

A GUIDE
TO
Woodworking Projects

A Companion Volume
to
A Guide to the Study of Woodworking

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PREFACE

In presenting this book to the teachers of woodworking as a companion volume to *A Guide to the Study of Woodworking*, it seems fitting to consider, in the outset, an explanation of the apparent differences in policy regarding the references in these two books.

In *A Guide to the Study of Woodworking*, it was the author's aim to make reference only to a few of the best books dealing with tools, processes, and materials. In the present work it seems best to list practically every American publication now in print which deals wholly or in part with woodworking projects. After making an extended study of the woodworking books of this country it appears to the writer that considerations of tools, processes, and materials are rather standard throughout these publications. On the other hand, while there is some similarity in projects found in the various books, a large variety of distinctly original designs may be noted, even in books that might generally be considered entirely out of date. Too, there are many projects from *Acrobats to Zither* that are described in only one book, most of which have considerable merit as projects for school use.

In *A Guide to the Study of Woodworking* many references were starred when considered to be especially valuable. This practice has seemed impractical in the present volume because of the large number of projects and because the educational value of many projects is dependent upon local conditions, student individuality, and other such factors, whereas the value of treatises of tool processes, tools, and materials is affected very little by such things as the geographical location of the reader.

In considering the teacher's problems of instruction, we should note that modern education does not demand so much that we become mere store-houses of information, as it does

that we learn how to locate information when wanted for a given situation. The author's purpose in this series of guides is to offer a systematic means of organizing information so that it can be found quickly when wanted, and that pupils may be taught to search for knowledge in a systematic manner. The appreciation and judgment are also aided in having at one's finger tips the creations of those who are older in training and experience—the books of the past centuries. The *Guide* is a new, but tested device which has as one of its purposes this feature of directing teachers and pupils to the accumulated knowledge and ideas of the past. It lists the woodworking projects found in the form of drawings and descriptive material in 20,000 pages of 118 books.

This method of indexing the bulk of the world's knowledge on a given subject is an outgrowth of an attempt to reduce routine duties in the schoolroom so that more time might be left for actual instruction. The production of these guides is based on an experience of ten years of teaching shop and academic subjects, preceded by a number of years at the bench, a four-year college course in science, and a special course in engineering, as well as subsequent study in a state university, a state normal, and one university abroad.

A few suggestions as to the use which can be made of this guide may be appropriate. For executives whose duty it is to work out courses of study and to prescribe certain limits as to the kind of projects, the breadth of contact found in the use of this guide will be a welcome time-saver. For those few teachers who are still required to follow prescribed formal courses, but who are allowed to introduce optional models, and for others who are free to make changes as they see fit, regardless of the grades taught, this guide will be found convenient in suggesting models. The *Guide* helps to provide interesting supplementary problems for the fast worker who finishes his

project before the rest have gotten well started. It also helps provide for the "repeater" who often has to repeat a grade, not because of poor shop work, but of poor academic work, by giving him a choice of a large list of projects. In other words, it makes easier the consideration of individual differences. The busy teacher with from fifty to a hundred and fifty pupils demanding attention each day, finds it hard to treat the boy as an individual. The nearest approach to this individual instruction and guidance is to be attained when the teacher has every possible device which furthers quick disposition of all questions and routine work of the shop satisfactorily. Charles G. Wheeler, in his book, *Woodworking*¹ says: "The more he (the teacher) can be freed from routine duties the less likely he will be to go stale or become narrow; and the breadth and enthusiasm of the teacher react powerfully upon the pupils. . . ." For the student himself who thinks he has made about everything that he wants to make, this will suggest about 1400 other interesting projects. It will help the student in designing. As there are several good books treating the processes of this art, and as this is a guide to projects already designed, the author will not attempt here a treatise on designing, except to suggest the place of this guide as an aid in the process. It seems reasonable that to design something new in any field of human endeavor, it is best to thoroughly investigate the fund of related knowledge already available. By gathering all the designs possible with the aid of this guide, analyzing and comparing them, selecting a good feature here, avoiding a poor one there, the student begins to learn to discriminate, to evaluate, and to create his own designs. Teachers will think of other uses of the *Guide* as they turn its pages.

