PRACTICAL FORESTRY IN THE COLLEGE CURRICULUM

by

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INTRODUCTION

Forest education in this country is still in its infancy, and from all indications it is experiencing growing pains that are somewhat precocious. The schedule that is superimposed on the student in the forestry school is constructed with the idea of thorough training in the fundamentals of technical forestry. These basic studies are virtually the same as for any other profession.

The students who are fortunate enough to obtain employment upon graduation, rarely experience any difficulty with the technical problems that they are called on to meet. The failures are nearly always directly attributed to some other shortcoming which their technical knowledge will not cover.

There are two schools of thought on what should be included in the forest curriculum. One believes that the schools should prepare a man for leadership in the industry which he is choosing as a life work, with the emphasis entirely on the purely technical problems that he will be called on to solve when he has attained his rightful place in the world. The other school of thought places more importance on the idea of vocational type of training which believes the man should have a working knowledge of
the job that he will be called on to fill while winning his spurs. The preponderance of opinion at the present favors the former.

In this paper the author has endeavored to point out some of the advantages of the practical training idea. It is highly important for the student first to make a forest hand before he can be a good technical forester. If the student is unable to make a good forest hand during his first or second year of employment he may never last long enough to use his technical training. The first impressions are the strongest and those impressions are the ones that we should strive to strengthen.

A feeble effort has been made to obtain information from the men in the field by writing for their opinion. These letters were limited in number. Other sources of information are the works of foresters listed in the bibliography. Consultations with the professors at the Oregon State College have proved a valuable source of information, and their enthusiasm together with their candid observations have been a very definite aid.
CHAPTER I

THE STUDENT'S VIEWPOINT

Many students who enter the forestry schools in this country are students who have worked for the Forest Service and find their upward progress blocked by the lack of technical training and the proper credentials. These credentials include a college degree in forestry and a J. F. rating. Other students who enroll in the forestry schools do not have this previous training and feel at a loss to compete with those who already know what it is all about. There is no effort made at the schools to equip these men with the tools of the trade. If these men are to become proficient guards, loggers, or mill workers, they have to pick up this knowledge on the job during the summer.

Some students are so green that it is almost essential to send some local person along with them to play the role of nursemaid. The author personally witnessed a demonstration of consummate awkwardness during the forest field day held at the Arboretum on the McDonald Forest. A certain graduating senior, who was prominent in the activities of the school, was attempting to fell a large snag, and he had no idea of where to stand when handling a cross-cut saw. If this man happened to be thrown in a
position where this knowledge was essential to getting the job done he would fail miserably. Even if he had been fortunate enough to obtain a job carrying certain administrative or supervisory responsibilities, the lack of this knowledge would certainly lower his prestige with the men he had under him. The author has heard seniors answer questions in such a manner as to cause a man to doubt their validity. For instance, when asked how much hay to feed a horse per day, the answer came back two or three hundred pounds. A few outstanding admissions of ignorance such as these will cause the boss to discredit all his answers. It is my belief that some of these things could be taught in college.

In the forestry schools students are instructed in the arts of administration and supervision, as well as the fundamentals of forest practices, they are equipped to take the supervisor's job or the mill superintendent's job, but the solution of how they are to get up to that job is left to the individual. The schools leave a vacancy there that needs to be filled. A vocational school might be the answer, but it would leave the students with a distinct void as far as the higher arts are concerned. They would then lack the administrative and supervisory training which is now obtained. The bosses, who have to judge a man on his general ability rather than his tech-
nical skill due to the nature of the position filled by the student in temporary work, are the sources of recommendations when students try for their first work of a permanent nature. Imagine their embarrassment if they are rejected on account of one or two of their recommendations, after spending four years in college and having enough "on the ball" to get by subsequent entrance examinations.

The time that is available for a college education is one of the limiting factors which dictate the number of subjects that can be included in the curriculum. There isn't enough time available in a four year course to squeeze in all the things that would be useful. The wisdom of eliminating courses that are on the schedule at the present time in favor of some of these more practical, every-day subjects is doubtful. Perhaps the things to be considered is a five-year course.

Every student, provided that he has the time, also has his financial troubles to smooth out. Either he gets help from home or from some other source or he makes his own way. No matter where it comes from there are certain limitations beyond which it is undesirable to go in obtaining a college education. It costs money to get a college degree and this financial outlay can be broken down into units. For every credit hour received the costs are es-
timated to be about one dollar and twenty-five cents. If the student can get the practical things outside of school and get paid while he is learning them, obviously that is the place to get them. The actual cash expended while in school is also augmented by the cash that would be earned if the student were not in school.

