo folds is not to be had, and when a press to take on 16 pages is not available. Forms of the third and fourth classes are rarely used, but are needed for pages or paper of unusual shape.

Schemes of imposition are also known as sheets or half-sheets.¹ The pages of the sheets are always imposed as two forms in two chases, and each form is separately printed. The side that contains the first and last pages of the section is the outer form; the side partly concealed by the folding-bolts is the inner form. The printed sheet made perfect by printing two forms is known as a sheet, and this method is known as sheetwise; errors of imposition in this method have to be guarded against carefully.

The pages of the half-sheet imposition are always imposed in one chase. The paper selected for it is consequently twice the bigness of the sheet printed from two forms, and its printing on the two sides of the paper from the same pages necessarily makes two copies to the sheet. It is called half-sheet because this larger sheet must be cut in halves before either half can be folded.

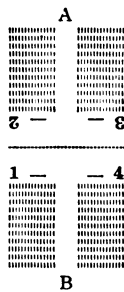
Sheetwise printing was unavoidable when sheets were of small size and presswork was done on small hand-presses, but the cylinder machine, that prints 16 and 32 large octavo pages at one impression, has made the half-sheet method more common.²

¹ Sheet and half-sheet are misleading words: they should be sheet and double sheet. It is impracticable to ignore them, for they have been used too long, but I shall try to prevent any misunderstanding in description by specifying the number of pages to the form and the number of sections to the sheet.

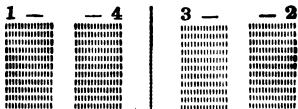
² Each method has advantages and disadvantages. Sheetwise presswork allows the printed ink of the first form to dry before the sheet is backed up on the other form, but it also allows wet paper to shrink, and gives more trouble in making register. Half-sheet presswork on short editions may not allow ink to dry thoroughly, but it gives to the pressman at the outset more control of register; it enables him to maintain more even color, and to make sure of full count before he lifts the form from press.

To print four pages by one impression, the pages must be put in one chase to be printed on paper of double size. The sheet so imposed is known as a half-sheet of 4to, because it produces, when the sheet has been printed on both sides, eight pages of print, or duplicates of the four pages in the shape of two half-sheets. After the paper has been printed on one side, the pressman turns the sheet upside down and "end for end," which operation puts the edge A in the position before occupied by edge B, and vice versa. This makes him print page 1 upon the back of page 2, and page 4 upon the back of page 3. Paper so treated is said to be "turned on the short cross," or the short cross-bar of the chase. When printed on the second side, the sheet is cut in two, and each half-sheet is the duplicate of the other half.

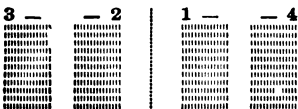
This half-sheet of quarto can also be printed in one form from a long and narrow strip of paper by imposing the pages in this manner:



2 Four pages in one chase.



3 Four pages in one chase, long way.



4 Four pages in one chase, imposed from the centre.¹

¹ Scheme 4 is not so generally acceptable as Scheme 3, but it may be used with advantage when the inner pages 1 and 2 are open and the outer pages 3 and 4 are solid. As ink tends to collect at the ends of the inking rollers, and as excess of ink on open pages is a trouble to the pressman, it is sometimes of advantage to put solid pages at the ends of the form.

To impose with propriety any form that has to be made perfect upon pages in the same chase, it should be known at the outset whether the sheet will be perfected by turning it on the short cross or the long cross. The turn on the short cross is always preferred, for it allows the pressman to keep the same edge of the sheet to the feed-guides.¹

Before any scheme of imposition is determined for a large form, the thickness of the paper should be known. If there are too few pages to a section, there will be too many sections in the book, the cost of sewing will be largely increased, and the book will be made bunched at the back by excess of thread. If too many pages are put in a section, the sheet will buckle or wrinkle at the head of the innermost fold; all leaves will open stiffly, showing the sewing-thread; and the inner leaves will protrude unequally and have margins askew.²

Scheme 5, on the next page, shows that this form of 64 pages, when backed on itself, has to be cut in eight sections to make four duplicates of 16 pages.

In ordinary forms of half-sheet presswork, page 2 is put in an opposite corner or in a contrary direction from

¹ The turning of the sheet on the long cross, sometimes unavoidable, is unwillingly accepted by the pressman, for it compels him to present another edge of the paper to the feed-guides when he prints the second side. A new feeding-edge may compel him to register by points, a much slower process.

² Books or pamphlets to be distributed gratuitously, and that must be made at the smallest cost, like almanacs, trade catalogues, and advertisements of patent medicines, are often made up in thick sections to save expense in sewing. Sections of 32 and 48 pages are not uncommon, but their folding, sewing, and trimming are never so neat as those of sections of 8 and 16.

Although sections of 16 pages are more used than any other, these sections are not always printed on separate sheets. A section of 16 pages may be a part of a form of 48, 64, or 96 pages. Even in the thick pamphlets of 48 pages intended to be centre-stitched in one section, the pages are, as a rule, laid so that the sheet will be cut in thirds, making three sections of 16. Each section is separately folded; the second is nested in the first, and the third in the second.

page 1, so that the backing of the sheet will bring page 2 on the back of page 1; and the first folding of the sheet at a right angle will bring 3 opposite 2; and the last cross-fold will bring page 9 opposite 8. That done, all intermediate pages are in order. The even page will back an odd page when the sheet has been turned, and the following odd page will face the even page when another regular fold has been made. This repeated cross-folding of the sheet brings the innermost pages within the interior of the section, so that the last four leaves will be mates of the first four leaves. In every imposition, whether in the "usual way" or "from the centre," long fold or cross fold, the pages must occupy the same relative position one to another, however peculiar the scheme.¹

In the ordinary imposition of 16mo, page 1 appears in print upon the first leaf of the first half of the sheet that has opened leaves on the front, and page 9 upon the first leaf of the other half of the sheet that is closed by the bolts of folded leaves. But the pages can be imposed to be folded in another way: page 1 can be placed on the leaf taken by page 9 in the usual scheme of imposition. When pages have been so placed and the sheet is folded in this reversed way, the first leaf of the bolted half is thereby

¹ It is to be supposed that a diagram has been previously given to the maker-up to define the shape of the page and to specify the width of the margins about the pages. This diagram sheet should be prepared in the office or by the foreman before the pages are made up. To require the stoneman or the maker-up to cut furniture and determine margins will be found wasteful of time and productive of error. The furniture should be selected before the pages are laid. The only pieces that cannot be accurately measured or specified on the diagram are the thin pieces nearest to the cross-bars, which will be of varying width to suit the variable thickness of the cross-bars. The head-bolts and thin cross-bar pieces can be put in their places afterward. A sheet of the paper to be printed should also be furnished to the stoneman. The proper adjustment of margins by this sheet has been illustrated on pages 113, 115, and 116 of this book. Exactness in measurement by this sheet is of great importance.

made page 1. (See Scheme 18.) This method of reversing is called imposing from the centre.¹

When the pages have been truly laid on the stone, the furniture selected should be put next to the pages. It is to be supposed that the length and width of each piece have been previously determined, so that no piece will interfere with another, and that all will yield gently to the pressure of locking up.

The selection of the chase is next in order. Pages to be electrotyped are usually imposed in chases of cast-iron that hold two or four 8vo or three, six, or eight 12mo pages. These chases should have frames about one and a half inches wide and three quarters of an inch high, to enable the iron fairly to resist the great pressure put on the form by the moulding-press. The old cast-iron chase for plaster stereotype, with frame one inch wide and two thirds of an inch high, that still survives in some houses, is liable to crack under this pressure. If the chase is not square, the plate will not be square.²

The form of four or eight small pages, made up for letterpress, may be imposed in a cast-iron chase, but cast-iron is not to be trusted for any large book form. When

¹ The odd page put down in an ordinary scheme of imposition of 16mo as 3, 5, 7, or 9 can be used to place the first page, if following pages are put in correspondingly reversed positions. Page 1 in the outer corner of the sheet is most acceptable to folders by hand, but the makers of a few of the newer folding-machines have to put page 1 in some other position to enable them to make use of proper mechanical motions in the machine. It should be clearly understood that a changing of the position of page 1 to the place usually occupied by some other odd page will compel corresponding changes of position in every other page.

² Trustworthy apparatus, the first condition of good printing, is needed now more than ever. When presswork was done from small forms upon small hand-presses, out-of-squareness in a page or a form often passed unnoticed. Authors and publishers of to-day are much more critical. A slight deviation from squareness repeated on the pages of a large form is not only offensive to the reader, but is a hindrance to the pressman and binder.

the form is locked up, the frame will bend outward in the middle on each side, putting pages out of line and making register difficult. For all forms containing many pages, and even for forms of few pages that call for exact register, the wrought-iron chase, with slotted and dove-tailed cross-bars, should be selected to prevent the outward bending of the chase frame and to provide right-angled sides as resists to the pressure produced with side-sticks and quoins. If the dove-tails do not fit snugly, or if the slots at the intersection of the bars are loose and wobbly, these faults should be corrected at once.¹

The methods that are customary in the imposition of large forms are sometimes unwisely neglected in small forms. A circular of two pages, to be printed on the first and third pages of the sheet by one impression, should be imposed in one form as four pages of 4to. Two pages of blanks should be made up to represent pages 2 and 4, and be imposed as if they were pages of type. To impose the third page by guessing at the blank required for head and back margins is never a safe process. The blank pages are really needed as guides to correct position.



6 A circular of 2 pages only, the print on first and third pages.

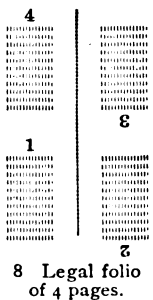
INSET FOLIOS OF USUAL FORM

Account-books and diaries are sometimes printed on single sheets of flat cap (14×17 inches), with dates and figures

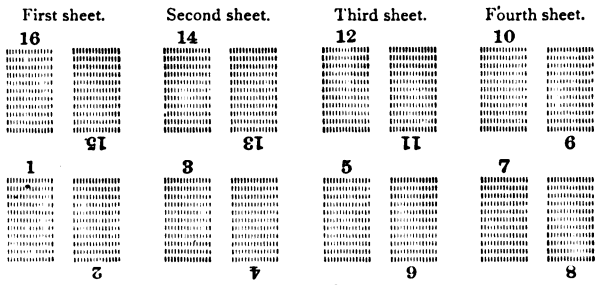
¹ Chases with shifting cross-bars seldom receive proper care. The chases and their detached bars are usually stood up against a dead wall, where they are bent by the superincumbent weight of other chases and bars piled against them. They are often allowed to get bruised and rusty. The bars are sometimes used as pokers or levers. Bars made for one chase are sometimes

in four-page forms imposed the long way on the size of paper known as double legal-cap, 16 x 26 inches. It reverses the usual methods of book-work. Its leaves are fastened at the heads of odd pages; the heads of odd pages are backed upon the tails of even pages; its print is read by turning the leaves the long way on the short fold; it has a wider margin at the left than at the right of the page. The number of copies ordered is usually too small to warrant the imposition of more than four pages to the form, even when there may be six or more sheets for the document. It is always imposed to be sewed, stitched, or eyeleted together in one section only.

To produce the wider margin required at the left of each page, the furniture selected for the gutters must be about twice as wide as that given to the ordinary side-sewed book. The pressman can keep equal outer margins. As the sheet is creased or folded at the head, the head-bolt should be much wider than is customary in the ordinary imposition. Each sheet turns on the long cross, the duplicates so made being separated by cutting through the longer fold. This cut should be made with precision, for the margins will not permit retrimming.



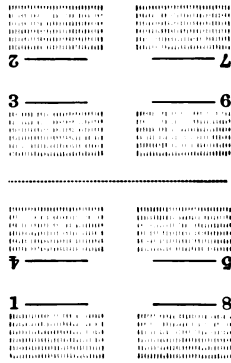
8 Legal folio of 4 pages.



9 Legal folio of 16 pages, imposed for insets.

MUSIC OR OBLONG WAY

Some books of music and of maps or illustrations are planned for a short and broad page that must be sewed on the narrower side of the leaf. The section so treated, known as of oblong shape, requires a different imposition of the pages and adjustment of margins, but the relative position of the pages to their mates and to one another must be the same as in the ordinary method of imposition. This sheet has to be folded for its first fold the broad way of the print; on its second, the narrow way.

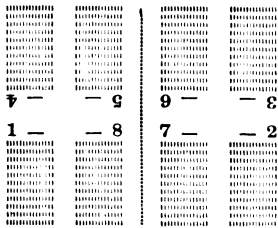


10 Eight pages in one form, oblong way.

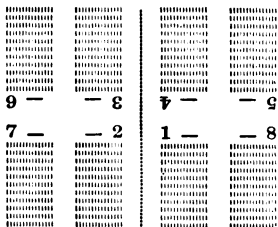
Eight pages imposed from centre differ from eight pages in the usual way only in the transposition of the two halves of the form. The pages in each quarter are precisely the same.

In Scheme 12 the right and left halves of Scheme 11 are transposed. When Scheme 12 has been selected, the white margin of paper on the outside of pages 8 and 7 must be, for each side, one half (no more, no less) of the blank between pages 1 and 2.

"Two on" (Scheme 13) is



11 Eight pages in the usual way.

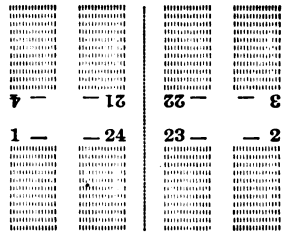


12 Eight pages imposed from the centre.

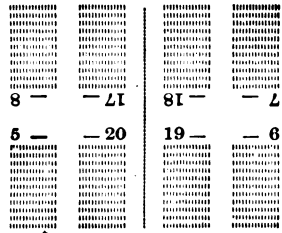
a phrase often used to describe the filling of a form with two (and sometimes more) duplicates of the same type or plates. It is frequently practised to utilize a large machine, to lessen the number of impressions and to save needless expense. The first and last four pages of a book can be so imposed with advantage.

The triple scheme 14 exemplifies three half-sheets of octavo, but they are imposed in three forms, to be inset so as to make 24 pages to one section.

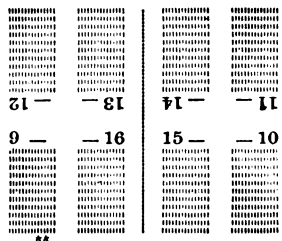
Note (1) that the sum total of every pair of mated pages is always 25; (2) that the twelve pages which constitute the first half of the section are at the ends of each sheet and the other half in the centre; (3) that the last pages of the out-



Outset of section.



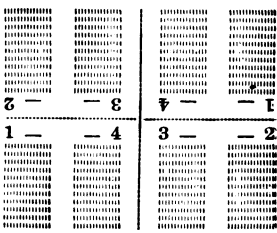
First inset.



Second inset.