¹G. P. Putnam's.

A number of things may be observed in examining this *Guide to Woodworking Projects*:

1. There are about 1500 different projects listed.
2. There are about 500 projects which can be found in only one certain book.
3. Many projects classify themselves naturally into such major groups as: Baskets, Benches, Bird Houses, etc.
4. There are about seventy-two different kinds of tables, seventy-five kinds of boats, fifty-three kinds of chairs, thirty-five kinds of stands, twenty-five kinds of toy animals, nineteen kinds of guns and twelve kinds of puzzles.
5. From the standpoint of popularity with authors, as a single project, the taboret leads the list with sixty-three references, foot stools have forty-eight and wren houses forty-eight references.

The author is indebted to his many friends who have been of direct aid in preparing this work, for the cooperation of librarians, fellow teachers, and publishers. The list of publishers who furnished complimentary copies of their books is found elsewhere in these pages. Particular acknowledgment is due my wife for help with the long and tedious checking of references, Mr. T. F. Fitzgibbon, Superintendent of Muncie City Schools, and Mr. Glen D. Brown, Business and Vocational Director, Muncie, Indiana, who have allowed such freedom in the organization and supervision of manual arts classes of the author that it has been encouraging to work out systems which tend toward efficiency in the classroom, and to these men especially for their editorial work on the preliminary chapter, "The Importance of Projects in the Education of Boys."

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Muncie, Indiana.
July, 1926.

THE IMPORTANCE OF PROJECTS IN THE EDUCATION OF BOYS

From earliest childhood the boy likes to tinker with tools and materials and to make something. There probably isn't a boy in the United States who has not sometime set out to make something which he thought he needed very much. Possibly it was an animal trap, a fishing tackle box, or a radio cabinet. He carries this tendency into school age and if properly encouraged and guided, furnished with pictures, drawings, books, tools, and congenial conditions, will spend many happy hours both in school and out, at this most wholesome activity. Before the advent of manual training in the schools, for every boy who succeeded in completing what he wanted, there were probably ninety-nine who failed—and they failed because they lacked information, they had no drawings, and they had no one to encourage and guide them. But all this is different now, there are many splendid books and school shops, and there are teachers who are specialists in this guidance work.

Importance of choice projects. What Mr. Cotton said fifteen years ago in his introduction to *Manual Training for Common Schools*,¹ is just as true today: "From the standpoint of character-building, it matters but little upon what problems pupils work, but the attitude displayed and the habits formed as they attempt a solution, are matters of great moment. Intelligent attack, orderly procedure, skillful execution, painstaking completion, habits of industry, good, honest work, respect for labor, the ability to do things, these are qualities that belong to real education."

¹Charles Scribner's Sons.

But it is very important that the teacher understands that to obtain to the highest degree, any one of these qualities on the part of the boy, it is absolutely essential that he approach the subject matter with interest and enthusiasm. This he will not do when working on a project for which he does not feel a need. Therefore, great importance is connected with choosing a project.

Considerable difficulty arises sometimes concerning projects. The writer has experienced failures and has observed that many other teachers fail to obtain good results in manual arts classes because of having permitted a poor selection of projects. Too often, the course consists simply of work which centers around a few old-type problems such as the taboret, foot stool, and necktie rack. So often big brothers having made these and filled the home with such articles so that no more are needed, but young Johnnie makes one because teacher suggests it, and because almost every other boy makes such projects. In helping choose projects, teachers too often think in terms of their own interests rather than those of their pupils. Young teachers in particular, are generally interested in pieces of furniture because they are equipping their own household and because they themselves made such projects while attending the normal school or college. We need more to vitalize our project selection, to take into account the age of our pupils and to consider their interests.