The Forest Service recognizes the lack of practical training in the schools and tries to meet this deficiency by conducting guard schools. Some of the larger lumber and forest products companies also try to put students in the positions where they can pick up the maximum information available. The only trouble is that these attempts at primary instruction are superficial, and inadequate in extreme cases.
CHAPTER II

THE EDUCATOR’S VIEWPOINT

Little effort has been made in this country to develop vocational and semi-professional training in forestry. In contrast to twenty-six institutions which provide collegiate instruction, there are only two in which the lower form of training is available. The New York State College of Forestry, through its Ranger School, and the Pennsylvania State Forest School offer one- and two-year courses, respectively, designed to train men for the subordinate ranks in forestry. (1) Since this book was written the Pennsylvania State Forest School has been abandoned.

The lack of interest in this country in organized programs of study designed to train non-professional workers is due to numerous causes. For one thing, forestry is a new profession, and it has not been possible in the brief span of thirty years to ascertain definitely the grades of personnel which are essential to the most effective management of our forest resources. The traditional feature of providing everyone with an equal opportunity to obtain a college education has discouraged the establishment of the lower levels of training. Perhaps the most important influence in this connection has been the close association of the majority of our forest schools with
ublicly-supported educational institutions, in particular with the land-grant colleges. It has been said that the establishment of the land-grant colleges have had much to do with the elimination of the apprenticeship system. Certainly it has discouraged the development of such a system in forestry. One sure way to cut down the enrollment in the forest schools would be the stiffening of entrance requirements by demanding a year or two of practical experience in the field before entering college. The difficulty which any curtailment of enrollment engenders lies in the fact that the school appropriations are allotted according to the number of students in the school, that is, in the land-grant colleges. With this condition existing there is an incentive for the soliciting of students or at least a deterrent to the discouragement of applicants. For the good of the profession it would be well if the number of students enrolled each year were reduced, before entering forestry rather than after studying four years, preparing for a place that does not exist.

In short, certain elements in the American system of collegiate education have met a requirement which, under another form of education, would have caused the development of an apprenticeship system of a semi-professional type of school. Nor are these relationships all
in the past. They exist today in many sections of the country and explain the reason for general distrust or apathy on the part of forest school educators toward the establishment of a system of lower forest school training. (1)

One of the paramount issues among the forest educators of the present is, "Which is the most important to the individual and to society, to develop foresters who are thinkers or to grind out forest hands?" There are two conflicting general tendencies, which may occur in the same institution: (1) a tendency to substitute some studies in political and general economy for woodworking and blacksmithing; and (2) a tendency to multiply the technological courses by subdivision and thus convert forest education to a superficial process.

Under adult education there are two subdivisions: practical experience in general practice, and practical experience in specialized practice. It is considered a travesty for a man to pose as a specialist until he is quite a bit more worldly than when he left the sheltered halls of academic experience. The first phase of general practice, in either private or public employment, should be a rotating apprenticeship of from one to two years. The second phase should be a general practice, preferably under the direction of an experienced forester, for a
period of from four to six years. (2)

The United States Forest Service for many years, and in increasing degree, has provided summer work for students and rotating apprenticeships for graduates, but often has yielded unduly to the preferences of the student and graduate. According to Sinclair A. Wilson of the Northwest Forest Experiment Station (2) the consummation of this program in institutes of higher learning is fraught with many difficulties. The first problem is how to change the approach of the student from that of becoming a forest hand to that of becoming a forester. The student's interest in preparing for the immediate job rather than for the long haul, a characteristic of youth, has been accentuated by the demand for vocationally-trained men during the depression and the present reconstruction period. This partially explains the perceptibly increased enrollment in the vocational courses as compared with the static or decreased enrollments in the liberal arts.

Note that this viewpoint assumes that the professional forester is also proficient as a forest hand, a corollary which does not necessarily follow.

Wilson in his concluding paragraph states: "Let every student know that if he would lead to the best of his ability he must equip himself with both theory and practice; learn the viewpoint of the laborer he would lead
by working willingly, humbly, sympathetically, and respectfully at his side; learn how to live with and for people." (2)

If the college student is to be able to carry this idea out to its perfection, he must have something practical with which to work. The technical training will direct the practices of the practical forestry.

Some of the forestry schools have summer sessions conducted at forest camps operated by the schools. Every student is required to attend before graduating. In this manner an attempt has been made to meet this practical application of the more or less technical studies. Many useful attributes may be developed in the student through the medium of these campus, that cannot possibly be given in the class room. Another substitute for the camp idea is the location of the school forests in the immediate locality of the school for the purpose of field trips. The latter idea really amount to an outdoor lecture. The supervision is, of necessity, too close for perfect results.

There is another item of significant importance which enters into the education of the technical student, namely, citizenship training. This concept of education looks over the whole field of education and is dynamic in its unique position. One of the most important heritages a
college man could have is his ability to go out into
the world and make a good citizen. It would be a poor
institution indeed that would endorse any changes in its
curriculum which would jeopardize this national asset.