14 Eight-page forms in three chases, to be inset to make one section of 24 pages.

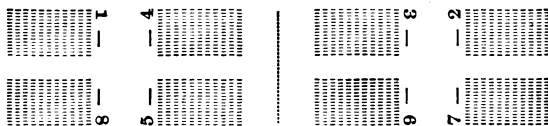
set occupy relatively the same position as pages 5, 6, 7, 8 in the ordinary octavo; (4) that the first four pages of the first inset occupy the position of the



13 Eight pages in two sections of but 4 pages only, often known as "two on."

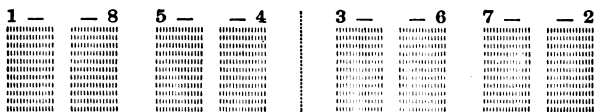
first pages in the ordinary octavo. When this order is well understood, imposing of inset sections in many forms may be done without the aid of a diagram previously prepared.

Eight pages may also be imposed the long way of the page after Scheme 15, which is sometimes used to utilize



15 Eight pages, 2 wide, 4 high.

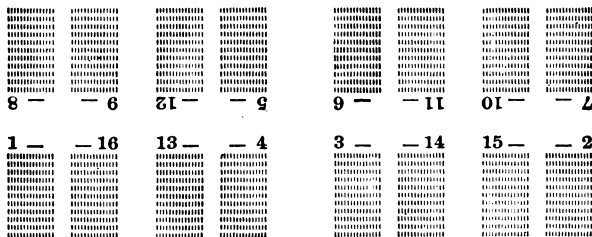
offsets of paper. This scheme, although not often used, may be needed for offsets and long pages on a sheet of odd shape.



16 Eight pages for an offset of paper.

This is another scheme for eight pages, which also shows the unalterable position of mated pages.

SIXTEEN AND THIRTY-TWO PAGES



Outer form.

Inner form.

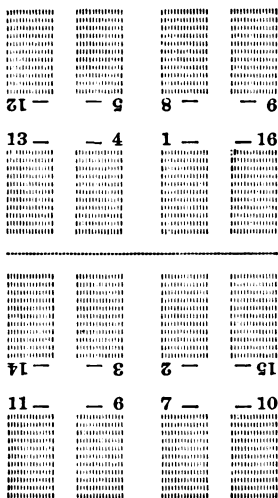
17 Sixteen pages in two chases for one section.

In Scheme 17 the outer and inner forms are laid down side by side; but if the pages of the inner form were placed at the top of the outer form (page 2 in the upper left-hand corner), and all were in one chase, the arrangement would be that of the usual form of sixteens. (See Scheme 19.)

The outer and inner forms of the same sheet should have the pages laid down in the two chases at the same time and in consecutive order. Beginning with page 1 of the outer form, pages 2 and 3 should next be put in the inner form. Pages 4 and 5 will next be put in the outer form, to be followed by pages 6 and 7 in the inner form. This successive alternation of two consecutive pages in each chase will be continued until the last page is mated with the first page of the outer form.

One of the difficulties of sheetwise imposition is that of making register when there is a shrinkage of furniture

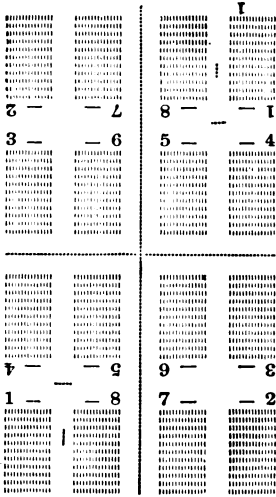
in either form. Another is its greater liability to unevenness of color or of impression when the two forms are done on different presses and by different pressmen. But it has to be used on rotary and perfecting presses that have been constructed to deliver the sheet perfect on both sides at one operation. It is also used with advantage for very large pages, and for illustrated work in which the ink on the cuts printed on one side of the paper should be entirely dry before the second side goes to press. When an unusually large number of pages has to



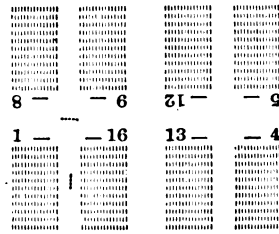
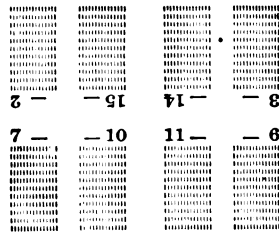
18 Sixteen pages, imposed from centre.

be put on a sheet (as in three sixteens to a 48mo in two chases) the sheetwise method is of service, but, as a rule, the form that can be printed perfect on itself as a half-sheet is printed with more ease than if the pages were imposed in two forms.

Sixteen pages are also imposed from the centre. When the sheet has been perfected and cut in two, page 1 will be the outer page of the section, but the pages from 2 to 8 will be closed by bolts at head and side. Imposing from the



1
20 Sixteen pages, as two sections of 8 pages.

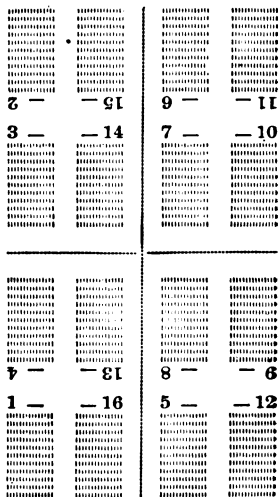


19 Sixteen pages as usually laid.

centre reverses the position of the bolts.

Another method of imposing the 16mo from the centre can be followed by transposing in a body the pages entire on each side of the short cross-bar.

For a very long edition the section of 8 pages is often duplicated by electrotyping, so that the duplicates can be printed together on a large press. In this scheme the paper can be turned on the long cross or short cross. The sheet when perfected will



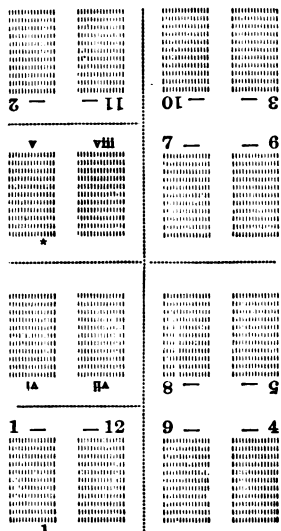
21 Sixteen pages in two portions of 8 pages in two parts.

page section is too thick to be folded, but not too thick to be sewed as a single section, it is customary to impose the full sheet of 16 pages in two parts. Each part can be separately folded, and one part can be inset in the other. This prevents the buckling of the paper between pages 8 and 9, and it saves the cost of extra sewing for another section.

This is another scheme (22) to save extra presswork and to utilize large presses. It may happen that a book of 16-page

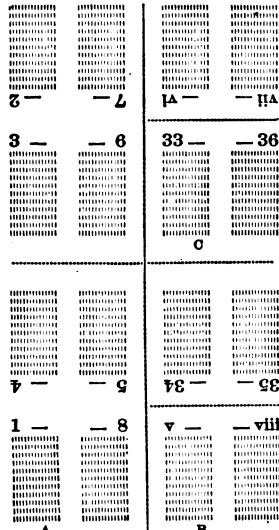
make 32 pages, or four duplicates, 8 pages each. In the usual way of imposing sixteens the long bolts or closed leaves are those that come between pages 9 and 16. It should be also noted that in the two schemes 18 and 19 the mated pages of each quarter are alike; although their position together upon the sheet is different, their relative position to each other is not changed in any way.

When the paper for a 16-



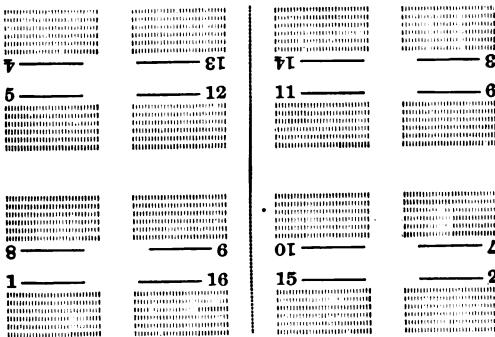
22 Sixteen pages in two portions, one of 12 and one of 4 pages.

sections closes with 12 pages only for the last sheet. To print a special form of 12 pages is both inconvenient and wasteful. It is customary to impose the 12 pages for a form of 16, and to treat the excess of 4 pages as a part of the end papers in the book. Or these 4 pages can be utilized to be added to the preface matter, if a similar irregularity is there presented. Scheme 22 shows an imposition for one section of 12 pages and one of 4 pages. The sheet of 16 pages can be folded at the same time, and the binder can then cut out the four pages v-viii with the folder, and afterward put them in their proper places in the front part of the book.



23 Sixteen pages in three sections: one 8, two 4.

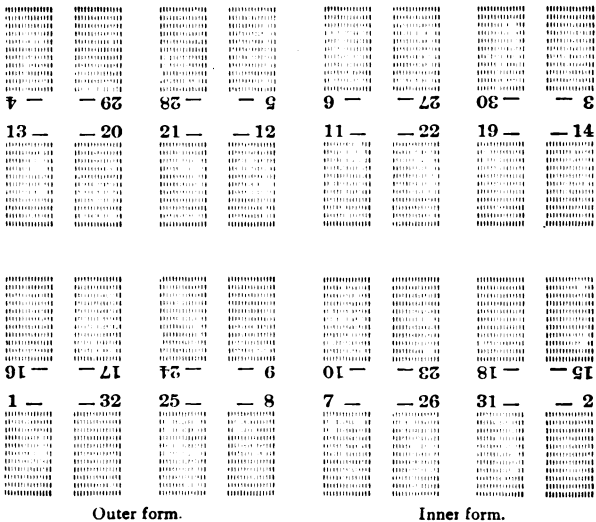
Scheme 23 when printed on both sides will be cut in



24 Sixteen oblong pages, music way, one section.

six pieces, to make three sets of duplicates. For a form of 16 pages in four sections of 4 pages each, repeat on the left side of the long cross the arrangement of 4 pages for the two sections here shown on the right side.

Scheme 24 provides for duplicates of 16 pages each. The first and second folds of the section are the narrow

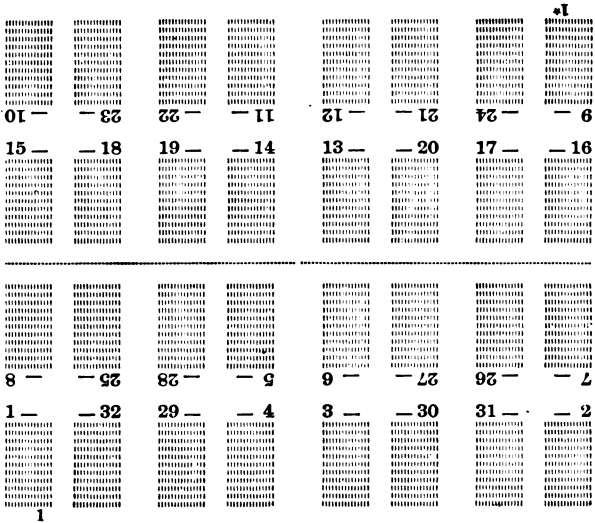


25 Thirty-two pages in two chases, to fold as one section.

way of the cut sheet; the last fold is at a right angle. Buckling of paper may be lessened by ripping the sheet half-way on the second fold with the bone folder between pages 12 and 13; most folding-machines avoid this buckling by perforating the heads automatically.

Scheme 25 is entirely impracticable for a library book, and is of doubtful value for a cheap pamphlet on very thin paper. With paper of ordinary thickness it will cause wrinkling, and margins will be askew; this is caused by

continuous right-angle folds which keep forcing out the bottom of the inside pages a little at every fold. This arrangement of pages when put in one chase is usually described as a half-sheet of 32 pages.



Outer form.

Inner form.

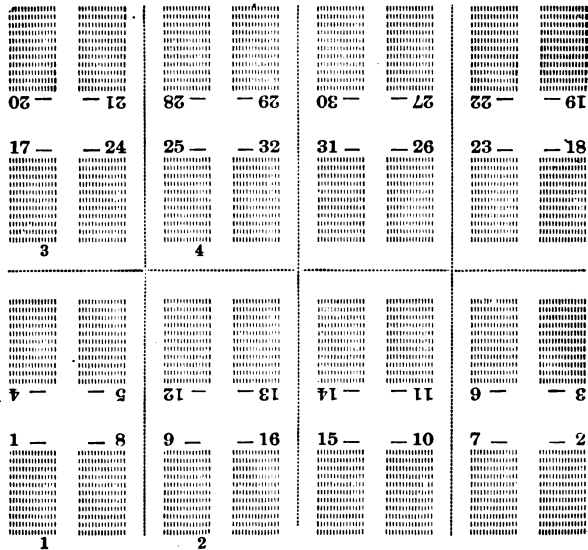
26 Thirty-two pages in two forms: two signatures of 16 pages, to be separately folded and inset to make one section.

The sheet printed by Scheme 26 is cut in two pieces, making two distinct portions of 16 pages. The section containing packages 1-8 and 25-32 is folded as the outset; the section containing pages 9-24 constitutes the inset. This arrangement should not be selected for a library book, for the section so treated will be too thick. The imposition of the pages in one chase for paper of double size is usually known as a half-sheet of 32 pages, imposed for two separate foldings and one section.

For 32 pages in one form as two sections of 16 pages,

rearrange the lay of pages so that the sheet can be turned on the short cross in backing up, keeping each section distinct on its side of the long cross.¹

The imposition for sixty-four pages in four sections of 16 pages each is shown in Scheme No. 5, on page 145; but

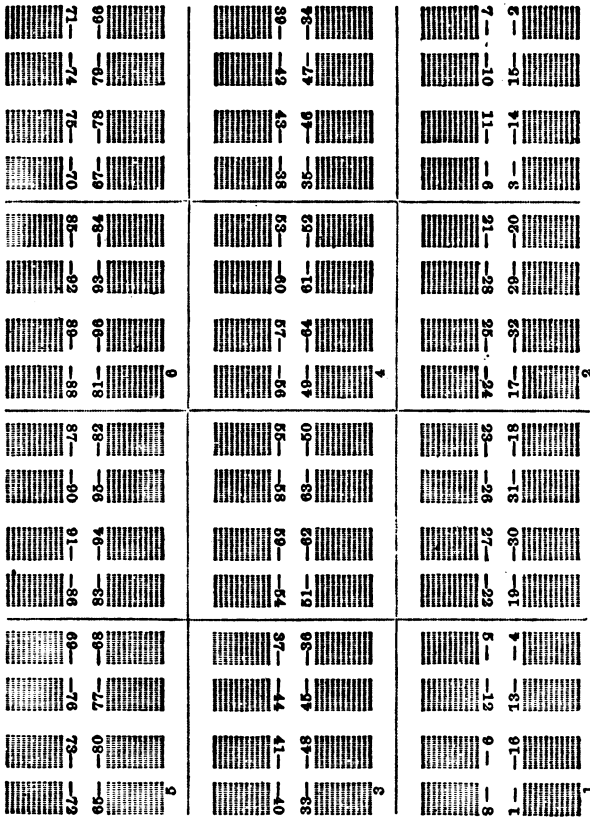


27 Thirty-two pages, as four sections of 8 pages.

sixty-four pages in one section is another almost impracticable imposition,² even if made with two or four insets.