Some facts which have a bearing on the selection of projects.

1. The things to be made should be worth making and the process of making them should be interesting to the student. A consideration frequently overlooked by the teacher is that cooperation which he can give to the boy, helping him with his problem of earning money. A boy should not expect, nor be expected to draw upon his father's purse for everything

needed in his school activities. It is very important that he learn to earn his spending money so that he may become more independent and that he may appreciate the dignity of labor and the value of a hard-earned dollar. Carefully chosen projects, of value when well made, may be easily sold at school sales and bazaars arranged just before Christmas and at the close of school each year. Private sales may also be encouraged and the boy aided in his boyish financial enterprises which are so certain to be helpful to him in later years.

2. The project should possess educational value. Education may be general or specific. Projects should provide specific education by necessitating the learning of the proper tool processes, and by calling for a sufficiently large amount of drill to develop skill in using tools. General educational value should be derived in the making of projects which correlate with history, mathematics, and many other subjects which make for more efficient citizenship.

3. We must take into account the child's viewpoint, his inclinations and emotions, his instincts of ownership, curiosity, play, and social tendencies. These should be permitted to be expressed through the making of various toys, game projects, puzzles, and "boy activity" projects. Consider the instinct of play. "Let the pupil's work become as play and his play will develop into useful work." While it is not advocated that all shopwork center around play instincts, it seems that we need to cooperate more with boys in producing projects that help take care of their recreation and leisure time. It has been the writer's observation that in many shops no organized activities along these lines have been attempted. This is probably one reason for a lack of interest and for disciplinary troubles in some classes. There are many reasons for encouraging the making of projects for the kitchen and living room, yet there are just as many reasons for these other phases of work.

One very desirable activity which teachers are beginning to find highly successful is toy-making. There are many project books now on the market in which there are veritable gold mines of information along this line. One splendid feature about toys described in one leading series of books is that the greater part of them require little more than the "pick-up" material around the home. "Children take to this work like a duck takes to water." Anticipation of play or the pleasure of giving a toy to someone will spur any boy on to make a good job of game or play project.

Another such activity is that of boat-building. Every boy likes to build boats. The interest in boats seems to be born in the race. Nature made it inevitable that Americans should be water-loving people. Even the three-year old child is instinctively attracted to a puddle of water in which to sail his boat, which usually consists of nothing more than a chip or a common board.

Growing out of an interest in kites, for the younger children, is that of model aeroplane building. Thousands of boys, the world over, have built these ingenious little crafts, some of which have flown over one mile. The materials required are very inexpensive and there is much training of the hand as well as general educational value in the modeling.

4. The work must be within the mental grasp and constructive ability of the boy, and the age and former experience of the pupil must be considered. Failure is often due to having permitted a pupil to attempt too large or too difficult projects. Sometimes troubles arise because we attempt to keep all students together on uniform projects, in order to take more advantage of group instruction, regardless of the individualities of the students, and have thereby set up greater difficulties because of a lack of interest on the part of some pupils, and inferior ability on the part of others.

Going more into detail, experience has shown that beginning groups should be held closely to simple projects, the making of which teaches the most fundamental principles and uses of simple hand tools including the plane, square, saw, and hammer. The emphasis should be placed on technique and processes. Dimensions on drawings and blueprints should be fixed, and no variations permitted except as necessitated by poor work. All beginners should be required to make the same exercises the first few weeks so as to permit comparison of results and the establishment of high standards of accuracy. Authorities are well agreed that it takes some formal exercises and drill in beginning woodworking to teach a pupil to respect a "working line," and for this reason the pupil should be permitted to make only the simple projects which involve the squaring up of stock, both rough and mill-planed. Small projects should also be adhered to because beginners ruin more pieces and require extra material. Drawings and designs should be provided and no variation of dimensions permitted.

