

A GUIDE for FORESTERS  
CONTEMPLATING SELF-EMPLOYMENT  
by  
Clair Merritt

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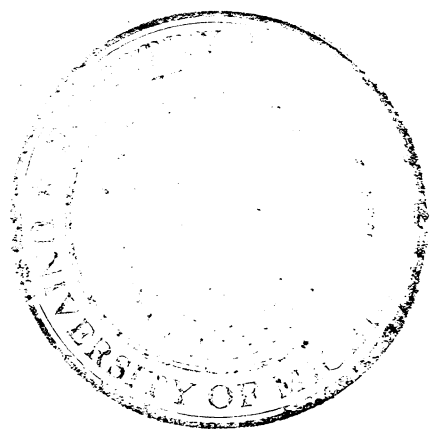


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CONTEMPLATING SELF-EMPLOYMENT

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TABLE OF CONTENTS

	Page
Acknowledgements.....	11
Introduction.....	1
Personal Qualifications.....	3
Educational Qualifications.....	6
Experience.....	10
Investments.....	13
Region.....	17
Sources for Information.....	19
Business Possibilities.....	20
Contract Felling.....	24
Contract Skidding.....	28
Contract Hauling.....	32
Sawmilling.....	34
Permanent Sawmills.....	36
Semiportable Sawmills.....	40
Portable Sawmills.....	43
Discussion.....	46
Recommended Reading for Sawmill Information.....	53
Consulting.....	54
Commercial Forestry.....	58
Pulpwood.....	61
Retail Lumber.....	63
Other Businesses.....	66
Industry Needs by Regions.....	68

Conclusion.....	Page 70
Bibliography.....	72

TABLES

Table I. A Comparison Between Actual Costs and Contract Costs.....	49
Table II. A Comparison Between Actual Costs and the Contract Costs of a Completed Operation.....	51
Table III. A Comparison Between the Estimated Contract Price and the Actual Costs Without Idle Equipment Depreciation.....	52

## INTRODUCTION

Where are future graduating foresters going to find employment?

...we may look forward to a total student body [forestry] of close to 13,000 by 1949, with an annual graduating class of approximately 2,400. This heavy enrollment can be appreciated when it is realized that during the period 1900 to 1946 our forestry colleges have granted a total of 14,661 degrees, less than twice the number of students now enrolled. Furthermore, foresters now actively practicing our profession number only about 9,000.<sup>1</sup>

But it is one thing to speculate on how many men might be employed in forestry 30 to 40 years hence. It is quite another thing to find jobs for graduates in 1948, 1949, and 1950. This is the immediate problem we face.<sup>2</sup>

In the current literature one may find both optimistic and pessimistic outlooks concerning employment opportunities during the next three years.

Certainly, as has been indicated, a great many foresters who will be graduating within these years will at least find the competition severe for the more choice employment opportunities. Not a few of these men will turn to self-employment as their answer to the problem.

The object of this paper is to present from the foresters viewpoint, and in some measure answer, the questions which should be considered before attempting to start a new forest enterprise.

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<sup>1</sup>Hardy L. Shirley, "College Enrollment and Future Opportunities for Foresters--The National Situation," Journal of Forestry, XLV (August, 1947), p. 575.

<sup>2</sup>Ibid., p. 578.



Much of the advice will be based on the author's personal business experience. It will be backed by information obtained from U. S. Forest Service Experiment Stations and information obtained from questionnaires which have been answered by twenty-five University of Michigan, School of Forestry and Conservation alumni who are now owners of their own forest enterprises.

This paper is not intended to be a discussion of the field of business administration but merely a "lamp for the pathway" of the bewildered graduate. Though the attitude is taken in this paper that more foresters should seek self-employment, whether they choose to accept or to reject the suggestion is of little consequence. It is hoped that some basis will be provided for their choice.

## PERSONAL QUALIFICATIONS

The first consideration of any person contemplating self-employment should be a completely honest and thorough self-analysis. It must be understood that successful business requires all of an individual: his interest; his time; and his energy. The successful man is one who works long hours--every day--seven days a week. Men answering the questionnaire emphasized over and over again the long hours that were spent in launching their enterprises. Some stated that they had spent as much as eighteen hours a day seven days a week! If one is not willing to work harder than he has probably ever worked before, he should not consider self-employment.

The individual must ask himself if his interest in establishing a business is enough to sustain him during long periods of apprenticeship during which time he may have to work at laborer's wages, accepting the hardships attendant to obtaining business "know-how".

Does he like people, can he make friends easily, and is he able to sell himself to others? Successful businesses are founded on good will and personal characteristics will add to or subtract from that essential commodity.

The businessman must realize the value of careful saving and investment. The easiest way to make money is to save it. He must be willing to live on a small income and to be ready to sacrifice.

The ability to express ideas simply and intelligently is essential, particularly in retail trades and in businesses where one is selling personal services. This ability is also desirable for those times when one is called upon, as a professional forester, to speak before public or private gatherings (and such opportunities should be sought).

Though it has often been said that one cannot be honest and be a successful businessman, this statement is emphatically denied! The type of people which the forester principally encounters (woodsmen, farmers, and other businessmen particularly) are adept at seeing through sham and sensing a man's true worth. A small businessman must be absolutely straightforward in his dealings because reputations are established quickly, particularly in the forest industries.

Men who deal in standing timber must be especially careful. Few land owners have an appreciation for stand volume and ignorance usually results in suspicion. Though honesty may dictate dealing on a per M basis, experience has shown that the suspicion which exists makes it more desirable to deal in lump volumes since it eliminates the possibilities for accusations of unfair scaling or log stealing.

However, dealing in lump volumes can place the technical man in a position where advantage may be taken of the timber owner. If such advantage is taken, the individual is treading on slippery ground, indeed, for one dissatisfied owner can prejudice other owners for miles around. As Farm Forester in Maryland, the author was amazed at the numbers of small woodlot

owners who were familiar with the practices of the unscrupulous timber buyers. The operators in that area who were mindful of this range of reputation would actually refuse to buy timber at prices below that which they had paid to other timber owners, even when lower prices were set by the timber owners themselves!

Practical foresters must realize that the best possible cutting practices which have been designed to assure themselves of continued future supplies will be of no avail if ill will is created in their contacts with the timber owners.

There are many disappointments attendant to business enterprise and at times the difficulties may seem unsurmountable. One must have faith in his ultimate success and keep on working. Success is the reward of only the persistent; defeat is the end of the fainthearted.

## EDUCATIONAL QUALIFICATIONS

According to Taylor<sup>1</sup>, there are two principle reasons why new businesses fail: lack of experience; and, lack of management "know-how." There are many items which may be included in the subject of management "know-how" but possibly one of the most important is the keeping of proper accounts. Jenkins<sup>2</sup> reports that at one time, William O. Douglas, U. S. Supreme Court Justice, analyzed nearly 1,000 bankrupt enterprises and found that less than 25 percent of them had adequate records.

A detailed cost record is a sine qua non of successful business. This is one fact which was stressed by the men answering the questionnaire. Cost analysis depends upon the availability of data which in turn depends upon a good bookkeeping system. It is axiomatic that a forester contemplating self-employment be well grounded in both accounting procedures and cost analysis.

It should be emphasized that bookkeeping as used in this paper implies more than a simple record of debits and credits. It also includes records of time spent in job performance and times of machine operation, since this type

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<sup>1</sup>Amos E. Taylor, "Forward" p.III in Establishing and Operating a Small Sawmill Business. U. S. Department of Commerce Industrial Series No. 20. Washington: Government Printing Office 1945

<sup>2</sup>W. R. Jenkins, "Stop, Look and Listen! Before Starting Your Own Business", p. 12 in A Business of Your Own. New York: The Readers Digest Association, Inc. 1946

of information is necessary for the calculation of unit costs and machine rates.

The best method to collect time and production data is to keep record forms constantly on hand at the scene of operations. This might seem bothersome at the time but it is a much better way than trying to recall at the end of each day exactly what happened and when. If the forester is to gain an advantage through his technical education he must be continually supplied with accurate operational data.

Cost analysis itself will be increased in importance during the period of beginning. One may say that the relatively large profit margins enjoyed by business today dims somewhat the necessity of cost analysis for survival, which may be true, but it is only true for the experienced operators. The inexperienced forester can ~~only~~ <sup>hardly</sup> hope to compete in the way of minimum costs with the experienced businessman and a mere comparison between the operating costs of well established business and the current selling prices will not suffice as an accurate index of profit margin for him. The statement of costs incurred by three inexperienced foresters in a sawmill business which is presented in the section on Sawmilling, should drive this point home.