¹ Imposing the pages for each section on distinct sides of the long cross keeps the same feed-edge of paper in printing the second side. Each section of 16 will be on half of the sheet cut the *long* way. See Scheme 39.

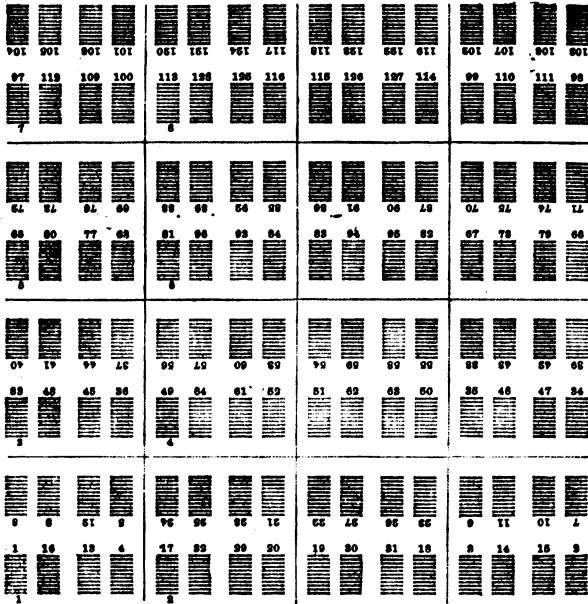
² An approach to this problem is made by one style of machine folder which, by outward and inward folding, connects in one long strip four sections of 16 pages, conjoined but prepared for connective sewing.



28 Ninety-six pages in one chase: six sections of 166.

This form is more practicable with plates than with type. Exact register will be facilitated if the four mated pages are cast together on one plate.

The scheme of 128 pages in one chase is possible for very small pages and thin sections only. In two forms, outer and inner, of 64 pages each, the 128-page scheme is more manageable, and especially so when the outer form con-



29 One hundred and twenty-eight pages in one chase:
eight sections of sixteen pages each.

tains the illustrations and the inner form has plain type only. When there are illustrations that may require special treatment in making ready, the smaller form of 64 pages in sections of 16 pages only, as shown in Scheme 5, will be more useful for small editions. Separate sections of 16 pages, when paper is of ordinary thickness, are preferred by all printers and binders. The schemes of this book could be increased by presenting others for sections of 24 or 32 pages, but they would prove of no service for a neat book. The methods occasionally adopted by the publisher of cheap advertising pamphlets, who tries to reduce the cost of manufacture by printing too many pages in one form on a large sheet, and by folding the sheet so

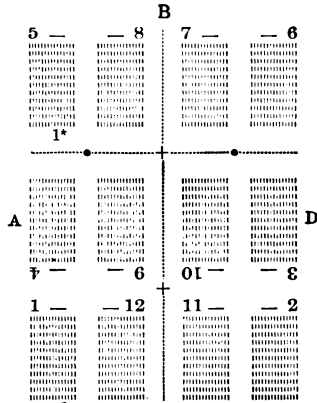
printed in sections of 32 or more pages, cannot be safely imitated in strict book-work. Forms of many pages are not economical for small editions. Even when the pages in a form are not too numerous, the unskilled compositor is specially warned against making too thick sections with intent to reduce the cost of folding and sewing. Thick sections will not save expense. What is saved in one direction will be more than lost in another. The smaller the leaf the more the need of thinner sections.

For the large sheets printed on rotary or flat-bed perfecting presses, that will be folded by the newer styles of folding-machines, these schemes will not serve, for machines differ from one another in plan and construction. Pages must be imposed by the schemes of the manufacturer of the machine.

TWELVE PAGES AND THEIR DUPLICATES

Scheme 30 is an 8vo with an added 4-page inset, within which octavo part this inset can be folded by the same operation, or can be cut off for a separate folding and subsequent insertion. The sheet is made perfect on the second side by turning it on the long cross-bar of the chase.¹

Pages 5, 8, 7, 6 are often called the offcut, because in old methods of imposition they were cut off and separately folded to be inserted



30 Twelve pages in one chase. Turns on long cross.

¹ In presswork the first side of the sheet is laid up to guides against edges AB; the second side, against edges BD. To get correct register by feeding, the sheet should be trimmed acc-

as an inset between pages 4 and 9. By this old method the running title and its folio figure were always placed at the tail of pages 4, 9, 10, 3. This treatment, unavoidable on rough paper, often produced uneven head margins and a crooked inset. This fault can be prevented by the use of truly squared paper, by putting the heads of the so-called offcut pages against the edge of the sheet, and by giving an increased amount of blank where the tail of the offcut part meets the tail of the octavo part of the sheet. The pressman should feed paper to the offcut edge and give to its head margin one half of the blank provided in the head-bolts of the octavo part of the sheet. When these precautions have been taken, the head margins of an inset offcut can be made as true as those of a folded 16mo.

Pressmen dislike the 12mo because its turn on the long cross causes delay and trouble; publishers dislike it because it is expensive in folding and has greater liability to untidiness; yet it is a form that must be used often. On hand-made papers with rough edges, the heads of the offcut must be placed after the old method at the tail of other pages, but points must be used. On smooth-edged paper the turning out of the heads for the offcut is a better practice, and the points may be omitted.

Twelve pages can be imposed from the centre by transposing in a body pages 4, 9, 1, 12 with pages 10, 3, 11, 2. Offcut pages need no change.

At the tail of page 5 in Scheme 30 appears 1*. The star indicates an inset: 1* for the first and 1** for the second inset of the complete section. The purpose of the repeated signature figure with star attached is to identify the offcut and to show its connection to the outset. In a rarely square on all sides. If the paper is crooked or if it is hand-made with rough edges, points should be inserted on the first side, as marked in scheme, for its re-pointing on second side. The black dots in Scheme 30 mark the usual place of points for hand-press; the †, the place of points for cylinder.

is unnoticeable and may be disregarded; in the rule-bordered 32mo of small size, planned for margins of one-third or one-quarter inch, variation becomes a serious fault which will require much care for its prevention.

To prevent this fault, the back margins of inner leaves must be narrowed with system. The back margin of the outer double leaf needs no alteration, but that of the second double leaf should have about one lead less. The third double leaf, and every added one, should have a narrowing in the same proportion, in all cases depending on the thickness of the paper. The blank taken out of back margins must be restored in two equal parts to the front margins of the leaves from which the blank has been abstracted. This readjustment is exceedingly troublesome.

It is better practice to have this readjustment done on the stone in forms that are being prepared for electrotyping, the stoneman being notified of the paper that will be used and of the scheme of imposition. In the ordinary scheme of 16 pages in one section, the two pages 1-16 should be prepared for electrotyping upon one plate with the regular back margin. Pages 2-15, that back 1-16, also in one plate, should have the same back margin. Pages 3-14 and 4-13 of the second leaf should have one lead less in the back margin; pages 5-12 and 6-11 of the third leaf, two leads less; and 7-10 and 8-9 of the fourth leaf, three leads less. The electrotyper may need the caution to bevel all these double-paged plates to uniform size, not bevelling an outer margin too close to type-work because the margins have been made intentionally unequal. Plates so made will seem out of line when adjusted upon blocks, but the pages will be in line when the book has been properly printed, folded, and trimmed. All the outer margins will be of uniform width; the abstracted blank in the back margin will not be noticed. This method of electrotyping two and sometimes four

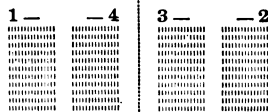
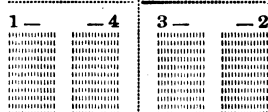
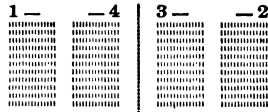
pages upon one plate has this additional advantage: it saves the time of the pressman and improves the register.

The appearance of the ordinary 24mo of one section can be made more sightly by reducing the width of back margins of the offcut by this system, even when the margins of the 8vo part of the sheet remain undisturbed. This change can be made in the offcut with little trouble.

Twenty-four pages can be imposed to produce two sections, one of 16 and one of 8 pages, by putting pages 1-16 on the two-third part of the sheet (making it an independent section), and by putting pages 17-24 for the other section in the one-third or offcut part of the sheet. This also must be folded the long way.

Twenty-four pages can also be imposed for three sections of 8 pages by treating each row of pages as an 8vo to be folded the long way. See Scheme 16.

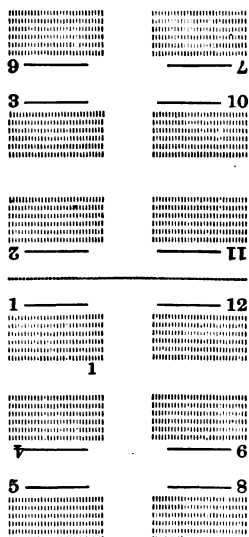
Twelve pages, in a form of similar triplicates of 4 pages each, are often used for the printing of pamphlet covers. Care must be taken to have truly squared paper and exact cutting and folding, for the paper must be turned on the long cross, and the sheet must present different edges to the feed-guides. The heads of all sections can be laid one way, as here shown.



Sections of the same thickness favor neat binding. When a section of 16 pages is followed by another of 8 or of 4 pages, the gatherer may overlook the thin section. A book that has uneven sections is rarely ever neatly sewed; its leaves open stiffly and show unsightly gaps at its joints.

³² Twelve pages in one chase, similar triplicates of 4 pages each.

Thin sections are sometimes unavoidable, but they should be prevented when prevention is possible, for it can readily be seen that thin sections of two or four leaves are very liable to pull out from the thread that holds the sections together; this objection is sometimes overcome by pasting the thin section to the thicker one, but this entails hand labor, which is always expensive. Schemes for sections of unequal thickness in forms of many pages are most useful

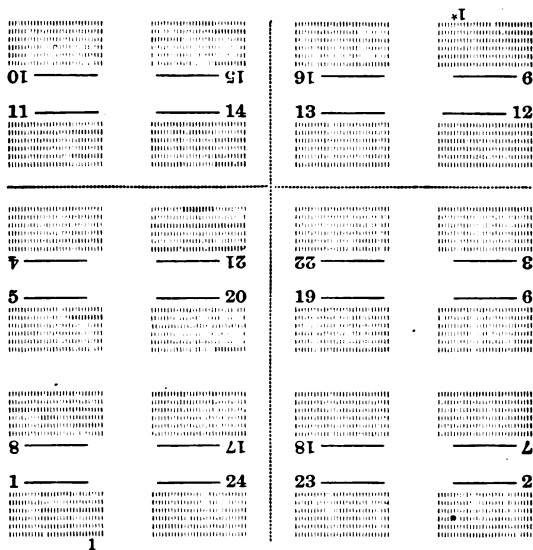


33 Twelve pages of oblong shape, no inset, central imposition.

In Scheme 34 that follows the sheet turns on the long cross, and two parallel folds have to be made. It is intended to have the offcut (pages 9–16) separately folded and inset. The folding in of the inset, unavoidable in

when the additional small sections save presswork or waste of paper. They could be largely increased in this book, but to no advantage. They are not helpful but confusing to the young compositor, for they lead him to use schemes that call for complicated folding.

The six outer pages that come first and appear on the left side of Scheme 33 are on one side of the long cross; the six pages that come last are on the other side; but the sheet is perfected by turning it over the short cross in the usual way. The sheet is cut in halves: see rule between pages 1–2 and 11–12, which makes duplicates of them. Pages 5, 6, 7, 8 turn in on the first fold. The



34 Twenty-four pages, oblong shape,¹ inset of 8 pages.

cheap and hurried binding, is too often inaccurate as to margins.

The pages could be laid for a folding in of the inset, but its separate folding will make a neater section.

¹ In advertised descriptions of books, some publishers specify the paper-trade name of the paper used before they add the name of the shape or the fold of the leaf, but this practice is not general. Sizes of paper differ and the names of leaf-shapes differ in different countries. The table annexed gives names that are in frequent use, but they are not so called everywhere. The figures give relative proportions in inches.

<i>Name of leaf</i>	<i>Height</i>	<i>Width</i>
Regular or standard	9	6
Broad or wide	9	6½
Quarto shape	9	7
Long or deep	9	5
Extra long or narrow	9	3½
Oblong or music way	9	13

Variations of a half-inch in the height are seldom explained by any change in name.

170 *Twenty-four pages by two impositions*

9 — — 16	13 — — 12	11 — — 14	15 — — 10
1*			

8 — — 21	20 — — 9	9 — — 61	81 — — 2
1 — — 24	21 — — 4	3 — — 22	23 — — 2
1			

35 Twenty-four pages in one chase, with offcut of 8 pages to be inset and make one section.

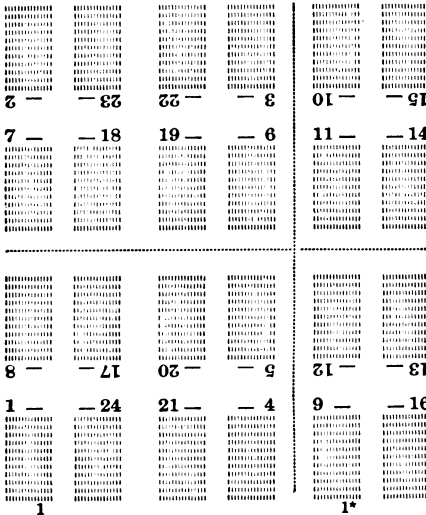
5 — — 8	17 — — 20	19 — — 18	7 — — 6
1*	2*		

4 — — 6	16 — — 12	22 — — 15	01 — — 8
1 — — 12	13 — — 24	23 — — 14	11 — — 2
1	2		

36 Twenty-four pages in one chase, for two sections of 12 pages each, offcuts to be separately folded and inset.

For the 24mo in one chase, two shapes of paper are made: the square shape, for which the pages must be imposed 4 pages high and 6 pages wide; the long shape, 3 pages high

and 8 pages wide. For the ordinary 12mo leaf, $5\frac{1}{8} \times 7\frac{3}{8}$ inches, the square paper is $30\frac{3}{8} \times 30\frac{3}{4}$ inches, an awkward shape. The long paper, 23×41 inches, is handier,



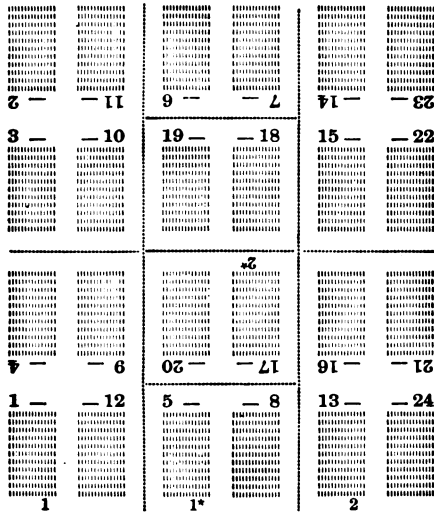
37 Twenty-four pages on the square sheet, with offcut of 8 pages, to be inset to make one section.

and is usually preferred. For long editions the 32-page form on paper 30×40 or 31×41 inches is selected.

