This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world’s books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that’s often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book’s long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ Make non-commercial use of the files We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ Refrain from automated querying Do not send automated queries of any sort to Google’s system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ Maintain attribution The Google “watermark” you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ Keep it legal Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can’t offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book’s appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google’s mission is to organize the world’s information and to make it universally accessible and useful. Google Book Search helps readers discover the world’s books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at http://books.google.com/
ADVANCED PROJECTS IN WOODWORK

By IRA S. GRIFFITH, A. B.

Assistant Professor of Manual Arts, Bradley Polytechnic Institute, Peoria, Illinois.
Author of "Essentials of Woodworking," "Woodwork for Amateur Craftsmen," "Correlated Courses in Woodwork and Mechanical Drawing," and "Projects for Beginning Woodwork and Mechanical Drawing."

UNIV. OF CALIFORNIA

THE MANUAL ARTS PRESS
PEORIA, ILL.
Preface.

Advanced Projects in Woodwork is a collection of projects designed to meet the needs of classes in high school woodworking. These projects presuppose familiarity with woodworking processes, tools, and the two simple joints required in the making of projects contained in the author's Projects in Beginning Woodwork and Mechanical Drawing.

The drawings are complete only as to their general dimensions. The working out of details, such as the sizes of mortises and tenons and their locations, is left for the pupil in his work in drawing and design.

It is expected that the projects will afford suitable basic material for classes in woodworking design. It remains for the instructor to point out the manner in which this material may be used. For illustration, many beginning students are slow in appreciation of possible modifications in structure or decoration. Circular tops may be used instead of square or octagonal, and vice versa. Modification of the manner of filling side spaces with slats offers variety in initiative. Vertical posts may be made tapering and vice versa. Rails and stretchers may be variously employed. There is almost always a choice in the matter of joints,—keyed or thru or blind tenon. Fig. 1 is suggestive as to possible modifications of a type.

In addition to the possible structural modifications, the plates suggest variation in the matter of decorative ornament such as pierced and carved forms and simple inlay. Such ornament will, of course, be kept subordinate to the structural design.

The upholstering of stool tops and seats for chairs provides another problem in variation.

Little, if any, use is made of dowels as substitutes for the mortise-and-tenon. While it is true that modern commercial practice makes much use of dowels in this way, the author feels that such practice is too often contrary to the principles of good construction. Its genesis lies in economy of material rather than in any superiority as a fastening device.

In the designing of these projects the author has had in mind at all times the thought that most
of the students using them would have access only to a band-saw or jig-saw and a miter-box in addition to the regular hand tool equipment. For this reason such projects as hall clocks, mission beds, etc., have been excluded. The exceptional student will find projects of sufficient size to tax his ability and muscle. Easier projects and lighter projects have been provided for the weaker members of the class while the use of slats or their omission will provide additional variation in time of execution.

The use of stock ordered S-4-S (surfaced on four sides) has not been anticipated. The use of stock S-2-S and moldings such as are carried in stock by lumber yards is presupposed. If a working principle for the use of stock partly prepared were asked for it would be: Any material
that is carried as stock and which does not have to be ordered especially worked for the project a boy elects or designs may be made use of legitimately. Such a principle would permit the use of stock S-2-S, moldings of stock pattern, hardware such as hinges and locks without any suggestion of deception. It would exclude table legs and tops, etc., especially prepared at a mill, and offers a rational dividing line between two extremes, neither of which is desirable.

Of course, these projects may be used in the teaching of the use of woodworking machinery.

No definite notes as to methods of procedure are given in this book for the student is supposed to have acquired, thru experience with the projects in the elementary book, enough insight to enable him to proceed of his own accord. Definite instruction in making the new joints, in wood-finishing, etc. will be found in Essentials of Woodworking, a companion book.

While these projects are especially arranged for use with the courses outlined and discussed in Correlated Courses in Woodwork and Mechanical Drawing, by the author, there is nothing in the form of the plates themselves to prevent their being used with any course in woodwork.

July, 1912.  IRA S. GRIFFITH.

The inking of the drawings and the making of the perspectives in this book is the work of Mr. George Gordon Kellar.
LIST OF PLATES.

GROUP IX.—JOINERY.