The technical education acquired by the forester may not at first give him any advantage over his more experienced competitors. But as practical experience is gained, the actual advantage that he does possess will quickly become apparent. If this were not so there would be little

justification for recommending that foresters turn to self-employment.

Possibly second in importance only to accounting is a practical foundation in business law. Since business dealings are so complex and misunderstandings have been of such frequent occurrence it has become necessary for our courts to develop certain principles and rules to govern business in the conduct of its affairs. The uninitiated may learn these rules in a practical way by actually managing a business. Such a method of learning, however, has too often been accompanied with bitter and sometimes disastrous controversies to allow any other recommendation than that the principles of business law be learned painlessly through the classroom method of study.

For those who do not have the opportunity of studying business law in school, let this one warning be kept in mind: never trust any business dealing to friendship and oral agreements--always put it in writing! It has been well stated that friendships in business are preserved only through written contracts.

A knowledge of salesmanship is fundamental. An individual must be able to convince others that his product or service is necessary and better than that of his competitor. However, in this respect, one must be discerning as to the means to be applied. In some cases the exhibition of education may be necessary while in other situations it may be fatal. For example, when dealing with local farmers and land owners a forester may often be sarcastically described

as a "city-bred college boy". Certainly any attempt to impress these men with technical terms would be a mistake. Sometimes it even becomes necessary to develop a certain amount of local dialect and appear quaint and "homespun." When dealing, however, with business executives, bankers, wholesalers, etc., a certain display of intelligence and education will often help to overcome a prejudice or dubiousness as to ability.

Other important courses which have been recommended by men now in the field are those in business administration dealing with finance, economics, and organization. The undergraduate student should attempt to elect these courses and as many other business administration courses as his present forestry subject requirements will permit.



## EXPERIENCE

The amount of experience necessary before taking the big step into business needs some discussion. It is impossible to set any definite minimum period of apprenticeship which would be necessary before attempting self-employment. We do know from the figures of business failures already cited that "know-how" is of major importance. However, it is conceivable that in some forest industries certain individuals may achieve success without any previous practical experience while in others they may need many years of experience. There are too many variables to lay down any set rules.

Under each of the industry types which are discussed in this paper are recommended periods for apprenticeship. These figures have been obtained directly from men in the field who are now in the particular industry discussed. It is felt that these periods are conservative estimates and that graduate foresters with business ability could reduce them considerably without prejudicing their chances for success. However, this statement should be qualified to the extent that the periods are conservative only during this post war era when competition for markets is at a minimum.

Of course, it should be understood that any recommended period of apprenticeship can only be considered as a guide. Estimates of time, whether conservative or radical, are qualified by the inherent business ability of the individual.

Conceivably, with two different people both possessing the same experience and capital, located in the same region, one will succeed where the other will fail. Some men are natural leaders while others will do better as "cogs in the wheel." Some men are born managers while others perform better under direction. Perhaps in the long run this distinction alone will determine whether or not any individual will prove successful as an independent business man.

It is true that business qualities may be developed in a person but those who do not possess some of the aforementioned "inherent business ability" should move with extreme caution.

There exists the possibility that an inexperienced forester might shorten his period of apprenticeship by hiring his experience. This idea was presented for discussion to the alumni circulated and the results are interesting. Those in consulting forestry answered to a man that such a course is impossible. The reasons for their stand are obvious.

Among those men engaged in logging, sawmilling, wholesaling, and private commercial forestry 84 percent answered that such a plan was possible and desirable. However, a few of the men qualified their answers by saying that they believed that it was questionable whether the benefits derived justified the extra labor expense. These men pointed to the low returns of a new enterprise and expressed the opinion that by extra hard effort, the forester could soon obtain the necessary "know-how" by himself.

The tenability of such a view depends largely on the individual and the type of business enterprise. If the business is of a type requiring manual skill, such as logging and sawmilling, it is believed that the hiring of experienced help is a necessity. This view is supported by those men questioned who are engaged in such industries. They did point out, however, that such help is in scarce supply in these times and that one must have a certain amount of experience in order to evaluate abilities. Since a complete lack of apprenticeship is not advocated, the hiring of experienced labor to compensate for inexperience seems to be a sound recommendation for certain forest industries.

This idea was well summarized by one of the men responding to the questionnaire when in answer to my query, "Do you think that <sup>by</sup> hiring experienced help a forester might compensate for some lack of personal practical experience?", he replied, "For some lack of personal practical experience--yes. For a total lack of personal practical experience--no".

## INVESTMENTS

The question of investment was put to the various University of Michigan alumni in this manner: "What would you say would be the minimum amount of capital necessary to insure a good start in your type of business?" The consensus of their opinions will be presented later in this paper in the discussion of individual business possibilities but attention should be drawn here to several important facts.

The question as presented was intended to obtain a figure which would be a minimum necessary for those who are intending to devote their whole time and energies into the establishment of a business. True, the entire paper thus far has implied this premise but it might be well to mention at this point the possibility of beginning a business on a part time basis with some other employment to provide the major source of income.

A good example of this sort of operation is the farmer who runs a small sawmill, usually on a custom basis, during the winter months. The argument may be immediately advanced that this sort of operation is unique to farming since few, if any, other types of employment open to a forester will allow such long periods of idle time. To a certain extent this may be true. The forester, in all probability, when in the employ of another will not be able to start a business which would require any great amount of personal attendance but there are other possibilities whereby he may

gradually lay the groundwork for future full time operations.

Some men now in the field have started Christmas tree plantations and others have started ornamental nurseries on such a basis. It has been suggested also that the acquisition of forest properties, which may in the future be operated solely as the forest business, or only as an adjunct to a forestry consultant business, may be carried out in one's spare time.

There are undoubtedly many other types of operations which would lend themselves to this sort of treatment. Whatever the type, however, the important point is that such a procedure allows one to build his own business without a large initial investment and with little, if any, previous experience.

The amounts of investment which were recommended by the men in the field are generally for an extensive type of operation. This also applied to their recommended times for apprenticeship. Actually, in most cases, it would probably be wise to start on nearly the most limited scale of operations possible, consistent with regional conditions. For example, if one plans to start a sawmill business he might begin by investigating his region, finding a market, then purchasing a few logs and contracting with some local custom sawmill to cut them into the desired dimensions. He may then gradually extend his operations, buying his own machinery as experience is gained, and minimize the chance of prejudicing his entire venture on some mistake that he

might make. Certainly, the larger the operation the more costly will be each mistake! In many instances the dangers of overfinancing may be as real as underfinancing and should be born in mind when considering a new business. At any rate, the scope of operations must be carefully balanced with experience and available capital.

When investigating possibilities for business the following points must be considered in order to determine the amount of initial investment:

1. What machinery, tools, office equipment, etc., are necessary and what are their costs? In short, what is the capital cost?
2. What will be the estimated gross revenue?
3. What are the estimated operating costs?

These three considerations are all interrelated and the calculation of one has a direct effect on the calculation of the others. The desired result is to obtain the balance that will produce an income sufficient to pay costs, interest on investment and a profit to compensate for the risks involved. This result may not, and in all probability will not, be realized immediately. It has been said that any business that just breaks even the first year is doing well.

Compensation for personal labor must not be forgotten when determining operating costs.. It is advisable, also, to set aside an amount sufficient to support oneself for at least a year since income will not be steady and the future of the business must not be prejudiced by a temporary lack of living expenses.

The government has written a provision into the G. I. Bill of Rights which will guarantee veterans who are starting a business of their own an income of at least one hundred dollars per month. The payment is calculated by subtracting current operating costs from gross income and does not allow for capital investment, depreciation, interest, or personal wages. The period of payment runs for fifty-two weeks and advantage must be taken of this provision within two years from July 25, 1947.

This provision might effect a considerable change in the initial investments and periods of apprenticeship of those who qualify. For single veterans, it might even allow a start in business without any experience, since when an income sufficient for personal wages is guaranteed, the quickest and best method for obtaining experience is by actually operating the business itself. The author and two other foresters began a business without any apprenticeship and at the end of six months had gained an amount of experience which would have taken several years to obtain through other employment. Such a beginning would not have been possible, however, unless all had not qualified for the monthly payment provided through the G. I. Bill. Nevertheless, it must be admitted that considerable more success would have been realized if some previous experience had been gained in the employ of a well established operator.

## REGION

Along with business "know-how" one of the main objectives to be obtained from an apprentice period is a knowledge of the region and people where business establishment is contemplated. Much of the detailed information which one should seek, varies, of course, with the type of business enterprise. However, for any business one must decide exactly where and how he will set up operations. It is almost always to advantage to locate where one is already well known, but for those who have no particular area in mind a list of sources for general regional information and specific local information is presented below.