Sixteen-page impositions, for cross folds and without insets, are best fitted for hand folding.

This sheet turns on the short cross. When perfected it is first cut in three long strips. The outer strips (signatures 1 and 2) are folded separately as 8vos. The inner strip, that bears the signatures 1* and 2*, is cut in four pieces, making duplicates of each signature, which are separately folded and inset in their proper order. The outer strips are each subdivided in two equal parts for the insertion of the insets. Scheme 38 makes troublesome fold-

ing. It should not be selected when paper of proper size can be had that will permit the use of Scheme 35, which is more approved by publishers.



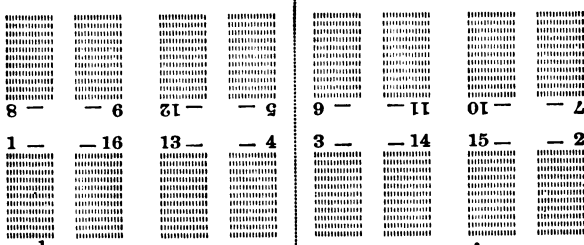
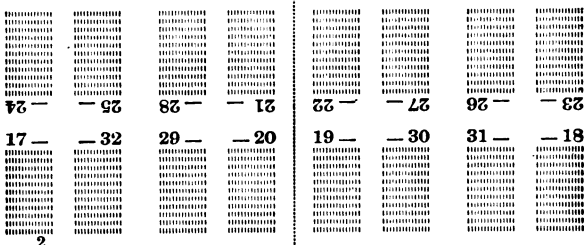
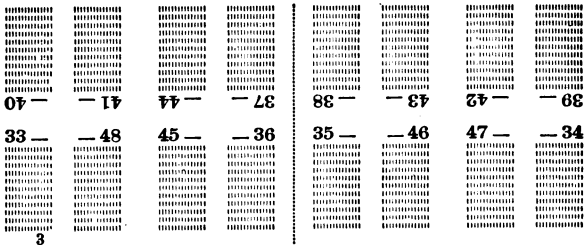
38 Twenty-four pages on the square shape of sheet, for two sections of 12 pages.

For twenty-four pages in one chase, the long shape of paper, usually 23×41 , is to be preferred for the ordinary duodecimo of $5\frac{1}{8} \times 7\frac{2}{3}$ inches.

Twenty-four pages in three separate sections of 8 pages each can be made by triplicating in one chase Scheme 15 or 16 for 8 pages.

The sheet for Scheme 39 turns on the long cross. When perfected it is cut in six pieces, as marked, and each section is folded as a regular 16mo. Its turn on the long cross, for printing on the second side, compels a new feed-edge of paper to be presented to the grippers—a treatment always objectionable to the pressman. To impose the

pages to turn on the short cross gives extra trouble to the binder, and risks imperfect workmanship: the upper and lower tier of 16 pages each must be treated as widely sepa-



39 Forty-eight pages in one chase, as three distinct sections of 16 pages each, for the square shape of paper.

rated but regular sixteens, as in Scheme 19; the middle tier of 16 must be cut at the head, to fold by consecutive parallels.

For 48 pages in two sections of 24 pages each, but in one chase, repeat on each half of the short cross the imposition of Scheme 37, or treat them as the lower two

41-44 4 ^a	53-56 5 ^a	65-68 6 ^a	67-66 6 ^a	55-54 6 ^a	43-42 6 ^a
07-07 4	62-62 5	79-79 6	02-02 6	89-89 6	97-96 6
37-48 4	49-80 5	61-72 6	71-82 6	59-50 6	47-38 6
5-8 1 ^a	17-20 2 ^a	29-32 3 ^a	31-30 3 ^a	19-18 3 ^a	7-6 3 ^a
7-6 1	91-82 2	86-77 3	94-85 3	22-13 3	01-02 3
1-12 1	13-24 2	25-36 3	35-26 3	23-14 3	11-2 3

40 Seventy-two pages in one chase: six sections of 12 pages.

thirds of Scheme 44. It is not an imposition to be recommended.

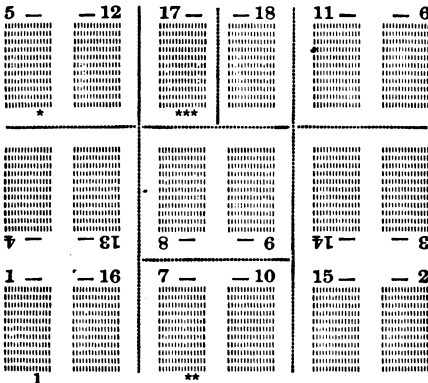
A scheme for 48 pages in one chase, to be folded together in one section, is quite impracticable even for a common pamphlet on very thin paper. It is never selected for a library book, for it cannot be folded neatly or be trimmed with true margins. A section of 32 with inset of 16 is clumsy. It is little better to put the pages in two parts of 24 pages each, one to be inset. For all side-stitched pamphlets prefer thin sections. The paper cover

can be pasted on the back of sections more firmly, and it will not sprawl outward at the fore edge.

Scheme 40 is practicable for very small leaves only. In adjusting margins and making register it will be more manageable if divided in two chases as an outer and an inner form of 36 pages each. It turns on the short cross and is cut in twelve equal parts, making duplicates of each section. The form could be divided in three sections of 24 pages, but not to advantage for a library book of neat binding.

EIGHTEEN PAGES AND THEIR DUPLICATES

The 18mo in one signature is an imposition to be avoided, for it compels a transposition of pages on press when the



41 Eighteen pages in one chase, for one section. It requires two insets, a tipped leaf, and transposed pages.

first side of the paper has been printed, and it is troublesome to fold. It is occasionally selected for single-sheet

pamphlets, because it makes a shapely leaf for the common sizes of paper 19×24 and 22×28 inches.¹

The 36mo and 72mo do not require a transposition of pages, but they delay folding, and are selected by publishers only when paper of suitable size and quality cannot be had for sections of 16mo.

In Scheme 41 the paper turns on the short cross. The two outer tiers of mated pages are at the ends of the sheet, where they back one another properly. So do pages 17 and 18 in the offcut; but pages 7-10 and 8-9 would be wrongly backed by this turn upon the short cross. When the sheet has been printed on the first side, page 7 must be transposed with page 9, and page 8 with page 10. The transposition of pages in the form produces the same result as the turn on the long cross.

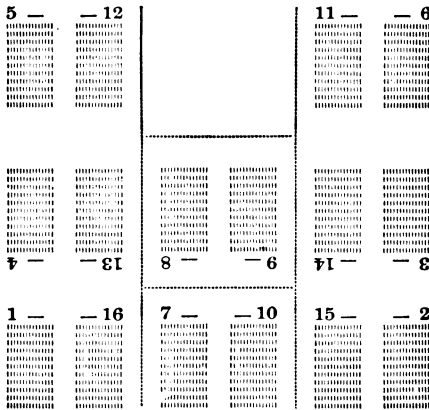
In folding, the sheet is cut in three long strips, as marked with dotted lines in the scheme. Pages 5-12 and 6-11 are in an offcut that is inset in the larger folding. The centre tier is then cut in three equal parts, and pages 7-10 and 8-9 make another inset. This leaves one third of the centre strip with pages 17-18. As they have no mated leaf, it is necessary to cut them through the centre and paste them down on page 16 at the end of the signature. It is not an imposition to be recommended, for the sheet has to be cut in eight pieces and requires special care in folding.²

In Scheme 42 the objectionable single leaf is cut out. This permits a more shapely leaf than can be had from the ordinary fold of 16mo on paper of regulation size. The

¹ The 18mo of paper 19×24 is $4 \times 6\frac{1}{3}$ inches, and that of paper 22×28 is $4\frac{2}{3} \times 7\frac{1}{3}$ inches. The regular 16mo foldings of these papers are wider and shorter, and to many readers the square 16mo of regular fold is a squatty and objectionable shape.

² The 18mo without transposition is laid down in some manuals: page 7 lines with 8 and page 9 with 10; the centre tier of pages is cut through the back margins, making three single leaves that must be pasted down in the centre of the complete

pages in the middle tier must be transposed for the second side: pages 7-10 and 8-9 are changed in the same way as is described on page 176. The heads of the pages in the offcut are reversed so that this part can be turned in and folded up with the body of the sheet, but the work will be neater if the offcut is separately folded.



42 Eighteenmo fold of 16 pages only, one leaf cancelled.

Scheme 43 is practically three series of 12 pages imposed together to produce small sections of a convenient thickness. The offcut will be most satisfactorily treated if it is separately folded.

Thirty-six pages in two forms can be arranged to fold up as one section,—an outset of 24 pages and an inset of 12 pages,—but it is a scheme not to be recommended: its section. The inconvenience of transposition is not so great as that produced by the handling of three single leaves and the insecurity of an unworkmanlike binding. It may be tolerated in the side-stitched pamphlet of one sheet only, but not as a section of a book for the library. Other schemes for the 18mo in one section are equally troublesome, and they should be accepted only as a last resort when no other imposition can be used.

folding will be unusually troublesome, even if the 12-page inset has been separately folded. It is here mentioned because it is sometimes selected for a cheap pamphlet, but the greater cost of folding by hand should be considered.

5 —	— 8	17 —	— 20	29 —	— 32
1*		2*		3*	

4	6	16	21	28	33
---	---	----	----	----	----

1 —	— 12	13 —	— 24	25 —	— 36
1		2		3	

Outer form.







2 —	— 11	14 —	— 23	26 —	— 35
-----	------	------	------	------	------

3 —	— 10	15 —	— 22	27 —	— 34
-----	------	------	------	------	------

8 —	— 7	18 —	— 19	30 —	— 31
-----	-----	------	------	------	------

Inner form.

43 Thirty-six pages in two chases: three sections of 12 pages each,

 99—	 —98	 89—	 —88	 09—	 —19	 69—	 —68	 72—	 —19	 99—	 —99
 49—	 —72	 69—	 —52	 57—	 —64	 63—	 —58	 51—	 —70	 71—	 —50
3				3*							
 36—	 —19	 41—	 —26	 98—	 —78	 88—	 —98	 08—	 —49	 64—	 —18
 25—	 —48	 45—	 —28	 33—	 —40	 39—	 —34	 27—	 —46	 47—	 —26
2				2*							
 18—	 —17	 20—	 —5	 19—	 —13	 11—	 —11	 9—	 —19	 18—	 —7
 1—	 —24	 21—	 —4	 9—	 —16	 15—	 —10	 3—	 —22	 23—	 —2
1				1*							

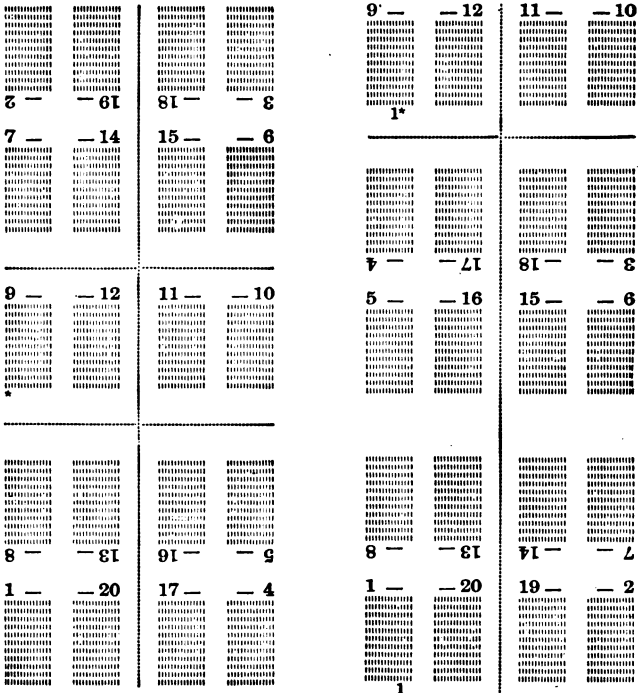
44 Seventy-two pages in one chase: three sections of 24 pages. Each section will be a 16-page with 8-page inset.

TWENTY, FORTY, AND EIGHTY PAGES

Twenty pages can be imposed as a 16mo, with an added inset of 4 pages, by putting the 4-page inset in the centre tier and making the two upper and the two lower tiers the halves of a regular 16mo. The four pages of this centre tier must be transposed when the sheet is ready for printing on the second side, and the sheet after printing must be cut in six pieces, as has been indicated in a previous scheme. Transposed pages 9, 12, 11, 10, can then be inset in the centre of the 16-page part, making the complete section of 20 pages.

Twenty pages can be imposed without a transposition by

putting the offset of 4 pages at the extreme end of the form and turning the sheet on the long cross, but this method of turning the sheet may be as objectionable as the transposition of pages or plates. (See Scheme 46.) The



45 Twenty pages in one chase, as one section, to turn narrow way of paper.

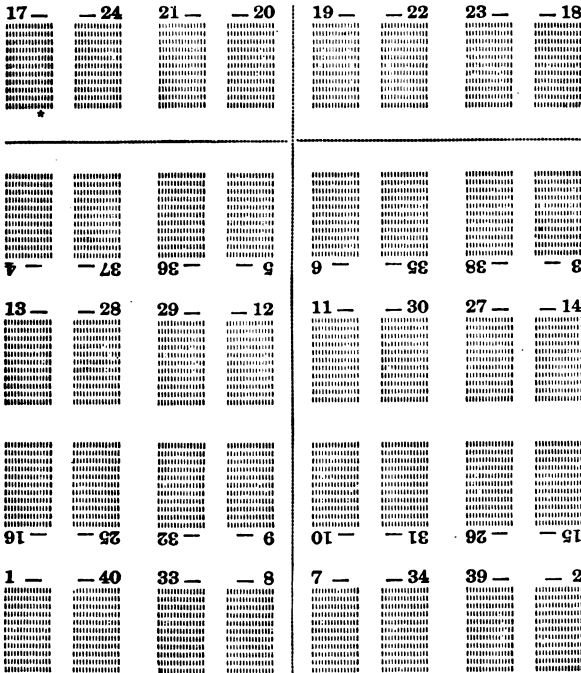
46 Twenty pages in one chase, as one section, without a transposition. Turns on the long cross.

pages of Scheme 45 can be rearranged to make two sections: one of 16 and one of 4 pages, or one of 12 and one of 8 pages.