As the pupils' knowledge, appreciation, and skill increase, they should begin, by the second year, to modify existing projects and to make ones which involve accurate use of the chisel and accurate sawing to knife line with the back-saw. Projects containing dado joints may be found suitable for practice in sawing to fit. Most authorities suggest that projects involving mortise and tenon, miter, glue, joints and modeling, belong to the third year of woodworking, generally the first year of high school. This is probably best as a rule, though some very strong students may be ready for this work in the latter part of their second year. The modeling work, too frequently given in the early grades, should be left for the third year. Good modeling requires skill, judgment, and experience. To place it earlier is likely to give pupils the wrong impression

of its accuracy requirements. Projects requiring the use of only a few machines should be allowed in the third years, except with older and larger boys. Those requiring the band-saw and scroll or jig-saw, and possibly the lathe, are appropriate. Cabinet making or millwork courses, beginning and advanced, allow the more difficult projects which include framed structures such as the various cabinets, desks, tables, and other pieces of furniture. These involve various degrees of difficulty and call for a bit of study on the part of the teacher, of the processes involved and the ability of the pupil before such projects are assigned.

By this time at least a few problems should be given which involve invention or original design, thereby encouraging the development of initiative. This brings us to the problem of just how much attention to give to designing. "Always to construct a project from a borrowed design is not meeting the entire requirements of the educational process," yet, woodworking as well as any other field of manual expression must develop the power to create, and to select and reject. While originality is to be encouraged in every way it should never be forced at the expense of appreciation, which must come first. Griffith says: "Better a chair of good design and proportion made after another's design with appreciation than an absurdity made after one's own design and its weakness not seen." (See CC 16-21.) The relative importance of design in public school education is well expressed by Professor Sargent when he says: "For one who will produce a design, a thousand must know how to select it."

5. Make a study of what boys most like to do and to make at home, and of the influence of the change of the seasons on the children's interests. "Tell me what a boy does of evenings after school or during vacations and I will tell you what kind of a man he will be." Taking the seasons into account

helps to solve the problem of project selection, it being natural that one's interests are modified by their coming. From spring to fall the boys like to be outdoors. With the younger boys especially, kites should be ready for the kite tournament in March and the bird houses ready for the contest in April. These powerful socializing influences arouse enthusiasm to the "nth" degree. In farming communities, the practical needs of the farmer, which vary with the seasons, influence the interests of the boys on the farm. With the coming of long winter evenings, the indoor part of life assumes larger importance. Then the games and other indoor projects made in the shop should contribute to a harmless enjoyment of leisure time and toward keeping the boy happy and contented in his own home. He then needs healthful diversion, both mental and physical, more than at any other time. It is then that the interests turn to radio, gymnasium equipment, sleds, and Christmas toys.

There are other considerations which might be taken up in connection with projects, but these would only detract from the main issues already enumerated. Projects and boys will ever be associated as long as there are boys. Boys are live subjects, so must projects be, and let's always remember we are teaching boys.

EXPLANATORY NOTE

THE KEY WHICH FOLLOWS IS THE BIBLIOGRAPHICAL IDENTIFICATION OF THE BOOKS. KEY LETTERS IDENTIFY THE BOOKS AND THE NUMBERS INDICATE THE PAGES EXCEPT WHERE SPECIAL NOTE INDICATES PLATE NUMBERS.