It is necessary to not only become personally familiar with an area but also to become personally known in an area. Friendships with future competitors or with one's future clientele are invaluable. People usually are hesitant to deal with someone they do not know.

The prospective businessman must become familiar with the local economic conditions, the character of the labor, the amount and type of competition, the markets and market peculiarities, topographical conditions as they effect location, supplies and characteristics of timber and timber stands, and even local weather conditions. All of these factors are important for determining location and any one may have an effect on the final successful outcome of the enterprise. Since many of the problems which effect the



smooth running of an operation will only become apparent when actually encountered, a good deal of inexperience may be offset if it is possible to affiliate with or to deal with concerns or individuals who are already familiar with the conditions of the area and whom may be relied upon for sound advice.

When the location has been definitely decided upon, one should make up his mind to settle down and stay. Moves are costly and inefficient and should only be undertaken when it is certain that it would be entirely beneficial to the business.

## SOURCES FOR INFORMATION

1. U. S. Forest Service Experiment Stations
2. State foresters
3. Farm foresters (contacted through state forestry departments)
4. University professors and extension foresters
5. Trade associations (e.g., Builders, Retail Lumber Dealers, West Coast Lumbermen's etc.)
  - a. Listed in American Lumberman (April 13, 1946) Pp. 238-40
6. Forestry Consulting firms
7. Chambers of Commerce
8. Bankers
9. Future wholesalers, competitors and customers
  - a. Pulpwood procurement men and wood buyers
  - b. Timber buyers
  - c. Local mill owners and loggers
  - d. Timber owners, etc.
10. Forestry Relations Department, T.V.A., Norris, Tennessee (for that particular area)

## BUSINESS POSSIBILITIES

The following list of business possibilities, either alone or in combination with others, represents some of the opportunities open to foresters for self-employment.

1. Balsam pitch collection
2. Building construction
3. Cabin log mill
4. Charcoal plant
5. Chemical plant
6. Christmas tree plantation
7. Commercial forestry
8. Concentration yard-logs
9. Concentration yard-lumber
10. Consulting
11. Container manufacture
12. Contract felling
13. Contract hauling
14. Contract skidding
15. Custom drying
16. Custom planting
17. Equipment dealer
18. Equipment manufacture
19. Excelsior plant
20. Export and import
21. Factoring
22. Forest greens (holly, mistletoe etc.)

23. Forest medicinal products
24. Fuelwood
25. Fur farm
26. Furniture manufacture
27. Game bird farm
28. Landscaping
29. Lath mill
30. Logging
31. Maple sugar
32. Novelties and specialties manufacture
33. Nurseries: forest and ornamental
34. Paper Mill
35. Paving block mill
36. Plywood
37. Posts, poles, piling, car stakes, or mine timber operation
38. Pulpwood production
39. Remanufacturing plant
40. Retail lumber
41. Rustic furniture manufacture
42. Sash and door mill
43. Sawmill
44. Shingle mill
45. Small dimension (including flooring)
46. Stave mill
47. Tannin collection and production
48. Tree seeds
49. Tree surgery
50. Turpentine

51. Veneer mill
52. Wall board and wood plastics
53. Wholesale lumber or wood products
54. Wood defiberization plant
55. Wood preserving plant

Many of the above businesses require large initial investments and vast amounts of experience which in most instances will rule them out as possibilities for the graduate forester. In any event, however, one must learn to creep before he can walk and a modest beginning in some related business may later lead to the opportunity for the establishment of one of these larger industries. The ultimate objective should always be kept in mind so that the selection of a business in which to make a beginning will be based on the type of experience desired and the opportunity for expansion towards the end goal.

No matter which business is chosen it is strongly felt that the forester should exercise great care in the selection of his mechanical equipment. It is important that one should not be handicapped with machine failures or poor equipment performance at the beginning of operations. Unless one has had enough experience in each piece of equipment to recognize the causes for breakdowns or to recognize imminent breakdowns he should not attempt to economize by purchasing second-hand machinery.

A few of the basic business-types in which most foresters will probably make their beginning are discussed in detail in the following chapters.

## CONTRACT FELLING

The modern improvements in power saw design has<sup>ve</sup> to a great extent resulted in the displacement of the crosscut saw as a tree felling and bucking tool. The power saws have not only reduced much of the physical labor attendant to felling and bucking but they have also proved themselves to be practical economically.

They have two serious disadvantages, however, which exerts a great effect upon their extent of use. First, and most important to most small operators, is the disadvantage of high initial costs. Felling is dangerous work and requires experienced or, at least, conscientious labor. Carelessness can easily result in serious damage to the power saw and oftentimes complete destruction.

The second disadvantage is in the very nature of the tool itself. Being mechanical, the saw if not carefully maintained is apt to break down in the woods where tools for repair are not available. According to Simmons<sup>1</sup>, in order to use a power saw to full advantage it may be necessary to employ crews of from one man to eight or more, depending on the timber types, amount of limbing and swamping, and methods of logging. It can be seen that a breakdown with a large sized crew could prove to be quite costly. Many companies to overcome this difficulty hold extra saws in reserve so that lost time in the event of breakdown may be held to a minimum.

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<sup>1</sup>Fred C. Simmons, "Pointers on Felling Trees," Southern Lumberman (September 15, 1946) p. 74

Obviously, such a procedure is out of the question for the ordinary small operator.

Some companies have found that the operation of their own power saws is not practical because of the indifference of the labor and the consequent carelessness with which the machines are handled. They report much better results when the felling and bucking is contracted by independent jobbers who own their own saws and who must consequently keep them in good operating order.

Since, then, most small operators cannot afford power saws and since many large companies obtain better results if their work is contracted, a great opportunity has arisen for felling and bucking contractors who have their own equipment.

A power saw may be purchased anywhere from \$400 to \$700, depending on the manufacture. A few instructions from the dealer will suffice for training. Every opportunity, however, should be taken to observe experienced crews at work, with the view in mind of learning tricks for faster and easier operation.

From the self-employment standpoint, the operation of a power saw on a custom basis is probably the cheapest way to learn the techniques of logging at first hand while at the same time maintaining independence of operation.

The break-even point should be determined between costs and tree size. Figures presented by manufacturers must be treated with care for a great many variables which have to be



considered enter into the production of logs with power saws. Not the least of these is the experience of the operator. According to C. H. Niederhof<sup>1</sup> who reports on a test made between an experienced and an inexperienced operator both using Lowther saws<sup>2</sup>, the hourly unit production of the experienced operator was more than twice that of the inexperienced operator.

An observation in Michigan<sup>3</sup> showed that approximately this same ratio existed in hourly unit production between experienced and inexperienced operators both using the Mall chain saw.

Since not only the human element but other variables as well, such as weather and topography, exert such a profound effect upon the operation of the power saw, current published data which might be used to determine a break-even point between costs and tree diameter have little actual value. For example: a study published in the Southern Lumberman<sup>4</sup> shows the time of a four man crew, using a Mall chain saw, for felling, bucking, and limbing 13" D.B.H. trees to be 3.368 man hours per M.

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<sup>1</sup>C. H. Niederhof, "Power Felling Equipment", Southern Pulp and Paper Journal, (September 15, 1946) 9, No.9: 40, 42

<sup>2</sup>A wheeled circular power saw used principally in the South.

<sup>3</sup>Observation made by author. Comparison was between average hourly log production records of a contract crew in the upper peninsula and the average hourly log production of two inexperienced foresters operating a saw near Grand Rapids.

<sup>4</sup>E. G. Wieseuegel, "Power Chain Saws and Manual Crosscut Saws In the Production of Hardwood Logs." Southern Lumberman (January 15, 1946) p. 46-50

Applying the machine rate of \$2.69 per hour as calculated in this study, which includes the wages of a four man crew, it would cost \$2.26 to cut a thousand board feet of 13" D.B.H. trees. However, records kept of a power saw operation in Michigan<sup>1</sup> showed that it cost approximately \$7.50 per M to cut 13" D.B.H. trees using the same wage rate!

The published study points out that delay time was not included in the calculations, whereas delay time was included in the Michigan operation. It may seem that delay time could not cause such a wide spread in costs but, nevertheless, it was the major factor.<sup>2</sup> It must be remembered, however, that the object of this discussion is not to point out the particular reasons why the spread resulted but merely that a spread did result under varying conditions. It should show conclusively that the forester must work out his own cost figures under various conditions and at least not rely entirely on data gathered by others.

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<sup>1</sup>Saw was being operated by the author and two others in an oak stand near Grand Rapids.

<sup>2</sup>The following factors contributed to delay time:

- a. No woods experience resulting in two rather serious injuries. Layoffs charged against operation.
- b. Inclement weather conditions which caused poor equipment performance and frequent rests.
- c. Steep topography
- d. Wide spacing between merchantable trees.