In Scheme 46 a transposition of the pages of the inset is

avoided by turning the sheet on the long cross. The sheet, first cut the long way, has two parallel folds the narrow way before the inset is inserted.

When pages are in the customary proportion of width 1 to height $1\frac{1}{2}$, the 20-page form will be long and nar-



47 Forty pages in one chase: one section, inset of 8 pages.

row and not properly adapted to the shapes of paper kept on sale. To avoid waste, paper has to be made to order of prescribed size. Papers on sale are adapted only for the small quarto shapes of 20mo forms.

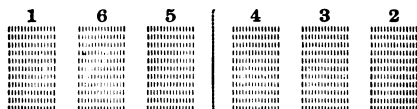
Scheme 47, practically a sheet of 32 pages with an added inset of 8 pages, may serve for a cheap pamphlet on

thin paper, but not for a neat book. The imposition could be varied by making up the form in two sections of 20 pages. Either method will make uneven and troublesome folding. For pages of regular shape, this imposition, 5 pages high, 8 pages wide, calls for paper that is nearly square, and that may have to be made to order.

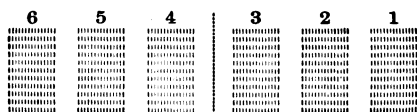
Eighty pages in one chase, in five sections of 16 pages each, can be imposed, 8 pages high and 10 pages wide, for a more shapely sheet of paper. The inseting of many sections is to be avoided, for it produces a bunched back and uneven margins.

THE LEAFLET

Leaflet is the name given to folded but unsewed leaves of 6, 8, or more pages. A rule border about every page is common; the space between pages is narrow but uniform in width. There is no arbitrary rule about imposition: the first page may be to the left, to the right, or in the centre, but the pages following page 2 are laid down in any way that establishes their relation one to another.



First page at right in print.

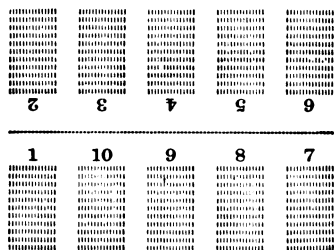


First page at left in print.

48 Six-page leaflets in strip 1 page high.

These pages are to be printed on a long slip of paper, and to be turned on the short cross to make duplicates. The leaflet of 10 or more pages is generally imposed 2 pages

high, to turn on the long cross, so that the sheet can be cut through its longer diameter. This treatment makes the presswork of leaflets on small presses more manageable.



49 Ten-page leaflet 2 pages high.

To make sure of exact register, the paper for leaflets should be squared and accurately trimmed.

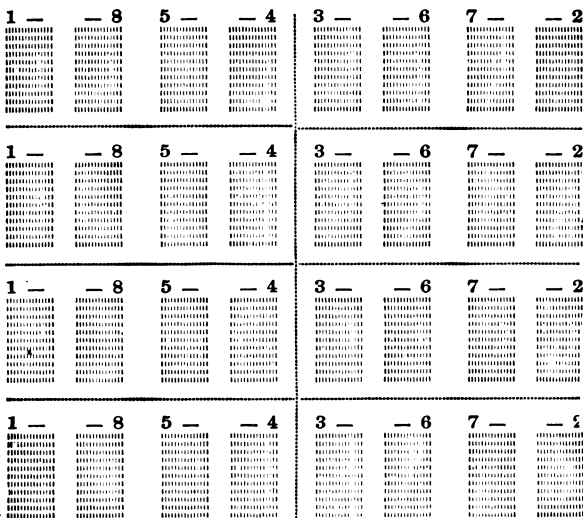
SMALL PAMPHLETS

Printed pages with narrow margins on leaves $1 \times 1\frac{1}{2}$ inches, and sometimes still smaller, may be required of the printer. To make up a form of very small pages after the methods of ordinary bookwork, to fold, sew or stitch, and trim each one separately, calls for nice attention to detail. These pages are usually printed in small forms on small presses. When there are many pages to be folded together, or even when the section has an inset, the suggestions for the narrowing of margins made on page 166 of this work should be followed. Care in folding, stitching, and trimming is needed.

Small pamphlets of 8 pages can be printed and bound with neatness and economy by electrotyping the pages to make four or more duplicates, which may be imposed with heads one way, and without any allowance for the waste of paper in trimming. See Scheme 50.

For this purpose the paper must be neatly squared before

it is put to press. When perfected the sheet should be accurately cut once through the centre, so that each entire half of the paper can be folded in one piece by edges of paper and not by print. Each half of the sheet may then receive a separate sewing or stitching for each single pam-



50 Eight pages in quadruplicate, or "four on." Sheet turns on short cross. Produces eight copies.

phlet. This done the folded work may be put under the smashing-machine to reduce the paper to a manageable flatness for the cutting-machine. If the head and tail margins have been accurately adjusted the knife that cuts them apart will, by the same cut, effectually trim heads and tails. This method saves time, but it is not practicable for thick paper. Thin pamphlets can be imposed "three or four on," so that each half of the perfected sheet can be folded together and stitched and cut apart, and this will save the expense of a separate folding, stitching, and trimming for each pamphlet.

CONCLUDING REMARKS

The schemes of this chapter are for books to be sewed and not side-stitched. The widths of margins (but imperfectly presented by reason of the small size of the diagrams) are those of books planned for cloth cases. For pamphlets or magazines to be side-stitched with thread or wire, the back margins should be much wider and the front margins narrower. Some printers make the front and back margins of the side-stitched pamphlet nearly equal in width, allowing but one pica or two picas more for front margin. This is done in the belief that the wire stitch will conceal as much paper in the back as will be wasted in the front by the knife of the bookbinder when he trims the fore edge. This concealment and waste of paper is too variable to be provided for by an arbitrary rule. The adjuster of margins should consult the binder as to the probable loss of paper, and regulate his margins accordingly.

Offcuts should be inset in the central fold of the larger part of the sheet from which they have been separated. To plan a separate section of the offcut, to follow the larger part, will compel needless sewing and make improper stiffness in opening the leaves of the bound book. This suggestion applies to thin paper only. Thick sections should be avoided, especially when the leaves are small and the paper is thick. In a form of 24 pages on thick paper it will be better practice to impose for two sections of 12 or three sections of 8 pages. This treatment does not conduce to cheapness, but it does produce better work even for the side-stitched pamphlet. The paper cover is seldom neatly pasted over thick sections; cover and leaves will yawn.

In Hebrew and other Oriental languages, reading proceeds from right to left in every line; the first page of the

book is on the leaf that Western usage gives to our last page. This reversal of our order compels a similar change in the imposition of pages of Hebrew, but the change is quickly understood, and does not require special schemes. In the 16mo, page 1 is put where page 16 is placed in the printed scheme; page 2 displaces 15, and every page following pursues the same order.

The increased width that should be given to the back margin of a pamphlet with a paper cover should never be determined by a guess as to the probable thickness of the sections. A dummy of all the sections properly sewed or stitched is the only certain guide. The purposed irregularity of margins in the pages of the text (least at back, more at front, and most at tail) is usually preserved on the outer pages of the cover. When the cover paper is intended to overlap all the edges in "circuit style," this irregularity must be increased.

For a book of prescribed dimensions, paper of too large size is sometimes furnished. If the excess of paper is trivial, the adjuster of its margins may add this excess to the width of the blanks previously provided for the front and tail margins, so that it can be trimmed off by the binder in the gathered sections, but in no case should the back or head margin be enlarged. For much excess (and even for small excess) it is better practice to have the surplus cut off before the margins are adjusted. A sheet with overplus of paper on one or both ends is always inconvenient to feeder and folder. It leads to the making of faulty margins, to improper folding and reckless trimming.

The blanks about pages should be calculated with exactness, so that the printed pages can be folded with proper margins by the edges of the paper as truly as by print. The more pages in the form, the more the need of exactness. A true sheet of its own paper is the best guide for determining the proper distance between the pages. When

the paper has rough or unevenly cut edges, or when a form has to be made up before the paper is in the house, a measuring-rule may be used.

In these schemes the representations of chases, cross-bars, quoins, and furniture have been omitted as not helpful to a clearer understanding of the orderly arrangement of pages. They divert the eye from the order of pages, which is the chief purpose of the schemes. Cross-bars, always useful, are not always possible. In forms of plates laid on blocks, and even in some forms of letterpress, they may have to be rejected or be placed in different positions from those in the diagrams. As every printing-house has chases of various sizes and shapes, the furniture of each form must be accommodated to the chase and its types.

The lines of dotted rules in the schemes, that indicate where the printed sheet must be cut by the hand-folder, are attachments of importance. To the novice in imposition they show the correlation of pages that must be kept in distinct sections, when these pages are laid down in different parts of the sheet. This grouping together of the pages of separate sections facilitates the study of their arrangement.

The purpose of this chapter is not to present schemes that will be copied unthinkingly by a young compositor; it is to lead him to an understanding of elementary principles, so that he can formulate new schemes for emergencies. Suggestions and explanations that may be helpful accompany many of the diagrams.

The study of imposition has been made needlessly repelling by the exhibition of too many schemes. Some are obsolete and others impracticable. It was the intent to present only the schemes that are in regular use for the ordinary sewed book of thin sections, but the frequency of positive orders from economical publishers of pamphlets for one thick section has led to adding a few schemes that are not recommended.

REVIEW QUESTIONS

This will be found to be one of the most important and one of the most difficult text-books of the series. The amount of information contained is very great and necessarily goes from very elementary to very advanced matter, as the entire range of the subject is so intimately related, both in theory and in practice, as to admit of no division.

In going through the book for the first time, the instructor may find it advisable to omit certain portions, such as the chapter on Algebraic Composition, and the more complicated problems in Imposition, leaving these to be taken up at a more advanced stage of the pupil's apprenticeship. He must be guided in this by local conditions and demands.

The questions, although necessarily very numerous, are by no means exhaustive. They are intended as guides to the discussion and may serve for examination questions for occasional tests. Every instructor will desire to put questions not here indicated and should do so with the utmost freedom. Fullness of explanation and freedom of class discussion will be found very important.

Pupils should be asked to present from time to time papers on sections of the text or on special subjects.

As the pupil proceeds with the book the questions will be found to be more general and, perhaps, more difficult, but as he goes on with the work he ought to become increasingly able to answer more general questions and to discuss the points covered by the text more fully and intelligently. The difficulty of the questions should be more apparent than real.

In the section on Imposition the questions frequently call for diagrams. The pupil should be required to diagram and to describe fully every scheme presented. It would be well to have these diagrams drawn on large sheets of paper which could be folded and cut so as to show the actual working out of the scheme in the printed section.

1. Upon what basis of compensation is work done in the composing-room of a book house?
2. Why are not all on the same basis?
3. How does the publisher arrange with the printer and he with his employees?
4. How is the composition of books rated, and what is it really?
5. Who first handles the copy, and what does he do?
6. How is the copy given to the compositors?

7. What should a compositor do before he begins to set type?
8. What are paragraphs for, and who makes them?
9. Who does make-up and stone-work, on what basis, and why?
10. What is done with the copy after the compositor has set it up?
11. For what is the compositor paid besides typesetting, and for what is he not paid?
12. What has been the effect of the introduction of electrotyping?
13. What does the maker-up do before a galley proof is taken?
14. What is required for a good proof?
15. What is done when the proof comes back from the reader?
16. What is done when the matter is reprint strictly?
17. What care should be taken of proved type?
18. What is done when the matter is manuscript?
19. When is make-up done?
20. What different methods are there of handling page proofs?
21. What should be done with proofs if, for instance, a corrected galley proof and a page proof showing corrections, are sent to the author?
22. What corrections are at the expense of the office and what are charged to the author?
23. What conditions cause a continued demand for hand composition?
24. What is the first step in acquiring expertness in hand composition?
25. How should the case be adjusted?
26. How should the compositor use his feet?
27. How should he use the stick?
28. What is the right way to pick up type?
29. How should the compositor space reprint copy?
30. What is the first thing to be done in setting from manuscript?
31. What should every compositor understand before he begins work in any particular office, and why?

32. What is done with foot-notes?
33. What is done in spacing the last line of a paragraph?
34. How can speed in composition be acquired?
35. How can quickness of motion be acquired?
36. What should a compositor do if he can control his time?
37. What are some of the aids to composition, and why are they useful?
38. How should type be kept so that it can be picked up readily?
39. Who are the best and who the worst compositors, and why?
40. What care should be taken regarding material before the day's work begins?
41. What care should be taken in removing the composed type from the stick?
42. How is exactness of measure secured, especially when more than one compositor are put on the same job.
43. What are some of the causes of inaccuracy?
44. What are some of the careless practices which make sticks untrue?
45. What should a young compositor do before he empties a stick?
46. What should be done with pi, and why?
47. What mannerism is sometimes found in paragraphing, and why is it objectionable?
48. What mannerism is sometimes found in the treatment of the ends of lines, and why is it objectionable?
49. What mannerism was introduced by William Morris, and why is it objectionable?
50. Under what conditions do the objections disappear?
51. What other practices are objectionable, and why?
52. What do illustrations need, and why?
53. What is the objection to the fashion of very wide spacing?
54. What can you say about the use of fancy types, rules, ornaments, and the like?
55. What is the result of over-fondness for ornament?

56. What architect's rule should be observed by compositors?
57. What should be the attitude of the printer toward all the mannerisms discussed?
58. What is the best type for title-pages?
59. How should the type of the title-page be related to the text type?
60. How should the types of the title-page be related to each other?
61. What exceptions may be made to this rule?
62. What should be done before you begin to set a title-page?
63. How should the blanks in a title-page be handled?
64. What do you say about the use of catch-lines?
65. What is the first requisite of a title-page, and what are some of the methods of securing it?
66. Describe an old method, still sometimes demanded, of constructing a title-page.
67. From what is a title-page built up, and what is most important regarding it?
68. How should this basic matter be treated if it requires more than one line?
69. What can you do if the author requires that it should all be on one line?
70. What consideration justifies the violation of the old rules?
71. What can be done when the copy for a title-page requires many words of equal prominence?
72. How should the short lines of a title-page be treated?
73. What can you say of the treatment of spaces?
74. What do the small capitals sometimes need, and why?
75. Give an old rule about spacing and comment on it.
76. How should you treat lines of secondary display?
77. What makes the attractiveness of a title-page?
78. How do you proceed if the title-page contains the names of others besides the author?
79. What rules should be observed in the use of numerals on a title-page?
80. How do you treat the word "by" and the author's titles?