2. Exercises—Miter Joint, Glue Joint.
5. Footstool.
7. Upholstered Stool.
8. Leg Rest.
10. Wall Shelves.
11. Stool (square).
12. Taboret (octagonal top).
13. Taboret (round top).
14. Small Table.
15. Taboret (square top).
17. Piano Bench.
18. Book Stand.
19. Umbrella Stand.
20. Umbrella Stand.
22. Magazine Stand.
23. Roman Seat.
24. Light Stand.
25. Stool (square).
27. Screen.
28. Tea Table.
29. Hall Rack.
30. Wall China Rack.
31. Side Chair.
32. Arm Chair.
33. Morris Chair.
34. Electric Reading Lamp.
35. Pedestal.
36. Occasional Rocker.
37. Mission Chair.
38. Drop Leaf Table.

GROUP X.—CABINET WORK.

40. Exercises—Thru Multiple Dovetail, Half-blind Dovetail.
41. Waste Paper Box.
42. Wall Cabinet.
43. Telephone Table.
44. Sewing Cabinet.
45. Writing Table.
46. Chafing-dish Stand.
47. Cabinet.
48. Library Table.
49. Writing-desk.
50. Dressing Table.
51. Linen Chest.
PRICE LIST FOR YEAR 19__, 19__

LUMBER—Quality, 1st, clear, and kiln-dried.

<table>
<thead>
<tr>
<th>KIND OF WOOD</th>
<th>Per 1000 feet when surfaced on two sides</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thickness in the Rough</td>
</tr>
<tr>
<td>Yellow Poplar</td>
<td></td>
</tr>
<tr>
<td>White Pine</td>
<td></td>
</tr>
<tr>
<td>¼&quot; Sawed White Oak</td>
<td></td>
</tr>
<tr>
<td>Mahogany</td>
<td></td>
</tr>
<tr>
<td>¼&quot; Sawed Red Sycamore</td>
<td></td>
</tr>
<tr>
<td>Black Walnut</td>
<td></td>
</tr>
<tr>
<td>Plain Sawed Red Oak</td>
<td></td>
</tr>
</tbody>
</table>

HARDWARE—
For prices on hardware consult Hardware Catalog provided for you.
Figure retail price, that is, figure screws at price per dozen, not price per gross.

WOODFINISH—
Per square foot of surface covered.

LABOR—
Per hour.
### BILL OF MATERIAL

**NAME**

**CLASS**

**ARTICLE**

**Date Begun**

**Date Finished**

**Extra Hours**

<table>
<thead>
<tr>
<th>Pieces</th>
<th>Size</th>
<th>Description</th>
<th>Price</th>
<th>Feet</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>(\frac{3}{4}) x (3\frac{1}{4}) x (12\frac{3}{4})</td>
<td>Walnut Slats S-2-S to (\frac{3}{8}) in.</td>
<td>.10</td>
<td>4</td>
<td>.05</td>
</tr>
<tr>
<td>1</td>
<td>1 x (8\frac{1}{2}) x (14\frac{1}{2})</td>
<td>&quot; Stretcher &quot; (\frac{3}{8}) in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1 x (3\frac{1}{2}) x (12\frac{3}{4})</td>
<td>&quot; Rails &quot; &quot; &quot;</td>
<td>.10</td>
<td>(3\frac{1}{4})</td>
<td>.39</td>
</tr>
<tr>
<td>1</td>
<td>1 x (14\frac{1}{2}) x (14\frac{1}{2})</td>
<td>&quot; Top &quot; &quot; &quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(1\frac{1}{2}) x (1\frac{1}{2}) x (24\frac{3}{4})</td>
<td>&quot; Posts &quot; (1\frac{3}{4}) in.</td>
<td>.11</td>
<td>2</td>
<td>.22</td>
</tr>
<tr>
<td>8</td>
<td>2 inch No. 10</td>
<td>Flat Head Brt. Screws</td>
<td>.00(\frac{3}{4})</td>
<td></td>
<td>.04</td>
</tr>
<tr>
<td>4</td>
<td>(1\frac{1}{4}) inch No. 10</td>
<td>&quot; &quot; &quot; &quot; &quot;</td>
<td>.00(\frac{3}{4})</td>
<td></td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>13 sq. feet</td>
<td>Wood Finish</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 hrs.</td>
<td>Labor</td>
<td>.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Material Cost**: \(\ldots\) \(\ldots\) \(\ldots\) .84

**Total Cost**: $5.34
INSTRUCTIONS FOR MAKING BILL OF MATERIAL.

Under "pieces" put the number of parts that are alike.
Under "size" put the various dimensions of pieces. In finding the sizes of the various pieces of lumber, examine the working drawings for finished dimensions, making due additions for tenons, then add $\frac{1}{2}''$ to the width and $\frac{3}{4}''$ to the length to allow for cutting out and squaring up. The you are to make use of stock mill-planed to thickness, you are to specify the thickness from which this mill-planed stock is got. Allow at least $\frac{3}{8}''$ for mill-planing.