## CONTRACT SKIDDING

Skidding devices for the small woodlots are undergoing a great change as the search continues for newer and more improved methods of logging. Horses and mules are still being used to a great extent for skidding logs but even though they enjoy a comparatively low initial cost, unless the forester is well acquainted with their care and operation he should not attempt to use them for a start into business.

Skidding contractors equipped with any type or size of tractor are at present in considerable demand. It is not absolutely necessary to have accessory skidding equipment (winches, arches, pans, etc.) but if this extra equipment is purchased the contractor will have a distinct advantage over much of his competition.

Most small sawmill operators are not financially able to own their own logging equipment. Even many of the mill men who can afford such equipment usually will pay a contractor to do the logging job in order to relieve themselves of the extra risks and problems involved. All of these sawmill men will, however, demand that clean logs be brought to their mills (unless the operations ~~is~~<sup>are</sup> of sufficient size to warrant log ponds) placing upon the contractor the necessity of either extra labor or extra investment.

There are many devices in the woods which have been designed to enable the skidding machine to bring in clean logs and at the same time heavier loads. The simplest of these is the log sled. Contractors will use sleds for both

long and short skidding distances but in the nation's average farm woodlot it would seem that the sled is remarkably inefficient. Bunching logs becomes necessary followed by a usually slow and laborious hand job of loading the sleds.

On the larger operations where the additional investment is justified the logging arch has been in use for a number of years. These large operations have presented the most obvious opportunities for the equipment manufacturers and the smaller operators have been left to more or less work out their own problems.

Largely through the efforts of the government agencies and the ingenuity of some of the more forward-looking small operators, modern economical logging methods are being introduced into the farm woodlot operations. These advancements have in general centered around the principle of the use of the logging arch or sulkie.

It is believed that the progressive forester will find that his greatest opportunity lies in the introduction and use of this new equipment. The Northeastern Forest Experiment Station has said that the real need in their section is for logging contractors and subcontractors who will make use of really modern logging techniques and machinery. This may be said to be also true for the rest of the country where the small woodlot properties are of economic~~al~~ importance to the wood using industries and consumers.

Tractors alone may be purchased from \$2,000 to \$8,000. The added investments for accessory equipment will depend

largely on the section of the country in which located as timber size and logging methods vary. Commercial sulkies for large logs are manufactured by many companies and there are several who manufacture sulkies for the smaller logs.

In the areas of small timber many operators have built their own sulkies, or modifications thereof, at minimum expense. These range from hydraulic log carts to tractor mounted arches and booms. One operator in Michigan was observed skidding logs with a farm tractor which he had equipped with a simple hydraulic lift operating from the power take-off. He could skid logs up to approximately 30" in diameter ~~both~~ quickly, cleanly, and economically. Another operator in Michigan has built his own arch which operates in connection with a winch. He, also, is able to bring in large loads of dirt-free logs.

It would be necessary for a skidding contractor to provide some means of transportation for his equipment which will increase the initial costs to some extent. Altogether, a modern skidding outfit will entail relatively large investments but the corresponding profit returns are high.

There is a possibility that the forester may engineer among small operators a cooperative ownership of this specialized machinery in which the risks as well as the benefits would be shared. Another possibility would be the setting up of a contract system for providing this specialized machinery to small timber owners much the same as threshing machines and ensilage cutters are made available to the farmers.

It would be wise to obtain employment with a large concern using modern equipment in order that the problems of skidding may be thoroughly understood before any attempt is made to step into business for oneself. It is also recommended that only those men with some mechanical ability attempt to enter this field. Logging is hard on machines and unless the operator has a fair amount of mechanical knowledge he may well be overcome with equipment difficulties.

The following reports from the Forest Products Laboratory at Madison, Wisconsin deal with newly developed skidding equipment: R1637-1, R1637-5, R1637-7, R1637-11, and R1637-16.

The Northeastern Loggers Handbook<sup>1</sup> contains a section which would be of value to a forester contemplating contract skidding.

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<sup>1</sup>Fred C. Simmons, Northeastern Logger's Handbook. U. S. Forest Service Northeastern Forest Experiment Station.

## CONTRACT HAULING

Contract hauling presents many diversified opportunities and is a promising field from the standpoint of pecuniary returns. It requires practically no preliminary experience. The equipment costs will vary over a wide range depending on the size of the truck purchased and the amount of accessory equipment.

A ton and a half truck would enable one to start business with the least amount of investment but the use of these trucks is rather limited. They may be used to haul lumber and, to some extent, logs but it is believed that the much greater capacity of the larger trucks more than offset the added cost.

Contracts may be obtained from established companies having their own loading devices, eliminating the necessity of expensive accessories such as winches and booms. Hauling contracts, however, often require the trucker to provide some means of loading and these accessories then become a necessity.

There are many opportunities for the enterprising forester who is able to invest in a bit more expensive machinery. The Northeastern Forest Experiment Station is quite optimistic about the possibilities of what they call a "milk-route" system of picking up special forest products. This involves the establishment of a definite route which is covered periodically to pick up forest products brought to the roadside by farmers and small timber operators. These products would include such items as handle stock, turning

bolts, veneer logs, shoe last and bowling pin logs. In the past it has been generally necessary to accumulate a truck load of any product before it could be marketed but many firms in the northeast are now interested in this "milk-route" idea for obtaining their raw material.

This idea to be economical would necessitate having one of the newly developed self loading trucks. Such devices are described in Section 14 of the Northeastern Logger's Handbook<sup>1</sup> and total cost of truck and loading device would be from \$4,000 to \$7,000.

It is believed that the forester with limited capital and experience will do well to locate somewhere in the forest regions other than those of the western "big" timber. If one desires to set-up a hauling business in the western areas he should first obtain employment with the industry in that area so that he might gain some appreciation of the problems encountered and the investments necessary. It is suggested that such experience might be gained during the summer vacation periods of the forest school.

The U. S. Forest Service Forest Products Laboratory at Madison, Wisconsin, should be watched for new developments in trucking equipment. Current reports of value to a forester contemplating contract hauling, include those numbered; R899-17, R899-24, R1637-2, R1637-3, R1637-6, R1637-8, R1637-9, R1637-10, and R1637-15.

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<sup>1</sup>op. cit.



## SAWMILLING

The sawmill business is one business in which there now exists considerable competition. During the war years when lumber prices leaped to such tremendous heights and lumber could be sold without regard to grade or condition, great numbers of men flocked into the industry to take advantage of the lucrative markets.

The inflated demand for lumber was maintained even after the cessation of hostilities and many veterans turned their savings into sawmill equipment with the hope of quick and easy profits. Unfortunately for many of these men the time soon came when the market would no longer absorb poorly manufactured lumber and grade was again at least partially established as the basis for saleability. It is not to be intimated that the supply of good lumber is yet at the point of equalling demand, but the point is that we are at the place where sawmill business failures are increasing, indicating that competition is once again beginning to exert its effect upon the poorest class of producers.

Another factor not to be overlooked which is contributing to competition is the large numbers of farmers who have set up sawmills as a supplementary source of income. These men are able to operate at considerably lower profit margins than is possible for the full time operators and can, and do in many areas, exert a considerable effect on the lumber markets.

The time is past, then, when any inexperienced man with a few thousand dollars can enter the sawmill business and have a good chance for success.

It has been stated by many sawmill operators that there has been and always will be a demand for well manufactured, well seasoned and graded lumber. It is this fact wherein lies the foresters opportunity.

The quality of the product manufactured by most <sup>small</sup> sawmills has as a rule been poor. So much so, in fact, that a considerable prejudice has been built up against lumber produced by the circular saw. It is not the saw itself which causes the poor lumber; it is the men operating that saw! Indeed, even many of the old and experienced mill men are producing poor lumber, operating with insufficient capital, and have little knowledge of proper marketing. We will undoubtedly always have this type of operator with us but the advent of more efficient machinery and particularly the placing of technically trained foresters in the business itself will tend to materially reduce their numbers and erase the prejudice of the circular sawn product.

The amount of required experience and necessary capital will vary with the forest region and choice of mill equipment. Therefore, recommendations for experience and capital will be presented under each of three subdivisions, namely: Permanent Sawmills, Semipermanent Sawmills and Portable Sawmills.

A permanent sawmill will be considered as one which, regardless of size, output, or location, is fixed in its

setting for an indefinite period of time, with no foreseeable move intended by the operator.

A semiportable sawmill will be considered as any mill which is not a permanent mill and which is of the ground-mill type (i.e., is not mounted on wheels). The distinction between these mills and those of the permanent type is that a semiportable mill is set up near the timber stand with the intent of the operator to move to another location when the immediate timber is processed.