81. How are the names of the authors and his coadjutors treated?
82. How can you treat a motto on a title-page?
83. What should you keep off the title-page if the author will let you?
84. What is a "Morris title"?
85. What explanatory matter sometimes goes on a title-page, and what difficulty does it cause?
86. How can you improve the appearance of a title-page of but few lines?
87. What simple arrangement can be used for a title-page that is difficult to display?
88. Make designs for the following title-pages:
 - (A) Symbol and Satire in the French Revolution by Ernest F. Henderson, Ph.D., L.H.D., Author of "A Short History of Germany," "Blücher," "A Lady of the Old Régime," etc. With one hundred and seventy-one illustrations. G. P. Putnam's Sons, New York and London, The Knickerbocker Press. 1912.
 - (B) History of Saint John's Lodge, of Boston, in the Commonwealth of Massachusetts, as shown in the records of the First Lodge, the Second Lodge, the Third Lodge, the Rising Sun Lodge, the Masters' Lodge, Saint John's Lodge, the Most Worshipful Grand Lodge. Boston, Privately printed, 1917.

(Showing an emblem)
 - (C) Sir John Lubbock's hundred books. Forty-nine. La Morte d'Arthure. The History of King Arthur and the Knights of the Round Table, compiled by Sir Thomas Mallory, Knt. Edited from the text of the edition of sixteen hundred and thirty-four with introduction and notes by Thomas Wright, Esq., M.A., F.S.A., Hon. M.R.S.L., etc., Corresponding Member of the Institute of France. London: George Routledge and Sons, Limited, Ludgate Hill, Manchester, and New York, 1893.
89. How should a dedication be set?

90. How should a table of contents be set?
91. How should heads be used in a table of contents?
92. What relation should be kept between the general appearance of the several parts of a book?
93. What kind of leaders give the best results?
94. How should a table of illustrations be set?
95. How should the half-titles for the large divisions of a work be set in fine editions?
96. How should the half-titles be set in chapter editions?
97. What was the older usage with regard to half-titles?
98. What is the difference between the half-title and the bastard title, and how is the latter treated?
99. What difficulty is sometimes found with a first page?
100. How should chapter headings be set?
101. What determines the amount of blank space on the first page of a chapter?
102. What kind of type should be used for the name of the chapter, and how should the name be adjusted to the measure?
103. How should a chapter synopsis be set?
104. How may a long synopsis be treated?
105. How is the type for preface and introduction determined?
106. What is done if a book has several prefaces?
107. How may a long introduction be treated?
108. How are the preface and introduction paged, and why?
109. What care must be taken with the first part of a book, and why?
110. What differences in arrangement of matter exist between cheap books and expensive ones?
111. What difficulties are found in the management of the blank spaces between chapters, and how may they be met?
112. How are subheadings set?
113. What especial quality must a subhead possess, and what are some of the ways of securing it?
114. How are numbered or lettered paragraphs treated?
115. In what type may side-headings be set?
116. How are paragraph and section marks set?

117. What relation should be kept as to type and leads between the text and extracts and notes?
118. How are short extracts and questions set?
119. How is quoted matter defined?
120. Under what circumstances may quote-marks be dispensed with?
121. What should be done, if possible, with very long extracts, and why?
122. How may extracts in prose and long quotations of poetry be set?
123. How may an extract be treated if the author calls for a particular type or a reproduction of the type, spelling, etc., of an old document?
124. How may foot-notes be set?
125. How may side-notes be set?
126. How may cut-in notes be set?
127. What has the printer to do with illustrations?
128. What are some of the common faults in process plates?
129. Which of these can the printer correct?
130. What is done to fit cuts into the text, (*a*) with the cuts, (*b*) with the type?
131. Describe several methods of setting running heads and tell where each is appropriate.
132. How should capitals be used in a lower-case running title?
133. What is sometimes done to preserve the running title from the effect of wear?
134. What modern fashion is sometimes followed in running titles, and what is the objection to it?
135. How is the space between the running title and the text treated? Mention some good and some bad methods and tell why they are good or bad.
136. What is the position of the running title on the page?
137. What old fashion has been revived in the setting of running titles?
138. What is done if the running title is a very long name of a book, and with what result?
139. What is the objection to the name of the book as a running title, and what may be substituted for it?

140. How is the top line of the page treated if there is no running title?
141. In such a case, how are the blank spaces managed, and why?
142. What style figures should be used in paging?
143. Where may figures be put at the foot of the page and when should they be put there?
144. What happens if paging figures are omitted?
145. What is done to indicate the paging of full-page illustrations?
146. What numerals are used for matter which comes before the text, the text itself, and the matter which comes after the text?
147. How is an appendix of illustrative material usually set?
148. What is the special merit of an index and what devices are used to secure it?
149. What is the rule for indention and for keeping the columns distinct in a two-column index?
150. How are the items made distinct in a full index?
151. What is the old and what the new way of setting the subdivisions of a reference?
152. How are references to different volumes of a set managed?
153. How are index references punctuated?
154. How are cross-references and note-references treated, and why?
155. What can you say of the spacing of lines of poetry?
156. What can you do when a line is too long for the measure?
157. What determines the indention of poetry?
158. How should you arrange your black and white on pages of poetry?
159. What elements of the printed page must remain in the same place throughout the volume, and why?
160. What is the best practice regarding the use of quote-marks in poetical quotations?
161. How are quote-marks set in relation to the text?
162. What difficulty occurs in making up pages of poetry, and what are some of the ways of overcoming it?

163. What kind of initial letter is most in favor for ordinary books?
164. What precaution should be observed in the use of it?
165. What initial may well be used with a small text type, and what care should be taken in its use?
166. What type should be used immediately following a large initial?
167. What may happen if the first line is ordered to be in italic?
168. When may a high initial lining at the foot be used and when not?
169. What can you say of the use, past and present, of medieval initial letters of the so-called uncial form?
170. What sort of body should an engraved initial be on?
171. What are the advantages and the disadvantages of large, spreading, highly decorated initials?
172. What very modern device has been used for combining letter and decoration? What are its advantages?
173. What is meant by a pierced initial, how should it be used, and what is its objection?
174. What substitute for the pierced initial is sometimes used, and what is the objection to it?
175. What other device of the same general nature is sometimes used, and what is the objection to it?
176. What form of initial, once much used, is now generally discarded, and why?
177. When would you use it, if ever?
178. What general rules should be observed in selecting a series of engraved initials?
179. What sort of initial is called for by a large type—12 to 18 point?
180. How is the engraving of the initial related to the size of the type?
181. How would you use a bold-faced initial with black background and white letter?
182. How can a large initial with open decoration be effectively used?
183. What is the usual result of using a number of ornamental initials on one page?

184. What may a designer do which a printer should generally avoid, and why?
185. What general principle should be carefully remembered regarding ornament of any sort?
186. What fault is common in initials?
187. What rule should be followed as to the size of initials?
188. What care should be observed if the letter shows white, and why?
189. What are the advantages of the William Morris initials?
190. What changes in the decoration of pages followed the invention of printing?
191. Trace the development of distinction between chapters.
192. What was done to avoid too much white on the first and last pages of the chapter?
193. What is the good of a head-band, and what rules should be followed in its use?
194. How are these decorations provided for fine books?
195. How may a fine book be easily spoiled in appearance?
196. What qualities are especially to be pondered in head-lines and initials?
197. What consideration should be taken into account?
198. What may happen if the artist's sketch is not the same size as the actual decoration?
199. What are objections to stock head-bands?
200. Can head-bands be made up from stock materials in the composing-room?
201. What can you say of the use of rule for making head-bands?
202. What can you say of the use for this purpose of the borders now made by type-founders?
203. What should be the relation between the typography of a book and its subject matter?
204. What should be the general typography of a school book of history; of a very advanced book of historical research?
205. What is the general rule as to ordinary books?
206. When is ornament desirable?

207. What dangers beset the amateur in designing the typography of a book?
208. What should be done before undertaking the composition of a book?
209. What warnings should be especially heeded?
210. Why is the composition of algebraic matter difficult?
211. What should a young compositor do before undertaking any algebraic work?
212. What are used for exponents or indices?
213. What combinations are often necessary?
214. How are the various lengths of brackets which are needed, obtained?
215. How are fractions expressed?
216. What must be provided for each of the two bodies used?
217. What provision should be made for the required rule?
218. What is likely to be needed for algebraic expression consisting of two lines of figures with a separating horizontal line between?
219. How should the case be laid for algebraic sorts?
220. How does the spacing of algebraic work differ from that of ordinary text?
221. Give five general rules for spacing this kind of work.
222. How are the vertical lines arranged in algebraic formulas which have mutual relation or dependency?
223. What other rules for vertical lining should be followed?
224. What is done with very long formulas?
225. How are connective words (as, in, again, etc.) set?
226. How are references in brackets set and punctuated?
227. How are numbers expressed in many figures punctuated?
228. What rule is observed in setting columns of figures containing decimal points?
229. How may many characters be put into one line?
230. What about spaces before or after plus or minus signs?
231. What should be done when distinct expressions are shown on the same line?

232. When alphabetical letters and superior figures are grouped in the same term, how are they spaced?
233. What can be done to give an expression noticeable distinction?
234. What results from the impossibility of dividing an algebraic term at the end of a line?
235. How does the occurrence of an algebraic term in a clause affect punctuation?
236. What rules must be observed if an algebraic expression is too long to go into one line?
237. What may be done to prevent improper divisions?
238. What is the rule regarding the length of the line separating the numerator and the denominator and the placing of the shorter term?
239. When one of two terms is simple and the other double where does the punctuation mark go if there is one?
240. What is the special value of the point system in algebraic work?
241. How would you go to work to set a short but complex formula incorporated in the middle of a line of descriptive matter?
242. What is the effect of such incorporation on the appearance of the page and what is sometimes done to remedy it?
243. How should the vinculum which projects from a root sign be treated?
244. How are index figures worked into the line?
245. How are exponents placed?
246. What are used for inferior letters and where are they placed?
247. What other complicated forms are sometimes found?
248. How are integral signs sometimes complicated?
249. How are the abbreviations for sine, logarithm, cosine, and tangent set?
250. How are parentheses and the like related in height to the expressions they enclose?
251. What is done when many parentheses are employed, one written within another?
252. How are figures marked for logarithms?

253. How are the figures arranged in expressing fractions contained in many different lines?
254. What was the old method of adjusting spacing to get formulas into the measure?
255. What is a better method?
256. What should be furnished the maker-up before he begins to make up his pages from galleys?
257. What is the best form of gauge and what is its use?
258. What is the objection to making up before the galley proof has been corrected?
259. What should be done to prevent the needless cutting of furniture?
260. What should the maker-up assemble before he begins his work?
261. What may be done when there are no irregularities, and what caution should be observed?
262. What must be done in short pamphlets where the matter must be adjusted to a certain number of pages?
263. What responsibility has the maker-up with regard to justification?
264. What should the maker-up have handy, and why?
265. Describe the process of tying up the page.
266. What should be done to make sure the type is on its feet?
267. What comparison should be made to insure correct arrangement of paragraphs?
268. What does making up include besides the division of the matter into pages of equal length?
269. What is meant by "recto" and "verso," and where are the page numbers set?
270. How are the white lines between the running title and the text and the foot-line composed?
271. How and when are the running titles provided?
272. What is done when there are no paging figures in the running title?
273. What may be done with the paging figures when there is no running title?
274. If the paging figures are not the same as the text type, how may they be justified?

275. What sort of figure is generally preferred for paging, and why?
276. What pages need no running title?
277. In such a case, what becomes of the paging figure?
278. How do you count paging figures in centring a running title?
279. What type should be selected for the running title if the selection is left to the maker-up?
280. Discuss the use of small capitals for running titles.
281. How are running titles of one word treated?
282. How are running titles that indicate the subject matter of the page treated?
283. How can the maker-up judge the proper width of blanks?
284. What devices may be used to secure good make-up when great compactness is desired and there are many short chapters?
285. What are some of the difficulties encountered in making up, and how may they be met?
286. What must be done when one man is called on to finish make-up begun by another?
287. What is the value of signatures?
288. What marks are used for signatures?
289. How many pages are allowed for a signature?
290. Where is the signature-mark placed and how are insets and different volumes distinguished?
291. What may happen to remove guides for accurate folding?
292. In such a case, how can new guides be produced?
293. What should the maker-up do when the number of pages for a full form has been made up, and why?
294. How far is a table of signatures valuable to the maker-up?
295. What does the maker-up do with his made-up pages?
296. What hindrances are encountered in making up?
297. How may they be met?
298. What special trouble may be caused by a single word, and how may it be met?
299. What difficulties are presented by matter other than straight text?

300. How may these difficulties be forestalled?
301. How are small illustrations set into the text treated?
302. How are foot-notes set?
303. How may foot-notes be treated if very long?
304. How is the order of foot-notes provided for, especially when short notes follow long ones, all referring to matter on the same page of text?
305. How are foot-notes placed when there are two or more columns of text on the page?
306. What is the proper position of a side-note?
307. How are side-notes set?
308. What departure from the style of the text may be allowed in side-notes?
309. What is often done in setting names of books, etc., cited as references in side-notes, and what is the objection to the practice?
310. Where are cut-in notes placed, and how should they be managed?
311. How are cut-in notes sometimes treated to make them conspicuous?
312. What peculiar expedient has been adopted in the case of very profusely annotated books; on what does its success depend, and why?
313. Give several styles of setting the legend line for large illustrations.
314. Discuss the use of capitals in legend lines.
315. What is sometimes done to emphasize legend lines, and what may be said of such devices?
316. How are the legends sometimes arranged in expensive books?
317. Where may legend lines be placed?
318. What should be done when a cut appears at the head of a page?
319. What determines the blank space around cuts or narrow tables?
320. What may be done when cuts are very small?
321. How should illustrations of irregular shape be blocked, and why?
322. What is a very modern way of treating small illustrations?

323. What should be done when it is ordered that two or more illustrations shall project beyond the regular measure of the page?
324. How should blank spaces be treated in preparing a page for the foundry?
325. What does the insertion of irregularly shaped illustrations in the text require on the part of the maker-up?
326. Give four generally accepted rules for the position of cuts on the page.
327. What may be done with a cut too small to fill the measure, but too large to admit text at the side?
328. How should pairs of cuts be treated when mates; when not mates?
329. What is done with running title and page number when a full-width cut comes at the top of a page?
330. How are the columns made up when a cut of the whole width of the page appears on a page of more than one column?
331. What defects should be avoided in making up poetry or poetical quotations?
332. What should be done when a chapter ends so as to bring only two or three lines on the last page?
333. Why does it take a long time to make up illustrated pages, and how can time be saved?
334. How should you treat long foreign language quotations with translations in parallel columns?
335. Where are legend lines placed when full-page illustrations are used running the broad way of the page?
336. How should blanks be adjusted with regard to cuts, extracts, and subdivisions of the text?
337. What should be done when a large piece of matter has to be set in a narrow measure?
338. How are dividing dashes managed?
339. Why should type be dry when pages are made up?
340. What method of procedure will assist in the exact placing on an open page of lines that are to be treated in red?
341. How can the maker-up perfect himself in his art?