Remember that length always means along the grain.
Fractions of an inch in width and length are not considered. Neither are fractions of a cent in the final results. If the fraction is $\frac{1}{2}$ or over, take the next higher whole number. If it is less than $\frac{1}{2}$, drop it. Fractions of an inch in thickness that are over 1" and fractions of a cent in the price per foot are to be figured as they are.

Lumber is measured by the superficial foot which is 1" x 12" x 12". Boards that are less than 1" thick are sold by surface measure. In other words, boards less than 1" thick are figured for quantity as 1" thick.

Standard sawed thicknesses are 1", $\frac{1}{4}''$, $\frac{1}{2}''$, 2", 2$\frac{1}{4}''$, 3", 3$\frac{1}{2}''$, 4". Thicknesses less than 1" necessitate re-sawing these sizes. In some communities the price per square foot for re-sawed stock varies for each difference of $\frac{1}{4}''$ in thickness.

In figuring, multiply the length by the width by the thickness, by the number of pieces. If any piece is less than 1" thick figure it as 1". Combine all results that are the same in price per foot. Reduce to square feet by dividing by 144. Reduce decimally and do not carry the result beyond tenths place. Dispose of any fractional part beyond tenths as directed above. Write your result in fractional form that the decimal point may not be overlooked and be the cause of trouble.

The price list gives the price of lumber per 1,000 feet. The price per foot is readily obtainable.

In figuring finish for these cabinet pieces, double the number of feet of stock as given by the stock bill to get the number of feet of finish. This is only an approximate method but is sufficiently accurate for such pieces as are to be made in first year high school, as specified in *Advanced Projects in Woodwork*, Group IX.
EXERCISE (PREPARATORY TO GROUP IX)

KEYED TENON  BLIND MORTISE AND TENON

PLATE 1.
EXERCISE (PREPARATORY TO GROUP IX)

MITER JOINT

GLUE JOINT-DOWELING

Plate 2.
EXERCISE
PREPARATORY TO GROUP IX
(CHOSE ONE)

HANDLE for BALL PEEN HAMMER

HANDLE for CLAW HAMMER

PLATE 3.
EXERCISE (PREPARATORY TO GROUP IX)

MITER JOINT

GLUE JOINT-DOWELING

SAW KERF

DONELLS HERE

PLATE 2.
EXERCISE
PREPARATORY TO GROUP IX
(CHOICE ONE)

HANDLE for BALL PEEN HAMMER

HANDLE for CLAW HAMMER

Plate 3.
BOOK RACK

PLATE 6.
STOOL

Plate 11.
TABORET

PLATE 13.
SMALL TABLE

PLATE 14.
UMBRELLA STAND

Plate 19.
UMBRELLA STAND

PLATE 20.
JARDINIÈRE STAND

Plate 21.
MAGAZINE STAND

Plate 22.
ROMAN SEAT

PLATE 23.
SIDE CHAIR

Plate 31.
PEDESTAL

SECTION AT A-B

EGG AND DART

PLATE 35.
DROP LEAF TABLE

PLATE 38.
EXERCISE - PREPARATORY TO GROUP X

MORTISE AND TENON - RABBETED

HAUNCHED MORTISE AND TENON - GROOVED

PLATE 39.
EXERCISE—PREPARATORY TO GRAP X

THRU MULTIPLE DOVETAIL

HALF-BLIND DOVETAIL

PLATE 40.
WASTE PAPER BOX

PLATE 41.
TELEPHONE TABLE

PLATE 43.
WRITING TABLE

PLATE 45.
LIBRARY TABLE

PLATE 48.
RETURN TO the circulation desk of any
University of California Library
or to the
NORTHERN REGIONAL LIBRARY FACILITY
Bldg. 400, Richmond Field Station
University of California
Richmond, CA 94804-4698

ALL BOOKS MAY BE RECALLED AFTER 7 DAYS
2-month loans may be renewed by calling
(415) 642-6233
1-year loans may be recharged by bringing books
to NRLF
Renewals and recharges may be made 4 days
prior to due date

DUE AS STAMPED BELOW

FEB 13 1959
LD 21-96m-11/30 (2877918) 576