Portable sawmills will be considered as those mills which are mounted on wheels.

#### Permanent Sawmills

There are certain inherent qualities to a permanent mill which are of definite advantage to the relatively inexperienced forester.

First, is the advantage of a central location. Though during the last few years the trend has been to the portable type of mill which can be moved directly to the timber, these mills for the same sized operations will often require more expensive equipment, more employees to help move and set up the equipment, and more "know-how".

A central location often makes possible the use of the cheap and dependable power of electricity. Central locations may provide markets for the sale of mill waste as fuel without additional handling. Many small permanent mill operators are able to pay the major portion of their expenses through

this sale of mill waste alone. Also, when mills are centrally located, the trucking of logs to the mill and the shipping of lumber from the mill to the market is facilitated.

The second advantage of a permanent mill is its ability to produce a better manufactured product. When one intends to locate permanently in any particular area he can build foundations which will not be affected by freezing and thawing and which will give a stable base for the sawmill machinery. In semiportable operations, the husk or track is frequently moved out of line as a result of unstable foundations and the sawyers will either not realize it or just not bother to remedy it as long as their headsaw runs cool. The result is a poorly manufactured, degraded product.

A third advantage is that a permanent mill will make the housing of the machinery economical and, hence, operation of the mill possible regardless of weather conditions. Though housing is desirable for any type of mill operation, portable and semiportable operators seldom find this practical.

A fourth advantage of the permanent mill, from the standpoint of the new operator, is the fact that moving a semiportable mill requires a great deal of skill and is an expensive and time consuming operation. Man power alone will ordinarily not suffice to move the heavy equipment and a source of mechanical power becomes necessary. Some portable operators will use tractors for the moving operation while others use truck mounted winches to pull the equipment aboard. In any event some additional investment is required.

The reason that the above advantages are of particular interest to the new operator is simply that the problems attendant to sawmilling are many and varied and any factor which will eliminate one of the problems without being detrimental to the success of the enterprise is a definite asset.

The question will probably be immediately raised as to the effect that the distance of the mill from the timber stands will have on its successful operation. Herein lies the fundamental reason why a permanent mill is to be recommended over the semiportable mill for the forester operator. The new, permanent mill operator will not necessarily depend on a supply of his own logs for operation. If he locates carefully his primary source of business will come from custom sawing farm woodlot timber and he will not need the large amounts of capital necessary to purchase timber stands.

An experienced operator does not like to custom saw lumber for there is much more profit in sawing for <sup>him</sup> ~~oneself~~ (making more business for the custom sawyer). However, with limited capital and experience, custom sawing ordinarily offers the better opportunity for establishment of new business. The farmer market will not be as particular about the quality of their lumber as will other markets, though a poorly manufactured product is as useless to farmers as it is to any other consumer. The point is that small variations in size and other minor defects effecting grade are usually overlooked if not so obvious as to effect the use for rough construction.

As the forester obtains experience and confidence he can begin to purchase a few logs of his own. By convincing woodlot owners of the advantages to periodic removal of only the mature timber, he should be able to establish a "clientele" which would ensure a continued volume of high quality logs.

It is firmly believed that the above plan for expansion is the best way to insure success for inexperienced men with limited capital.

A forester fresh from the classrooms must have considerable experience before attempting to run a sawmill. At least two years of employment in an established mill is the recommended period of apprenticeship. It is doubtful whether forest-school sawmills will provide much in the way of experience unless the student is able to work with them on more than a classroom instructional basis. Much of the experience could be obtained during summer vacations but, as mentioned before, considerable time is still necessary to study the selected region and to make the necessary contacts.

A permanent mill set-up such as has been discussed would require about \$3,000, which would include the sawmill complete with electric power, edger, slab saw, tools and building. To this sum would have to be added the price of a mill site or the rent if leased. If electric power were not available, an additional sum sufficient to cover the difference in cost between the electric motor and installation of a gasoline or Diesel power unit would be necessary. An amount sufficient to pay living expenses for one year should be held in reserve.

This estimate would hold true in most forest regions of the United States unless one would attempt to handle the larger timber of the western areas. It is recommended that the forester does not try to saw, at the beginning, logs larger than about 30" in diameter. It requires heavy equipment and a good deal of ability to handle logs of larger sizes than this.

It might be mentioned here that equipment handling the average log of the Southern Pine Region can be somewhat lighter than that necessary in the hardwood regions. The differences in investment would not be enough to warrant discussion.

#### Semiportable Sawmills

As was stated before, the recent trend is to favor the portable type mill over the permanent mill. The obvious advantage of a portable mill is that ~~as~~<sup>its</sup> proximity to the source of timber eliminates the necessity of a long and costly transportation system. There are also mill operations of this type which enjoy one or more of the advantages of the permanent type; e.g., a large stand may allow a certain amount of shelter and permanent-type foundations. However, most operators of semiportable or portable mills do not bother to build foundations as stable as are ordinarily built into permanent mills and some do not erect any sort of shelter even when intending to remain in the same location for a year or more.

Though a strong argument has been presented in favor of the permanent mill, there are certain definite advantages peculiar to the semiportable type which, in all fairness, must be mentioned.

It has been stated that custom sawing lumber is of particular interest to a new operator. It is equally as feasible to custom saw with a semiportable mill as it is with any other. There are many owners of considerable volumes of timber who would rather contract the sawing job than finance and supervise their own operation. It is of definite advantage to them to have a custom mill set up directly on their timber property since they are thus spared the expense of loading and hauling the logs to some distant permanent mill. Except during periods of unfavorable lumber markets new operators should find many such custom sawing opportunities.

During normal times, experienced operators usually refuse to take advantage of custom sawing opportunities for reasons already explained. Should the lumber market become uncertain or drop suddenly, however, many of these men will turn to custom jobs to "weather the storm" and a new man would find it difficult to make any sort of a beginning with a semiportable sawmill.

It would seem that the recommendation should be given that new men buy their own stumpage and take advantage of the larger profit margins. But as the old saying goes, "you can't have your cake and eat it too." With the higher profit margin goes a greater risk and more chances for disaster.



It requires additional capital to purchase the stumpage itself, capital to hire the trees felled, bucked and skidded to the mill, (or additional equipment if one is doing it himself) and more reserve to pay operating costs until the lumber is marketed. Furthermore, there is always the chance that markets will change during the processing period.

The operator buying stumpage runs the risk of faulty titles to land, the chance of hidden defect in the logs, and the possibility that changes in the weather might stop his logging operation altogether.

He will have to have definite markets located before any sawing is done. If the lumber must be air dried, the piles will have to be located where rehandling will not be necessary in the event of a move.

These are a few of the reasons why it is more advisable to custom saw, despite the difference in profit margin, while one is relatively inexperienced.

When one does become experienced, however, he can usually realize more profit from the stumpage operation with a semiportable mill than is possible with a permanent mill. As said before, costly transportation of logs is eliminated by the woods location and it is not necessary to purchase or lease the mill site.

More preliminary experience is ordinarily required for a semiportable sawmill than for a permanent sawmill operation regardless of how the income is to be derived. Additional experience is necessary: first, to be able to break down,

move, and assemble the mill with speed and accuracy; second, to be able to pick the most advantageous mill locations for each set; and third, to acquire a working knowledge of the construction of the various types of foundations used as topographical conditions vary. Of course, uniformly flat terrain would eliminate much of the foundation difficulties.

Three or four years of experience should be obtained before attempting to operate a semiportable sawmill.

The capital to enter business will vary with the type of operation as discussed above. The equipment should consist of a sawmill, edger, power unit, truck, rolls, cutoff saw, tools and some power for moving heavy machinery. This would cost approximately \$6,000 at current prices. When custom sawing, a reserve sufficient to cover living expenses for one year would be adequate.

When purchasing stumpage an additional amount is necessary to pay for the stumpage and operational expenses during the period in which no lumber is sold. This period will vary with the type of market and must be correctly estimated if financial difficulties are to be avoided.

### Portable Sawmills

There are several wheel mounted mills manufactured commercially and there are many such mills which have been made by sawmill men themselves. For the most part, this idea of mounting a mill on wheels is of comparatively recent development and it can prove to be either a boon or a

calamity to our nations woodlots. Due to their high degree of portability, it has been found to be economical to move into and saw out an area containing only 2 M ft. b.m. of lumber!