KEY TO REFERENCES

AB—	<i>The Scientific American Boy</i>	A. Russell Bond.....	Munn & Co.	1920
ABS—	<i>Scientific American Boy at School</i>	A. Russell Bond.....	Munn & Co.	1924
ABW—	<i>The American Boys' Workshop</i>	Clarence B. Kelland.....	David McKay Co.	1914
AC—	<i>Art-Craft Lamps</i>	John D. Adams.....	Popular Mechanics Press	1911
ACB—	<i>The Art Crafts for Beginners</i>	Frank G. Sanford.....	The Century Co.	1923
AE—	<i>Art and Education in Wood-Turning</i>	W. W. Klenke.....	The Manual Arts Press	1921
AF—	<i>Reproductions of Antique Furniture</i>	Herman Hjorth.....	The Bruce Publishing Co.	1924
AST—	<i>American School Toys</i>	C. A. Kunou.....	The Bruce Publishing Co.	1924
ATM—	<i>Advanced Toy Making</i>	David M. Mitchell.....	The Manual Arts Press	1922
AW—	<i>Agricultural Woodworking</i>	Louis M. Roehl.....	The Bruce Publishing Co.	1922
AWT—	<i>Problems in Artistic Wood Turning</i>	Earl W. Ensinger.....	The Bruce Publishing Co.	1926
BA—	<i>Boy Activity Projects</i>	Samuel A. Blackburn.....	The Manual Arts Press	1919
BB—	<i>Boat Book</i>	Popular Mechanics Press	1924
BBB—	<i>Boat-Building and Boating</i>	D. C. Beard.....	Chas. Scribner's Sons	1923
BBC—	<i>The Boys' Book of Carpentry</i>	A. Hyatt Verrill.....	Dodd, Mead & Co.	1922
BH—	<i>Bird Houses Boys Can Build</i>	Albert F. Siepert.....	The Manual Arts Press	1926
BHA—	<i>Boy Bird House Architecture</i>	Leon H. Baxter.....	The Bruce Publishing Co.	1920
BHB—	<i>The American Boy's Handy Book</i>	D. C. Beard.....	Chas. Scribner's Sons	1910
BHS—	<i>Hand Craft Bird Houses</i>	Frank I. Solar.....	The Bruce Publishing Co.	1923
BMA—	<i>The Boys' Book of Model Aeroplanes</i>	Francis A. Collins.....	The Century Co.	1923
BMB—	<i>Boys' Book of Model Boats</i>	Raymond F. Yates.....	The Century Co.	1920
BMT—	<i>Boys' Make-at-Home Things</i>	Carolyn Sherwin Bailey and Marian Elizabeth Bailey.....	Frederick A. Stokes Co.	1912

CAFK— <i>Construction and Flying of Kites</i> Charles M. Miller.....	The Manual Arts Press	1925
CAM— <i>Carpentry and Mechanics for Boys</i> A. Neely Hall.....	Lothrop, Lee & Shepard Co.	1918
CC— <i>Correlated Courses in Woodwork and Mechanical Drawing</i> Ira S. Griffith.....	The Manual Arts Press	1924
CF— <i>Working Drawings of Colonial Furniture</i> F. J. Bryant.....	The Manual Arts Press	1922
CFB— <i>Carpentry for Beginners</i> John D. Adams.....	Dodd, Mead & Co.	1921
CL— <i>Farm Mechanics</i> Crawshaw and Lehmann.....	The Manual Arts Press	1923
CLk— <i>Collector's Luck</i> Alice Van Leer Carrick.....	Atlantic Monthly	1923
CM— <i>Ship Carving</i> Harris W. Moore.....	The Manual Arts Press	1922
CR— <i>Construction and Repair Work for the Farm</i> F. T. Struck.....	Houghton, Mifflin Co.	1923
CSW— <i>Coping Saw Work</i> Ben W. Johnson.....	The Manual Arts Press	1925
CW— <i>Cedar Chests</i> Ralph F. Windoes.....	The Bruce Publishing Co.	1918
DC— <i>Design and Construction in Wood</i> William Noyes.....	The Manual Arts Press	1923
DP— <i>Drawing Problems Related to Agriculture</i> Louis M. Roehl.....	The Bruce Publishing Co.	1924
EAF— <i>Measured Drawings of Early American Furniture</i> Burl N. and Bernice B. Osburn..	The Bruce Publishing Co.	1926
EC— <i>Elementary Cabinet Work</i> Frank H. Selden.....	Rand McNally Co.	1909
ET— <i>Educational Toys</i> Louis C. Peterson.....	The Manual Arts Press	1921
ETS— <i>Elementary Turning</i> Frank H. Selden.....	Rand McNally Co.	1907
EWP— <i>Elementary Wood Working Projects</i> Harold R. Wise.....	The Manual Arts Press	1922
EWW— <i>Educational Wood Working for Home and School</i> Joseph C. Park.....	The Macmillan Co.	1922
FD— <i>Furniture Design</i> F. D. Crawshaw.....	The Manual Arts Press	1920
FM— <i>Furniture Making, Advanced Projects in Woodwork</i> Griffith*.....	The Manual Arts Press	1925
FP— <i>Furniture Projects</i> Frederick J. Bryant.....	The Manual Arts Press	1925
FSB— <i>Farmer's Shop Book</i> Louis M. Roehl.....	The Bruce Publishing Co.	1924
FSW— <i>Farm Shop Work</i> George M. Brace and D. D. Mayne...	American Book Co.	1915