342. Describe the imposing stone and its use.
343. Describe a chase, tell what it is made of, and how it is used.
344. Describe devices for handling large forms without injury to form or chase.
345. What is sometimes needed in book-work, and what is the device called? Describe its purpose.
346. What is the bar running the length of the chase called?
347. What is the bar running the width of the chase called?
348. What are heading-chases and how are they used?
349. Describe the planer and its use.
350. Describe a good form of iron quoin.
351. What can be done to prevent the vibration of the press loosening the form?
352. Describe another variety of iron quoin.
353. Whose business is it to make the margins, and why?
354. What is the process of determining the margins?
355. What must be known and what allowances made before drawing the lines for the margins?
356. How is the page placed on the leaf?
357. What margins are first determined?
358. How are the other two margins determined?
359. Describe a rough and ready method of ascertaining the margins for a 16mo sheet.
360. How may the margins be determined for a form of eight pages?
361. How for a half-sheet of 16mo?
362. How are forms of more than 16 pages treated?
363. What happens if the paper does not run even in size?
364. How can this be corrected after printing?
365. How can it be prevented before printing?
366. What is called "locking up"?
367. What precautions should be taken before locked-up pages are laid down, and why?
368. Upon what does correct stone-work primarily depend and what should be done if this requisite is not furnished?
369. For what should chases be examined before use?
370. How should the chase be selected?
371. What tools does a stoneman need?

372. What should a pressman expect from a stoneman?
373. When are cross-bars needed, and why?
374. How are the cross-bars fitted in to secure rigidity?
375. What do you need for a heavy form of one page?
376. What sometimes happens in the attempt to secure tight lock-up?
377. What does the pressman sometimes have to do?
378. What care should be used in selecting wooden furniture?
379. What can you say about side-sticks and foot-sticks?
380. When should metal furniture be preferred?
381. What is the proper length for guttered furniture and head-bolts?
382. When is wood furniture good enough and when is metal safer?
383. Describe the selection and use of quoins.
384. Describe the removing of the tie-string.
385. Describe in full the use of the planer.
386. What happens when the planing is too violent?
387. What difficulty in the form cannot be remedied by the planer?
388. How much pressure is needed to secure perfect justification?
389. What is the effect of locking up on a page of type, and where is it most apparent?
390. How should pressure be applied in locking up type, and what may result from error in this process?
391. What do careful pressmen sometimes do, and why?
392. Describe fully the tightening of the quoins.
393. Describe some of the difficulties met in locking up.
394. What should be done when one side of a form is more solid than the other?
395. What should be tested when there are mitred brass rule borders?
396. Summarize the art of locking up.
397. How is locking up sometimes done for newspaper printing, and what defect may result?
398. What use should be made of the planer when the type has been finally locked up, and what may it show to be necessary?

399. What sometimes has to be done when wood furniture is used, and why?
400. What sometimes happens when iron quoins are used?
401. What is done with pages that are to be electrotyped?
402. What should be done to prevent the spreading of the electrotyper's wax over sides and ends of pages?
403. What safeguards may be provided against imperfect moulding?
404. How should proofs be taken from forms that are to be electrotyped?
405. Describe the methods of taking proofs from large forms.
406. What is done with the proof and the form after a proof has been taken?
407. What care should be taken of the type and what are the consequences of carelessness here?
408. What can be done for type that has been ill treated?
409. What has been a cause of neglect of type, and why?
410. Describe the selection of paper and the precautions necessary to get a good proof.
411. What is done with the proof after reading?
412. What are the best tools for correction, and why?
413. What should be done when corrections require change of justification?
414. How may correction on the stone be made easier?
415. What precautions should be taken to avoid injury to the face of the form?
416. What should each compositor do when he has finished his corrections?
417. What can you say about the correction of 'outs and doublets'?
418. What is done between the correction of errors in the first proof and the sending of the author's proof to the author?
419. What is done with the author's returned proof?
420. What should be done before the form goes to the pressman, and why?
421. Describe points for type forms and their use.
422. What precaution should be taken to prevent injury to type on a cylinder press?

423. What should be the minimum margin of paper outside the type, and why?
424. What is done when forms come back from foundry?
425. Describe the letter-board and its use.
426. What is done with dead matter that is not to be immediately distributed?
427. What are the usages as to who shall distribute type?
428. Describe the type-closet.
429. Describe the chase-rack and its use.
430. What sort of man should the stoneman be?
431. Why does imposition require real knowledge, not rule-of-thumb methods?
432. What is the first step?
433. What is the first lesson to be learned?
434. How are sheets of many pages folded?
435. What is the final form in which the folded sheet appears in the bound book?
436. What may be done with a map or picture printed on different paper or by a different process from the text?
437. What general scheme of pages appears?
438. Describe the four classes of schemes of imposition.
439. When are the different classes used?
440. What are schemes of imposition known as?
441. Describe printing by the sheetwise method.
442. Describe the half-sheet method.
443. When is each used?
444. Show by a diagram how the four pages of a folio newspaper are imposed.
445. What rules are exemplified in this simple scheme?
446. Describe two methods of printing four pages by one impression.
447. Which method is preferred, and why?
448. What should be known before any scheme of imposition is adopted, and why?
449. How are the pages arranged in ordinary forms of half-sheet press-work?
450. What should be furnished the maker-up?
451. What is meant by imposing in the "usual way" and "from the centre"?

452. After the pages have been truly laid on the stone, what follows?
453. Tell about the selection of the chase.
454. When may cast-iron chases be used, and when are wrought-iron ones better?
455. How should small forms be imposed?
456. Describe the scheme used for account books and diaries.
457. Describe the treatment of legal folios.
458. Describe the imposition of eight pages in one form, oblong way.
459. Describe the difference between eight pages usual way and eight pages from the centre.
460. What is the "two on" scheme, and why used?
461. Describe the "triple scheme."
462. Give diagrams for eight pages, four high, and eight pages for an offcut of paper.
463. Describe with diagram imposition of 16 pages in two chases for one section and 16 pages imposed from the centre.
464. What are some of the difficulties and some of the advantages of sheetwise imposition?
465. Describe two methods of imposing 16 pages from the centre.
466. What is sometimes done when very long editions are to be run?
467. What is done when the paper for a 16-page section is too thick to be folded but not too thick to be sewed?
468. Describe the imposition of 16 pages, 12 and 4.
469. Describe the imposition of 16 pages in three sections.
470. How can you treat 16 pages, music way, in one section and prevent buckling of paper?
471. Describe the half-sheet of 32 pages and state objections to it.
472. Show the scheme for 32 pages in two forms, two signatures of 16 pages to be separately folded and inset to make one section.
473. How do you arrange 32 pages in one form as two sections of 16; as four sections of 8?

474. How can you manage 64 pages in one chase?
475. How is it possible to print 128 pages in one chase?
476. What are the advantages and disadvantages of many pages on one sheet?
477. How are large sheets, printed on rotary or flat-bed perfecting presses and folded by machines, handled?
478. Show and describe the use of 12 pages in one chase.
479. Why is the 12mo disliked?
480. How are rough-edged and smooth-edged papers treated?
481. How can 12 pages be imposed from the centre?
482. Show and describe the scheme for 24 pages in two chases as one section.
483. What is the difficulty with thick sections and how can it be avoided?
484. Describe in detail the method of electrotyping two pages on one plate for a 16-page form.
485. How can the appearance of an ordinary 24mo in one section be improved?
486. How can 24 pages be imposed to produce two sections; three sections?
487. Describe the scheme of 12 pages in one chase, similar triplicates of 4.
488. Describe the use of sections of uneven thickness.
489. Diagram and describe the arrangement of 12 oblong pages, no inset, central imposition.
490. Diagram and describe the arrangement of 24 pages, oblong shape, inset of 8 pages.
491. Diagram and describe the arrangement of 24 pages in one chase for two sections of 12 offcuts to be separately folded and inset.
492. Diagram and describe the arrangement of 24 pages on square sheet, with offcut of 8 pages to be inset to make one section.
493. Diagram and describe the arrangement of 24 pages on square sheet for two sections of 12, and state difficulties.
494. Diagram and describe the arrangement for 48 pages in one chase, three sections of 16, for square paper.

495. How can you manage 48 pages in two sections of 24 in one sheet?
496. What is the objection to 48 pages in one chase for one section?
497. What can be substituted?
498. What can you say of the thickness of sections for small pamphlets?
499. Discuss the 72-page form.
500. Discuss the 18mo in one signature.
501. Discuss the 36mo and 72mo.
502. Discuss the arrangement for 18 pages in one chase for one section.
503. Diagram and describe the arrangement for an 18mo fold of 16 pages.
504. Diagram and describe the arrangement for 36 pages in two chases, three sections of 12 pages.
505. How can 36 pages in two forms be arranged for one section?
506. Diagram and describe 72 pages in one chase, three sections of 24.
507. How may 20 pages be imposed in one chase with and without transposition?
508. How is the 20-page form related to paper sizes?
509. How can 40 pages be arranged in one chase and how folded?
510. How can you manage 80 pages in one chase?
511. What is meant by a leaflet?
512. How is it imposed?
513. How are very small pamphlets managed?
514. How may small pamphlets of eight pages be handled to advantage?
515. What changes have to be made in these schemes when the book is to be side-stitched?
516. How should offcuts be handled?
517. What can you say about thick sections?
518. What is the peculiarity of the Hebrew and Oriental languages generally and what difference does it make?
519. How is the width of back margins for pamphlets determined?

520. How does the irregularity of page margins affect the cover?
521. Discuss the relation of paper size to page size.
522. Discuss the blanks about pages.
523. Why have the diagrams omitted everything but the type page?
524. What are the purpose and value of the dotted lines in the schemes?
525. What is the purpose of the chapter on Imposition, and why are some schemes given and other possible ones omitted?

<i>Business School Library</i>	
No.	9504
<i>Main Entry</i>	
<i>Cat. Cd.</i>	<i>242</i>
<i>Shelf Cd.</i>	<i>242</i>
<i>Acc. Bk.</i>	<i>E. L. H.</i>
<i>Per. Cd.</i>	
<i>Cont. Cd.</i>	

TYPOGRAPHIC TECHNICAL SERIES FOR APPRENTICES

THE following list of publications, comprising the **TYPOGRAPHIC TECHNICAL SERIES FOR APPRENTICES**, has been prepared under the supervision of the Committee on Education of the United Typothetae of America for use in trade classes, in courses of printing instruction, and by individuals.

Each publication has been compiled by a competent author or group of authors, and carefully edited, the purpose being to provide the printers of the United States—employers, journeymen, and apprentices—with a comprehensive series of handy and inexpensive compendiums of reliable, up-to-date information upon the various branches and specialties of the printing craft, all arranged in orderly fashion for progressive study.

The publications of the series are of uniform size, 5 x 8 inches. Their general make-up, in typography, illustrations, etc., has been, as far as practicable, kept in harmony throughout. A brief synopsis of the particular contents and other chief features of each volume will be found under each title in the following list.

Each topic is treated in a concise manner, the aim being to embody in each publication as completely as possible all the rudimentary information and essential facts necessary to an understanding of the subject. Care has been taken to make all statements accurate and clear, with the purpose of bringing essential information within the understanding of beginners in the different fields of study. Wherever practicable, simple and well-defined drawings and illustrations have been used to assist in giving additional clearness to the text.

In order that the pamphlets may be of the greatest possible help for use in trade-school classes and for self-instruction, each title is accompanied by a list of Review Questions covering essential items of the subject matter. A short Glossary of technical terms belonging to the subject or department treated is also added to many of the books.

These are the Official Text-books of the United Typothetae of America.

Address all orders and inquiries to COMMITTEE ON EDUCATION,
UNITED TYPOTHETAE OF AMERICA, CHICAGO, ILLINOIS, U. S. A.

TYPOGRAPHIC TECHNICAL SERIES *for* APPRENTICES

PART I—*Types, Tools, Machines, and Materials*

1. **Type: a Primer of Information** By A. A. Stewart
Relating to the mechanical features of printing types; their sizes, font schemes, etc., with a brief description of their manufacture. 44 pp.; illustrated; 74 review questions; glossary.
2. **Compositors' Tools and Materials** By A. A. Stewart
A primer of information about composing sticks, galleys, leads, brass rules, cutting and mitering machines, etc. 47 pp.; illustrated; 50 review questions; glossary.
3. **Type Cases, Composing Room Furniture** By A. A. Stewart
A primer of information about type cases, work stands, cabinets, case racks, galley racks, standing galleys, etc. 43 pp.; illustrated; 33 review questions; glossary.
4. **Imposing Tables and Lock-up Appliances** By A. A. Stewart
Describing the tools and materials used in locking up forms for the press, including some modern utilities for special purposes. 59 pp.; illustrated; 70 review questions; glossary.
5. **Proof Presses** By A. A. Stewart
A primer of information about the customary methods and machines for taking printers' proofs. 40 pp.; illustrated; 41 review questions; glossary.
6. **Platen Printing Presses** By Daniel Baker
A primer of information regarding the history and mechanical construction of platen printing presses, from the original hand press to the modern job press, to which is added a chapter on automatic presses of small size. 51 pp.; illustrated; 49 review questions; glossary.
7. **Cylinder Printing Presses** By Herbert L. Baker
Being a study of the mechanism and operation of the principal types of cylinder printing machines. 64 pp.; illustrated; 47 review questions; glossary.
8. **Mechanical Feeders and Folders** By William E. Spurrier
The history and operation of modern feeding and folding machines; with hints on their care and adjustments. Illustrated; review questions; glossary.
9. **Power for Machinery in Printing Houses** By Carl F. Scott
A treatise on the methods of applying power to printing presses and allied machinery, with particular reference to electric drive. 53 pp.; illustrated; 69 review questions; glossary.
10. **Paper Cutting Machines** By Niel Gray, Jr.
A primer of information about paper and card trimmers, hand-lever cutters, power cutters, and other automatic machines for cutting paper. 70 pp.; illustrated; 115 review questions; glossary.
11. **Printers' Rollers** By A. A. Stewart
A primer of information about the composition, manufacture, and care of inking rollers. 46 pp.; illustrated; 61 review questions; glossary.
12. **Printing Inks** By Philip Ruxton
Their composition, properties and manufacture (reprinted by permission from Circular No. 53, United States Bureau of Standards); together with some helpful suggestions about the everyday use of printing inks by Philip Ruxton. 80 pp.; 100 review questions; glossary.

TYPOGRAPHIC TECHNICAL SERIES for APPRENTICES

PART I (continued)—*Paper and Printing Plates*

13. **How Paper is Made** By William Bond Wheelwright
A primer of information about the materials and processes of manufacturing paper for printing and writing. 68 pp.; illustrated; 62 review questions; glossary.
14. **Relief Engravings** By Joseph P. Donovan
Brief history and non-technical description of modern methods of engraving: wood-cut, zinc plate, halftone; kind of copy for reproduction; things to remember when ordering engravings. Illustrated; review questions; glossary.
15. **Electrotyping and Stereotyping**
By Harris B. Hatch and A. A. Stewart
A primer of information about the processes of electrotyping and stereotyping. 94 pp.; illustrated; 129 review questions; glossaries.