From the forestry standpoint these mills provide a wonderful opportunity for a forester-operator to show small woodlot owners the advantage of proper management in their timber stands. Excerpts of a letter which was received in answer to the questionnaire follows:

We received a Jackson Lumber Harvester, highly portable sawmill.... We need a means of support while developing the consulting field during the next few years. I do believe, however, that we are selling more farm forestry with our custom sawing service than we ever could as government foresters. We have set up for as little as 2000 board feet of logs--thus giving any farmer an opportunity to practice sustained yield of a sort, however crude. Some have done a good job of selective cutting. None have destroyed their woods as is commonly done on timber sales.

There are many areas in the United States where the operation of one of these mills would be extremely popular. The Forest Service Experiment Stations or the Farm Forester agencies would be able to recommend advantageous locations.

An intelligent forester with an ability to operate machinery could set up business with a very minimum of experience. The writer of the letter quoted above started operations with absolutely no previous experience. Another known instance involved the successful establishment of a custom sawing service with but one weeks experience on the part of the sawyer.

It cannot be recommended that such a business should be attempted without any experience. It is believed, however,

that the necessary experience could be obtained during one summer vacation or even during the period of waiting for equipment delivery.

Close cooperation with government and extension foresters will normally supply sufficient customers until the word is spread through the operating territory that such a service is available.

The most universally popular of the commercial makes is at present the Jackson "Lumber Harvester." These mills are leased for \$2940 cash price. A license fee of \$1.00 per month must be paid and the contract provides, among other things, the right to operate in an exclusive territory as long as the mill is operated consistent with modern forestry practices. A truck to pull this mill and a source of power must be provided which is not included in the lease price. A good system which has been observed is to mount a D<sup>e</sup>isel engine on the back of a 1½ ton short wheelbase truck.

The Jackson "Lumber Harvester" is manufactured by Jackson Lumber Harvester, Inc. at Eau Claire, Wisconsin.

Another commercial mill of the trailer type is the "Mobilmill." This mill is manufactured by P. L. Crooks and Co., Portland, Oregon. The price is \$19,500 Portland. Though much higher in price, this "Mobilmill" is designed for much harder usage than the "Lumber Harvester" and includes a D<sup>e</sup>isel engine, log conveyor, log turners, and live rolls, besides the mill itself. It has a greater capacity than the "Lumber Harvester" and is sold outright - not leased. The author has not observed this mill in operation

but it would seem to be particularly well adapted to relogging in some of the western areas.

At the time of this writing no specific information has been received about the "Amidon" mill, a commercial make which is operating on the East coast with considerable local popularity. It is manufactured by C. S. Amidon & Sons, E. Wellington, Connecticut, and reportedly will handle logs 48" in diameter 24' long.

One interesting trailer mill observed in Michigan, which was designed by two veterans, consisted of a standard type ground mill mounted on the bed of a surplus army trailer. Though not quite as versatile as the commercial trailer mills it produced good lumber with, of course, a portability not available to the ordinary ground mill.

### Discussion

The possibility of hiring experienced labor to compensate for some lack of experience has been mentioned before but further discussion is necessary in any consideration of the sawmill business.

The most technical job in connection with sawmilling is that of the sawyer. In a small mill he must not only be able to cut up the logs to best advantage but must be able also to keep the machinery itself in good working order. A good sawyer would be a definite asset to any mill operation and probably would allow a forester to start a business with less experience than has been suggested.

One must be very cautious in his selection of a man for this job. Prospects should be quizzed very carefully, and tactfully, on their knowledge of lumber grades for a forester's aim should be quality over quantity production. The statement, "I've spent my life in the job", is no criterion for a good sawyer. True, most experienced men will know how to get the most volume out of a log but few, indeed, know how to get the most value. Those that do, most likely, will be successful operators themselves and not out looking for work.

If the forester intends to be the head sawyer himself he should avail himself of every possible source of information about the job. Published information which is of any practical value is conspicuous by its absence. One very good source, however, is Sawmilling Practices that Pay, by R. R. Cahal and is a pamphlet published by The Southern Pine Inspection Bureau.<sup>1</sup>

Observing sawyers at work on other mills and questioning them for pointers will produce much valuable information. Woodsmen, as a rule, are a very friendly class of men and will do all they can to help young men get established in their profession.

One general warning: never saw a log without knowing exactly what the market demands from that log! High quality lumber in unsaleable sizes is almost as useless as mill culls.

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<sup>1</sup>May be obtained by sending 50¢ to The Southern Pine Inspection Bureau with a request for the pamphlet.

When soliciting orders for lumber, a new millman will often encounter a certain reluctance on the part of buyers to give orders without first examining the lumber. This can be overcome if the buyers are offered the lumber on a grade price basis rather than on a mill run or log run basis. It is actually to the advantage of a quality operator to sell on the grade basis, though many experienced operators will advise to the contrary, for the lumber buyers when purchasing log or mill run expect to get more low grade than high grade pieces and set their prices accordingly.

When one is contemplating a semiportable operation in which he will process his own logs there arises the question of the advisability of handling the entire operation from stump to lumber with his own equipment and employees. Probably the first thought will be, "If a contractor can make a profit from the logging operation, why can't I?" If one has plenty of capital and an equal amount of experience, a saving undoubtedly could be realized by handling the whole operation. The attempt to handle both logging and sawmilling operations must be preceded, however, by a most careful and detailed cost analysis. The logging will be carried on for a certain period before any income from lumber is realized. The length of this period will depend on the output of logs per day, the daily capacity of the mill, and the market requirements. These are in turn effected by the number of employees, the type and density of timber, kind of equipment, region, etc..

One cardinal rule is to never leave a machine idle. If

sufficient capital is not available to employ enough men to keep the operation moving, hire a contractor at a set sum per M! The fallacy of the forester attempting to do too much of the work himself is well exemplified by the following statements from the cost records of an operation conducted by three foresters in Southern Michigan.

Table I. A Comparison Between Actual Costs and Contract Costs

Stand: White and Black Oak  
 Start of operation: January 23, 1946  
 End of operation: March 20, 1946  
 Actual time worked: 33 days  
 Scale: Scribner Decimal C.

Work Completed:  
 Felled 103 M  
 Trimmed 91 M  
 Bucked 12 M  
 Skidded 10 M

Depreciation for two months:  
 Sawmill \$60.00  
 Headsaw 2.60  
 Edger 3.34  
 Power unit 50.00  
 Buzz rig 2.50  
 Truck 104.16  
 Feller (power) 19.34  
 Tractor 66.66  
 Tools 1.45  
 Total \$310.05

Expenses January 23 to March 20 (including interest):

Feller		Total
Gas and oil	\$20.56	
Sharpening	3.00	
Repairs	<u>25.95</u>	
		\$49.51
Tools		
Axe handles		
Skidding cable		
Files		
Misc.		
		17.16



Tractor		
Gas and oil (not accurate)	\$ 2.74	
Repairs	19.31	
Antifreeze	<u>7.95</u>	30.00
Misc.		
Doctor bills		
Knee injury	14.12	
Back injury	<u>12.50</u>	26.62
Interest on Mortgage		
\$2500 @ 5%		20.84
Interest on Investment		
\$5700 @ 5%		47.50
	Total	<u>\$191.63</u>
	(without wages)	
Total Depreciation.....	\$310.05	
Total Expenses.....	<u>191.63</u>	
Sum Total Costs.....	<u>\$501.68</u>	

Cost of work if let on contract:

\*Assume for power saw operation

Felling	26%	of total time
Limbing	35%	of total time
Bucking	<u>39%</u>	of total time
	100%	

Current contract rate for felling, limbing and bucking....

\$7 per M

Current contract rate for skidding.....\$6 per M

Felling (\$7 x 26%)	\$1.82 per M
Limbing (\$7 x 35%)	2.45 per M
Bucking (\$7 x 39%)	<u>2.73 per M</u>
	\$7.00

Felling price	
103 M @ \$1.82	\$187.46
Limbing price	
91 M @ \$2.45	222.95
Bucking price	
12 M @ \$2.73	32.76
Skidding price	
10 M @ \$6.00	60.00
Total contract price.....	<u>\$503.17</u>

\*Accuracy of this estimation makes little difference as later calculation will compare incurred costs against contract price for whole operation.

## Wages:

Total contract price.....	\$503.17	
Total incurred cost.....	<u>501.68</u>	
	\$1.49	wages for 3 men working 33 days

From the calculations of Table I it can be seen how useless was the attempt to economize by doing the work with only three men, leaving the major portion of the equipment standing idle. Even if the accuracy of the estimated proportion of work done in each operation is questioned the following calculation will still show the futility of the enterprise.

Table II. A Comparison Between Actual Costs and the Contract Cost of a Completed Operation.