*Figures refer to plates.

FU— <i>Furniture Upholstering</i> Emil A. Johnson.....	The Manual Arts Press	1920
FW— <i>Problems in Farm Woodwork</i> Samuel A. Blackburn.....	The Manual Arts Press	1916
FWP— <i>Furniture Weaving Projects</i> L. F. Hyatt.....	The Bruce Publishing Co.	1922
FWR— <i>Farm Woodwork</i> Louis M. Roehl.....	The Bruce Publishing Co.	1921
GC— <i>Gilbert Carpentry</i> Alfred C. Gilbert.....	The A. C. Gilbert Co.	1920
HBB— <i>Harper's Boating Book for Boys</i> Charles G. Davis.....	Harpers & Bros.	1912
HC— <i>Hand Craft Projects, Book 1</i> Frank I. Solar.....	The Bruce Publishing Co.	1921
HC ² — <i>Hand Craft Projects, Book 2</i> Frank I. Solar.....	The Bruce Publishing Co.	1922
HFB— <i>Handicraft for Boys</i> A. Frederick Collins.....	Frederick A. Stokes	1918
HFD— <i>Handy Farm Devices and How to Make Them</i> Rolfe Cobleigh.....	Orange Judd Publishing Co.	1913
HFM— <i>Home Furniture Making</i> G. A. Raeth.....	Frederick J. Drake & Co.	1910
HHB— <i>Handicraft for Handy Boys</i> A. Neely Hall.....	Lothrop, Lee & Shepard Co.	1911
HIB— <i>Harper's Indoor Book for Boys</i> Joseph H. Adams.....	Harpers & Bros.	1908
HMG— <i>Home-Made Games</i> A. Neely Hall.....	Lothrop, Lee & Shepard Co.	1923
HMT— <i>Home-Made Toys for Girls and Boys</i> A. Neely Hall.....	Lothrop, Lee & Shepard Co.	1915
HW— <i>Hand Work in Wood</i> William Noyes.....	The Manual Arts Press	1925
HWFB— <i>Hand Work for Boys</i> F. Clarke Hughes.....	The Bruce Publishing Co.	1926
IA— <i>Industrial Arts Design</i> William H. Varnum.....	The Manual Arts Press	1925
IW— <i>Industrial Work for the Middle Grades</i> Edward F. Worst.....	The Bruce Publishing Co.	1919
IWFB— <i>Industrial Work for Boys</i> A. E. Pickard.....	Webb Book Publishing Co.	1921
JAT— <i>Jack of All Trades</i> D. C. Beard.....	Chas. Scribner's Sons	1924
JSHM— <i>Job Sheets in Home Mechanics</i> F. E. Tustison.....	The Bruce Publishing Co.	1924
JSWW— <i>Job Sheets in Woodworking</i> Brown and Tustison.....	The Bruce Publishing Co.	1925
KC— <i>Kitecraft and Kite Tournaments</i> Charles M. Miller.....	The Manual Arts Press	1914
LUC— <i>When Mother Lets Us Carpenter</i> John D. Adams.....	Moffat, Yard & Co.	1924