PART II—*Hand and Machine Composition*

16. **Typesetting** By A. A. Stewart
A handbook for beginners, giving information about justifying, spacing, correcting, and other matters relating to typesetting. Illustrated; review questions; glossary.
17. **Printers' Proofs** By A. A. Stewart
The methods by which they are made, marked, and corrected, with observations on proofreading. Illustrated; review questions; glossary.
18. **First Steps in Job Composition** By Camille DeVèze
Suggestions for the apprentice compositor in setting his first jobs, especially about the important little things which go to make good display in typography. 63 pp.; examples; 55 review questions; glossary.
19. **General Job Composition**
How the job compositor handles business stationery, programs and miscellaneous work. Illustrated; review questions; glossary.
20. **Book Composition** By J. W. Bothwell
Chapters from DeVinne's "Modern Methods of Book Composition," revised and arranged for this series of text-books by J. W. Bothwell of The DeVinne Press, New York. Part I: Composition of pages. Part II: Imposition of pages. 229 pp.; illustrated; 525 review questions; glossary.
21. **Tabular Composition** By Robert Seaver
A study of the elementary forms of table composition, with examples of more difficult composition. 36 pp.; examples; 45 review questions.
22. **Applied Arithmetic** By E. E. Sheldon
Elementary arithmetic applied to problems of the printing trade, calculation of materials, paper weights and sizes, with standard tables and rules for computation, each subject amplified with examples and exercises. 159 pp.
23. **Typesetting and Composing Machines** A. W. Finlay, Editor
Section I—The Linotype By L. A. Hornstein
Section II—The Monotype By Joseph Hays
Section III—The Intertype By Henry W. Cozzens
Section IV—Other Typesetting and Typesetting Machines By Frank H. Smith
A brief history of typesetting machines, with descriptions of their mechanical principles and operations. Illustrated; review questions; glossary.

TYPOGRAPHIC TECHNICAL SERIES *for* APPRENTICES

PART III—*Imposition and Stonework*

24. **Locking Forms for the Job Press** By Frank S. Henry
Things the apprentice should know about locking up small forms, and about general work on the stone. Illustrated; review questions; glossary.
25. **Preparing Forms for the Cylinder Press** By Frank S. Henry
Pamphlet and catalog imposition; margins; fold marks, etc. Methods of handling type forms and electrotype forms. Illustrated; review questions; glossary.

PART IV—*Presswork*

26. **Making Ready on Platen Presses** By T. G. McGrew
The essential parts of a press and their functions; distinctive features of commonly used machines. Preparing the tympan, regulating the impression, underlaying and overlaying, setting gauges, and other details explained. Illustrated; review questions; glossary.
27. **Cylinder Presswork** By T. G. McGrew
Preparing the press; adjustment of bed and cylinder, form rollers, ink fountain, grippers and delivery systems. Underlaying and overlaying; modern overlay methods. Illustrated; review questions; glossary.
28. **Pressroom Hints and Helps** By Charles L. Dunton
Describing some practical methods of pressroom work, with directions and useful information relating to a variety of printing-press problems. 87 pp.; 176 review questions.
29. **Reproductive Processes of the Graphic Arts** By A. W. Elson
A primer of information about the distinctive features of the relief, the intaglio, and the planographic processes of printing. 84 pp.; illustrated; 100 review questions; glossary.

PART V—*Pamphlet and Book Binding*

30. **Pamphlet Binding** By Bancroft L. Goodwin
A primer of information about the various operations employed in binding pamphlets and other work in the bindery. Illustrated; review questions; glossary.
31. **Book Binding** By John J. Pleger
Practical information about the usual operations in binding books: folding, gathering, collating, sewing, forwarding, finishing. Case making and cased-in books. Hand work and machine work. Job and blank-book binding. Illustrated; review questions; glossary.

PART VI—*Correct Literary Composition*

32. **Word Study and English Grammar** By F. W. Hamilton
A primer of information about words, their relations, and their uses. 68 pp.; 84 review questions; glossary.
33. **Punctuation** By F. W. Hamilton
A primer of information about the marks of punctuation and their use, both grammatically and typographically. 56 pp.; 59 review questions; glossary.

TYPOGRAPHIC TECHNICAL SERIES *for* APPRENTICES

PART VI (continued)—*Correct Literary Composition*

34. **Capitals** By F. W. Hamilton
A primer of information about capitalization, with some practical typographic hints as to the use of capitals. 48 pp.; 92 review questions; glossary.
35. **Division of Words** By F. W. Hamilton
Rules for the division of words at the ends of lines, with remarks on spelling, syllabication and pronunciation. 42 pp.; 70 review questions.
36. **Compound Words** By F. W. Hamilton
A study of the principles of compounding, the components of compounds, and the use of the hyphen. 34 pp.; 62 review questions.
37. **Abbreviations and Signs** By F. W. Hamilton
A primer of information about abbreviations and signs, with classified lists of those in most common use. 58 pp.; 32 review questions.
38. **The Uses of Italic** By F. W. Hamilton
A primer of information about the history and uses of italic letters. 31 pp.; 37 review questions.
39. **Proofreading** By Arnold Levitas
The technical phases of the proofreader's work; reading, marking, revising, etc.; methods of handling proofs and copy. Illustrated by examples. 59 pp.; 69 review questions; glossary.
40. **Preparation of Printers' Copy** By F. W. Hamilton
Suggestions for authors, editors, and all who are engaged in preparing copy for the composing room. 36 pp.; 67 review questions.
41. **Printers' Manual of Style**
A reference compilation of approved rules, usages, and suggestions relating to uniformity in punctuation, capitalization, abbreviations, numerals, and kindred features of composition.
42. **The Printer's Dictionary** By A. A. Stewart
A handbook of definitions and miscellaneous information about various processes of printing, alphabetically arranged. Technical terms explained. Illustrated.

PART VII—*Design, Color, and Lettering*

43. **Applied Design for Printers** By Harry L. Gage
A handbook of the principles of arrangement, with brief comment on the periods of design which have most influenced printing. Treats of harmony, balance, proportion, and rhythm; motion; symmetry and variety; ornament, esthetic and symbolic. 37 illustrations; 46 review questions; glossary; bibliography.
44. **Elements of Typographic Design** By Harry L. Gage
Applications of the principles of decorative design. Building material of typography: paper, types, ink, decorations and illustrations. Handling of shapes. Design of complete book, treating each part. Design of commercial forms and single units. Illustrations; review questions; glossary; bibliography.

TYPOGRAPHIC TECHNICAL SERIES *for* APPRENTICES

PART VII (continued)—*Design, Color, and Lettering*

45. **Rudiments of Color in Printing** By Harry L. Gage
Use of color: for decoration of black and white, for broad poster effect, in combinations of two, three, or more printings with process engravings. Scientific nature of color, physical and chemical. Terms in which color may be discussed: hue, value, intensity. Diagrams in color, scales and combinations. Color theory of process engraving. Experiments with color. Illustrations in full color, and on various papers. Review questions; glossary; bibliography.
46. **Lettering in Typography** By Harry L. Gage
Printer's use of lettering: adaptability and decorative effect. Development of historic writing and lettering and its influence on type design. Classification of general forms in lettering. Application of design to lettering. Drawing for reproduction. Fully illustrated; review questions; glossary; bibliography.
47. **Typographic Design in Advertising** By Harry L. Gage
The printer's function in advertising. Precepts upon which advertising is based. Printer's analysis of his copy. Emphasis, legibility, attention, color. Method of studying advertising typography. Illustrations; review questions; glossary; bibliography.
48. **Making Dummies and Layouts** By Harry L. Gage
A layout; the architectural plan. A dummy; the imitation of a proposed final effect. Use of dummy in sales work. Use of layout. Function of layout man. Binding schemes for dummies. Dummy envelopes. Illustrations; review questions; glossary; bibliography.

PART VIII—*History of Printing*

49. **Books Before Typography** By F. W. Hamilton
A primer of information about the invention of the alphabet and the history of book-making up to the invention of movable types. 62 pp.; illustrated; 64 review questions.
50. **The Invention of Typography** By F. W. Hamilton
A brief sketch of the invention of printing and how it came about. 64 pp.; 62 review questions.
51. **History of Printing—Part I** By F. W. Hamilton
A primer of information about the beginnings of printing, the development of the book, the development of printers' materials, and the work of the great pioneers. 63 pp.; 55 review questions.
52. **History of Printing—Part II** By F. W. Hamilton
A brief sketch of the economic conditions of the printing industry from 1450 to 1789, including government regulations, censorship, internal conditions and industrial relations. 94 pp.; 128 review questions.
53. **Printing in England** By F. W. Hamilton
A short history of printing in England from Caxton to the present time. 89 pp.; 65 review questions.
54. **Printing in America** By F. W. Hamilton
A brief sketch of the development of the newspaper, and some notes on publishers who have especially contributed to printing. 98 pp.; 84 review questions.
55. **Type and Presses in America** By F. W. Hamilton
A brief historical sketch of the development of type casting and press building in the United States. 52 pp.; 61 review questions.

TYPOGRAPHIC TECHNICAL SERIES *for* APPRENTICES

PART IX—*Cost Finding and Accounting*

56. **Elements of Cost in Printing** By Henry P. Porter
A primer of information about all the elements that contribute to the cost of printing and their relation to each other. Review questions. Glossary.
57. **Use of a Cost System** By Henry P. Porter
The Standard Cost-Finding Forms and their uses. What they should show. How to utilize the information they give. Review questions. Glossary.
58. **The Printer as a Merchant** By Henry P. Porter
The selection and purchase of materials and supplies for printing. The relation of the cost of raw material and the selling price of the finished product. Review questions. Glossary.
59. **Fundamental Principles of Estimating** By Henry P. Porter
The estimator and his work; forms to use; general rules for estimating. Review questions. Glossary.
60. **Estimating and Selling** By Henry P. Porter
An insight into the methods used in making estimates, and their relation to selling. Review questions. Glossary.
61. **Accounting for Printers** By Henry P. Porter
A brief outline of an accounting system for printers; necessary books and accessory records. Review questions. Glossary.

PART X—*Miscellaneous*

62. **Health, Sanitation, and Safety** By Henry P. Porter
Hygiene in the printing trade; a study of conditions old and new; practical suggestions for improvement; protective appliances and rules for safety.
63. **Topical Index** By F. W. Hamilton
A book of reference covering the topics treated in the Typographic Technical Series, alphabetically arranged.
64. **Courses of Study** By F. W. Hamilton
A guidebook for teachers, with outlines and suggestions for classroom and shop work.

ACKNOWLEDGMENT

THIS series of Typographic Text-books is the result of the splendid co-operation of a large number of firms and individuals engaged in the printing business and its allied industries in the United States of America.

The Committee on Education of the United Typothetae of America, under whose auspices the books have been prepared and published, acknowledges its indebtedness for the generous assistance rendered by the many authors, printers, and others identified with this work.

While due acknowledgment is made on the title and copyright pages of those contributing to each book, the Committee nevertheless felt that a group list of co-operating firms would be of interest.

The following list is not complete, as it includes only those who have co-operated in the production of a portion of the volumes, constituting the first printing. As soon as the entire list of books comprising the Typographic Technical Series has been completed (which the Committee hopes will be at an early date), the full list will be printed in each volume.

The Committee also desires to acknowledge its indebtedness to the many subscribers to this Series who have patiently awaited its publication.

COMMITTEE ON EDUCATION,
UNITED TYPOTHETAE OF AMERICA.

HENRY P. PORTER, *Chairman*,
E. LAWRENCE FELL,
A. M. GLOSSBRENNER,
J. CLYDE OSWALD,
TOBY RUBOVITS.

FREDERICK W. HAMILTON, *Education Director*.

CONTRIBUTORS

For Composition and Electrotypes

ISAAC H. BLANCHARD COMPANY, New York, N. Y.
S. H. BURBANK & Co., Philadelphia, Pa.
J. S. CUSHING & Co., Norwood, Mass.
THE DEVINNE PRESS, New York, N. Y.
R. R. DONNELLEY & SONS Co., Chicago, Ill.
GEO. H. ELLIS Co., Boston, Mass.
EVANS-WINTER-HEBB, Detroit, Mich.
FRANKLIN PRINTING COMPANY, Philadelphia, Pa.
F. H. GILSON COMPANY, Boston, Mass.
STEPHEN GREENE & Co., Philadelphia, Pa.
W. F. HALL PRINTING Co., Chicago, Ill.
J. B. LIPPINCOTT Co., Philadelphia, Pa.
MCCALLA & Co. INC., Philadelphia, Pa.
THE PATTESON PRESS, New York.
THE PLIMPTON PRESS, Norwood, Mass.
POOLE BROS., Chicago, Ill.
EDWARD STERN & Co., Philadelphia, Pa.
THE STONE PRINTING & MFG. Co., Roanoke, Va.
C. D. TRAPHAGEN, Lincoln, Neb.
THE UNIVERSITY PRESS, Cambridge, Mass.

For Composition

BOSTON TYPOTHETAE SCHOOL OF PRINTING, Boston, Mass.
WILLIAM F. FELL Co., Philadelphia, Pa.
THE KALKHOFF COMPANY, New York, N. Y.
OXFORD-PRINT, Boston, Mass.
TOBY RUBOVITS, Chicago, Ill.

For Electrotypes

BLOMGREN BROTHERS Co., Chicago, Ill.
FLOWER STEEL ELECTROTYPING Co., New York, N. Y.
C. J. PETERS & SON Co., Boston, Mass.
ROYAL ELECTROTYPE Co., Philadelphia, Pa.
H. C. WHITCOMB & Co., Boston, Mass.

For Engravings

AMERICAN TYPE FOUNDERS Co., Boston, Mass.
C. B. COTTRELL & SONS Co., Westerly, R. I.
GOLDING MANUFACTURING Co., Franklin, Mass.
HARVARD UNIVERSITY, Cambridge, Mass.
INLAND PRINTER Co., Chicago, Ill.
LANSTON MONOTYPE MACHINE COMPANY, Philadelphia, Pa.
MERGENTHALER LINOTYPE COMPANY, New York, N. Y.
GEO. H. MORRILL Co., Norwood, Mass.
OSWALD PUBLISHING Co., New York, N. Y.
THE PRINTING ART, Cambridge, Mass.
B. D. RISING PAPER COMPANY, Housatonic, Mass.
THE VANDERCOOK PRESS, Chicago, Ill.

For Book Paper

AMERICAN WRITING PAPER Co., Holyoke, Mass.
WEST VIRGINIA PULP & PAPER Co., Mechanicville, N. Y.

th T

ed to
date

NDI
HW 2GEK K