Contract price for felling, limbing and bucking	
103 M @ \$7 per M.....	\$721.00
Contract price for skidding	
10 M @ \$6 per M.....	<u>60.00</u>
Total.....	\$781.00

## Wages:

Total contract price.....	\$781.00	
Total incurred cost.....	<u>501.68</u>	
	\$279.32	wages for 3 men working 33 days or \$2.82 per man per day.

If, however, the work had been done without the idle equipment accumulating depreciation charges, the calculation would be as follows:

Table III. A Comparison Between the Estimated Contract Price and the Actual Costs Without Idle Equipment Depreciation.

Depreciation for two months:		Total
Feller	\$19.34	
Tractor	66.66	
Tools	<u>1.45</u>	
		\$ 87.45
Expenses:		
Feller	\$49.51	
Tractor	30.00	
Tools	17.16	
Misc.	<u>26.62</u>	
		123.29
Interest on Investment:		
\$2220 @ 5%		<u>18.50</u>
	Total.....	\$229.24

Wages:		
Estimated contract price....	\$503.17	
Actual costs.....	<u>229.24</u>	
	\$273.93	wages for 3 men working 33 days or approximately \$2.77 per man per day

The wage of \$2.77 per day may seem ridiculously low but each of the three men were receiving aid under the G. I. Bill and \$2.77 per day would have seemed a fair compensation for the experience which was being obtained.

These calculations should bring home to the graduate forester how much woods experience he must obtain before he tries to establish a business of his own and how careful he must be about surplus equipment. It cost the above enterprise a total of \$272.44 (\$501.68-229.24) in approximately two months for equipment which was doing nothing but standing idle.

The most advisable procedure for a semi-portable or permanent sawmill operation is to let-out the logging on contract and concentrate all effort on just the sawmilling operations. It would be ~~more~~ wiser to consider large investments only after well seasoned experience.

Obviously, much larger amounts of capital and experience are necessary to undertake business in the big timber areas of the West. According to one logger, an individual would need at least \$30,000, four years of experience, and a good credit rating before attempting to start into the logging business. Another stated that minimum capital should be \$75,000. A sawmill of a size sufficient to handle the extremely large logs would be of even greater expense. Detailed information can be obtained from the forestry consulting firms now established in that area.

#### Recommended Reading for Sawmill Information

1. R. R. Cahal, Sawmilling Practices that Pay. New Orleans: Southern Pine Inspection Bureau. 1947  
Pp. IV+107

This manual gives excellent advice on all phases of the sawmill industry. It is of special value to a prospective head sawyer.

2. Joseph L. Muller, Establishing and Operating a Small Sawmill Business. U. S. Department of Commerce Industrial Series, No. 20. Washington: Government Printing Office. 1945  
Pp. VI+154

Written for laymen this manual covers the management side of the sawmilling business.

3. Cross-Roads Conference for Sawmill Operators. Compiled by U. S. Department of Agriculture Forest Service Region 7, 1946

This is a compilation of notes and charts which contains excellent material on the mechanical side of sawmilling.

4. The Woodlot Forester's Tool Kit. Compiled by U. S. Department of Agriculture Forest Service North Central Region, 1945.  
Pp. III+72

A small section on sawmilling contains several tables of interest to prospective millmen.

## CONSULTING

It would seem that from a viewpoint of experience requirements a service of technical forestry advice would be the easiest and most logical type of business for a new forestry graduate to enter. However, this is not the case. According to the unanimous opinion of the consulting foresters who answered the questionnaire, the business of consulting requires a minimum of five years and preferably eight to ten years of practical forestry experience!

A forester cannot be theoretical and be successful in consulting. He must be able to give advice that can be translated into dollars and cents -if not immediately at least within ten or fifteen years. This requires a thorough understanding of basic technical forestry coupled with a similar understanding of the characteristics and problems of the forest regions.

From the standpoint of the country as a whole there is little or no competition in consulting forestry. This does not necessarily imply that timber owners and operators are clamoring for advice, since actually, most of them do not realize that they need technical assistance. It is the job of the forestry consultant to literally educate his prospective clientele as to their own needs.

A rather interesting self-employment trend is developing within the ranks of the government agencies which offer technical forestry advice and assistance to small land owners.

The working territories of the foresters employed by these agencies are necessarily quite large. The timber owners are quick to realize the advantages of this advice and the volume of their requests soon precludes anything but token assistance, through sheer lack of time. Some of the requests may be from owners of extensive tracts, 500 acres and up, which require much more time than is available for any one property. If there are consulting firms already established in the area, these are the types of requests which would be referred to them. If there are no consulting firms, these large owners must be content with what little time there is to offer.

Some government foresters, sensing the possibilities in this situation, have left the service and established consulting firms of their own. They operate in the territory in which they were previously working and among the same land owners. Needless to say, it is an excellent way to establish a business with a minimum of risk.

Such a trend should (and does to some extent) receive official aid and encouragement since it is one more step towards the goal of placing the nations woodlots on a sound management basis.

The graduating forester should be aware of the advantages of starting a business in this manner and give it serious consideration before making any definite decisions.

There are several good methods of starting a consulting

business on a part time basis. One way which has been intimated before<sup>1</sup> is by the offering of a portable mill custom-sawing service in connection with the consulting work. This carries the two-fold advantage of providing an income during lean periods while at the same time promoting business for the consulting service.

Some consultants have recommended that a surveyor's license be obtained as an aid to timberland management plans and also as a source of income during slack periods.

Another way to start is by purchasing a small tract of merchantable timber which may be worked during the slack periods.

Which ever way is chosen one must first have a good solid grounding in actual woods experience and employment with a large, well established consulting firm is the best way to obtain it.

Initial capital requirements will be about as follows: Middle West and South, \$7,000; West, \$18,000.

A \$7,000 investment might be apportioned in this manner: car \$1,800; Jeep \$1,400; surveying equipment including transit, surveyor's compass, range poles, chain, and pins \$500; cruising and other field equipment including foresters compass, 100 foot tape, increment borers, diameter tapes, calipers, scaling sticks, tally sheets with plate to print them, and map sheets \$100; reserve for living and operating expenses \$3,100.

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<sup>1</sup>In excerpt of letter, p. 45.

The above sample distribution is offered only as an example and would vary with the region, as is indicated, and with the type of services being offered.

Information about consulting work may be obtained from consulting firms now established in the various forest regions of the United States. Federal and state forestry agencies can provide much valuable information and assistance for location and establishment of business.



## COMMERCIAL FORESTRY

Commercial forestry is best defined by the very definition of forestry itself: "building up, setting in order and keeping in order a forest business."<sup>1</sup> It would seem that there could be no more intriguing enterprise for a forester than the simple practice of his own profession on a commercial basis, yet, strangely enough, there are pitifully few foresters who have attempted to enter this field. We can only speculate on the reasons. Possibly too many have been lured by the security of government payrolls. Possibly many have just not been instilled with a faith in the workability of their profession as a business. Probably too many foresters have considered the necessary investments to be too great for their resources.

An exact statement of initial capital requirements cannot be given. As explained in American Forests:<sup>2</sup>

How large must a woodland be before an owner can reasonably expect the practice of good forestry measures to yield profitable returns?...There is no unqualified answer. Success depends not only on the size of the area but on the type of timber, the availability of markets and the costs involved in managing the stand.

There is much to be said about the advisability of foresters buying and managing their own timberlands. The

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<sup>1</sup>Definition according to Filibert Roth, Professor of forestry, University of Michigan, 1903-1923

<sup>2</sup>"Managing Your Woodlands," American Forests LIII (October, 1947) p. 462

author would like to take the liberty of recommending several articles which should be read, not only by men considering commercial forestry, but by every other forester as well. Any attempt to paraphrase from these articles would only detract from the forcefulness of the arguments presented.

These articles are located in recent issues of the Journal of Forestry:

1. Vitas, George. "Every Forester a Timber Owner." Journal of Forestry 45:3-6. 1947
2. Chapman, H. H. "Is Ownership of Forest Land a 'Must' for Foresters?" Journal of Forestry 45:599-600. 1947
3. Vitas, George. "Timber Ownership by Foresters Not a 'Must'--Just Good Business." Journal of Forestry 45:600-602. 1947
4. Starker, T. J. "A Comment." Journal of Forestry 45:602-603. 1947
5. Shirley, Hardy L. "Editorial: Making a Forest Property Pay." Journal of Forestry 45:781-782. 1947

There are a few comments which might be added, however.

Acquisition of forest land may best be obtained on a gradual basis while gaining experience in other employment. Land values are high and the desirability of extensive purchases at this time is doubtful. Normally, one can get good growing land with good stocking as easily as poor growing land with poor stocking.

The Southern Pine Region offers good opportunities for the establishment of a forest property. In that region one can start from bare land and realize from one to two crops in his own lifetime.

It would seem that there could be no greater joy of true accomplishment than that which is derived from the building of one's own business--the building of a forest estate.

## PULPWOOD

The success of a pulpwood operation depends on volume production with a minimum of labor. Experience in actual pulpwood operation, preferably as a common laborer, becomes necessary since even in the simple tasks of cutting and loading there are time saving methods which can be learned only by doing the actual tasks themselves.

There are many opportunities for good, dependable workers to get a start in pulpwood contracting at a minimum capital investment. It is not always necessary to purchase stumpage when beginning and, indeed, is probably not desirable. An operator may begin his cutting operations on the land of some pulp company, and many companies will even advance capital to their contractors for needed equipment, repayment being made on a production basis; i.e., a certain amount per cord or M produced. This allows the contractor to pay off his debts while at the same time earning a profit.

Estimates of necessary capital ranged from \$1,000 to \$5,000 for contractors operating in the South. No estimates or information was received from northern contractors.

The new operator should try to take advantage of every piece of modern equipment possible. Power saws are almost a necessity. With well trained labor and good supervision they have proved their superiority over the one man bow saw.

Since volume production is the key to success the forester must be continually alive to new methods of production

as well as equipment. For example, many operators are reporting lowered costs through tree length logging. The trees are felled and limbed in the woods, hauled to a central point where they are either bucked with power saws or bucked and loaded by a newly developed automatic machine.

It seems to be generally more advisable to hire labor on a group piece work basis rather than on an hourly basis. The men take more interest in their work and are more alert to discovering easier and faster methods of performing their tasks.

A forester contemplating the pulpwood business should contact the wood procurement managers of those pulp mills located in the regions where he wishes to work. Definite advice and information may be received from these men.

The Forester-Manager of the Southern Pulpwood Conservation Association at Atlanta, Georgia, is available for information about southern pulp operations.

As mentioned before, the Forest Service Experiment Stations can be of much assistance to a new operator.

## RETAIL LUMBER

With a careful preliminary investigation and a limited scope of operations at the outset, a forester should be able to enjoy considerable success in the retail lumber business.

A great many small yards have been opened up since the war and in places the competition may be such as to prevent the establishment of a successful business by an inexperienced man. According to Hood,<sup>1</sup> "the authorities of the Veterans Administration believe that as many as six thousand new lumber and building material yards will be started in America in the next three years."

There are several men now in the business who have stated that they believed that there are thousands of small towns in the United States which have no lumber yards at all. In these towns one could start a yard with a small investment and with little or no experience. As one man put it on the questionnaire, the only requirement is "determination and driving force."

The type of market encountered will determine to a large degree the amount of experience and capital which will be needed. A yard located in a big city and catering to building contractors will carry a much larger assortment of materials than a yard in a small town selling to the farm population.

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<sup>1</sup>Arthur A. Hood, "The Consumer Comes to the Lumber Yard," American Lumberman, (April 13, 1946) p. 231.

It has been estimated that \$15,000 and five years of experience would be required for the former type of yard, and \$8,000 with no experience for the latter.

It would seem advisable that a certain amount of experience be gained before attempting to open a yard in any area. A dealer should have some understanding of the problems of his customers and then too, costly mistakes may often be avoided with a little practical experience.

The University of Washington offers a thirty day course for retail lumber dealers which has been estimated to be worth two years of actual experience in a lumber yard.<sup>1</sup> The National Retail Lumber Dealers Association will be able to give the location of any similar courses which may have been recently started by other schools.

This same association and its branch offices is a very valuable source of information for prospective lumber dealers. They are able to give practical advice on specific locations, competition, markets, supply sources for lumber and materials, kinds of lumber to stock and a variety of other questions.

In conclusion, there are two general points which should be remembered by foresters who are going to open retail lumber yards. The first point concerns lumber buying. It is desirable for a small yard to carry a relatively small quantity of a variety of materials. These materials are usually purchased in carload lots and sometimes carloads of a single item carry

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<sup>1</sup>"N.R.L.D.A. Develops Educational Program," American Lumberman, (August 3, 1946) p.50

lower prices than carloads of mixed materials. The new dealer should not attempt to take advantage of these low prices! He will find himself in a better position if he buys the mixed carloads and does not carry an excessive inventory of any one item.

The second point involves what is known as the "Mechanic's Lien." This is a statutory law which is designed to protect one in the sale of labor or materials on a builders credit. It does not apply automatically but requires that the creditor perform in a specified manner. The wording of the law will vary between states and should be carefully checked before any credit is extended.



## OTHER BUSINESSES

Ornamental Nursery

## Recommendations:

1. Capital: \$10,000
2. Experience: 2 years
3. Competition: little

Building Construction

## Recommendations:

1. Capital: \$5,000
2. Experience: 1-5 years
3. Competition: much

Wholesale Lumber

## Recommendations East:

1. Capital: \$5,000
2. Experience: 2 years
3. Competition: little

## Recommendations West:

1. Capital: \$50,000
2. Experience: 3-4 years
3. Competition: not severe enough to prevent establishment if well capitalized

Custom Planting

## Recommendations:

1. Capital: \$750 for planter plus truck, tools, reserve, etc.
2. Experience: none

3. Competition: none

4. Miscellaneous:

a. Planting machine and truck are biggest investments. Planter can be built from plans published by Michigan State College or bought commercially.

b. Tractor to pull planting machine either bought or obtained from farmer for whom working.

c. Many farmers would like plantations or windbreaks but have too much other work during planting season.

d. Custom planting might help develop consulting service.

INDUSTRY NEEDS BY REGIONS<sup>1</sup>West and Northwest

1. Plywood plants (Oregon)<sup>2</sup>
2. Wood waste utilization (Oregon)
3. Contract hauling of lumber and millwork (California)
4. Utilization of minor species (Oregon)

Central States

1. Woodlot management consultants and consultant-forest property operators
2. Wood waste utilization (Illinois, Wisconsin)
3. Utilization of aspen and low grade species (Michigan, Wisconsin)

North East<sup>3</sup>

1. Small dimension manufacturers
2. Custom drying
3. Integrated logging
4. Concentration yards
5. Wood preservation plants
6. Charcoal plants
7. "Milk-route" hauling<sup>4</sup>

<sup>1</sup>Information received from U. S. Forest Experiment Stations and men answering questionnaire.

<sup>2</sup>States are those from which recommendations were received. If no state is mentioned, information received from Forest Experiment Stations.

<sup>3</sup>Recommendations from individual states were also mentioned by Northeastern Forest Experiment Station so no individual states were named.

<sup>4</sup>See Contract Hauling p. 32.

## 8. Portable sawmills

South

1. Pulpwood
2. Utilization of low grade hardwoods (Georgia, Missouri, Florida, Alabama, Tennessee)
3. Contractors to operate in marked timber for poles and logs (South Carolina)
4. Log brokers (Tennessee)
5. Wood preservation plants--if with aggressive selling.

## CONCLUSION

The forestry profession is suffering from an attack of "growing pains"! Though the patient is sometimes apt to feel that the future holds nothing but pain and sorrow, the doctor is confident that the illness is but a prelude to a realization of the broader and brighter horizons lying ahead.

New forestry graduates must not listen to the pessimists of their profession. Certainly, the traditional sources of employment are closing their doors but opportunities are now greater than ever before if one will but open his eyes and look around.

What is forestry? It is a business founded on one of our greatest national resources, the forest. Well, what is a forester then if he is not a man who is trained to manage a forest on a business basis? Is the competition in forest industries such as to prevent foresters from establishing a paying business? Not according to any information that the author could obtain. Rather on the contrary, it seems that opportunities in forest businesses are increasing.

The United States is growing out of its strict view that it is faced with a dangerous timber famine and that it must protect its stands from the woodsman's axe. The attitude is rather that the forests must be cut in order to realize their fullest economic values and that they must <sup>be</sup> cut in such a way as to insure their continued production.

One result of this attitude is an increasing cry for

government regulation of harvesting on private woodlands. Though proper harvesting is undisputedly desirable, it should not be necessary that the country be burdened with the immense bureaucratic organization which would be required to enforce regulation. It is felt that this would only indicate how the forestry profession itself, had failed.

Let us not be deluded by the argument that since the Europeans have had success with regulation, so might we. We do not live in Europe. Our conditions are not even similar. What better American way could we find to bring our modern conservation ideas into reality than by placing trained foresters into the utilization field itself?

Up to the present day our great areas of public timber lands have demanded the abilities of many of our graduating forestry personnel. We have satisfied that demand today. Let us recognize the fact and prepare for the bigger job ahead. Let us prepare to practice our profession as a business!

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