It is commonly said that the future of forestry
depends on the character and efficiency of the forest
schools. This is true provided that a system of education
is developed that is broad enough in scope to include
both professional and vocational training in forestry.
One must look to the higher schools to build up a body
of well-trained professional foresters. The problem of
forest education, however, extends beyond the profession-
al school. The future of forestry is dependent not only
on the ability, vision, and sound judgement of the pro-
fessional foresters, but also on the intelligence and
skill of the men down the line—the superintendents and
the foremen of local forest activities, and the workers
in the woods and in the mills. (3) In applying forestry
there will be a great number of persons engaged in im-
portant activities who should have some knowledge of the
purposes and methods of forestry, but who do not need a
college education. The key to successful work in forest
protection, silviculture, or utilization is oftentimes the
interest, enthusiasm, and the ability of the local field
officer, the ranger, the woods foreman, or logging boss.
The training of these men for their special work in the forestry undertaking is as important as that of the professional forester. The budding forester's duties are often along these lines either directly or indirectly.

Ability to handle men, experience in the woods, knowledge of the region, and some practical training in forestry are essential qualities of success. Men with this combination of qualities have been difficult to find, and the forest Service has had to build up its local organizations largely by recruiting practical men and then giving them their technical training on the job. (3)

This is a condition which still exists, in the local force of a Forest district, below the Ranger's rating. As the jobs become harder to get, and the supply of trained men increases, these positions will be filled more often by men from the colleges. By way of amplification on this subject let us go further into detail. When the student of the professional school graduates and finds the openings very limited where he can immediately make use of his technical training, he is going to seek employment in the lower brackets, where more jobs are available. This is a good argument for a practical training because the graduates of technical schools will be in direct competition with the men who are more or less experienced along this line. The college graduate should
seek jobs of this kind especially if there is a chance to work into a position where his services are very much in demand. This method of attack in the field amounts to a stepping stone. If the graduate has enough "on the ball" to become successful in a position of this nature he will certainly "get the nod" over graduates who are fresh from college without other qualifications.

If men were available who had enough of this practical training who also had the technical training that would make them eligible for increased duties, they would certainly be valuable to any organization. In the long run there will be required more men with practical vocational training than professional foresters with collegiate education. If this is true, would it not be better to impregnate these professionally-trained foresters, who are being turned out by the hundred, with a goodly amount of practical knowledge. This could be done just in case the market for administrators and supervisors is bearish when the graduating student is ready to take his place in industry.

Advancement in employment is usually based on how well responsibilities are performed. It has been stated that a large number of the technical school graduates, at some time during their employment careers, occupy supervisory positions, i. e., as superintendents, foremen, etc.
This is not always true. There are men who are exceptionally good at some job and are held in that place because they are good. This is the exception, however.

Perhaps job analysis is the way to get at the problem in hand. If job analysis is a practical and effective tool for educational development of curricula, no area would appear to offer a more auspicious setting for its use than does that of the technical institution. (4)
CHAPTER III

THE EMPLOYER'S VIEWPOINT

Whether the student is to take up duties with the mill, the woods operations, or with the federal services, the employers will expect and demand that the recruits have a technical knowledge backed up with the practical tricks of the trade. If the student is a wood products major, one of the things that he will have to know is how to figure lumber and do it quickly and accurately; another thing of which he should have some knowledge is industrial terms. It helps a man materially to know the vernacular of his particular field, as with this knowledge he can at least talk intelligently. These favorable characteristics of the wood products men are also applicable to loggers and technical men.

One of the most valuable assets that a man can have in any walk of life is the ability to stand on his own feet. Some men go through life and never learn this valuable lesson, and some of them are forced to learn at a very much later date than others. The men that postpone this until late in life find that the pill is a bitter one indeed. Anything that will help the student to gain the confidence needed to do things that are strange to him, will be building initiative. One way to overcome
this unstable condition is to teach some of the practical things that are more likely to be of use.
SUMMARY

Findings of the Report

One of the outstanding ideas that was expressed in every letter received in answer to inquiries about the place of practical forestry in the college curriculum, was the doubt of the wisdom of teaching the purely practical items inside the walls of the technical institution. It was felt that these matters could be learned better and more cheaply outside during the summers and under actual working conditions. There may be two good reasons for this prevailing idea. One is the fact that the men who are interviewed are the men that have succeeded and hence have gained this practical information in the dark, dim past. It follows that rarely, if at all, would they be interviewed if they had not been able to pick up this desirable characteristic somewhere along the line. Another reason for this phenomenon may be that probably these men have forgotten just where they did get this practical training, or if they did get it in industry they have gained that confidence which tends to minimize the obstacles that would overwhelm one less versed in the practical arts. Whether or not this is true the author will not venture to say, but is it too much to state that the idea has merit?
The preponderance of opinion seems to be in favor of the technical institutions sticking to the things that are technical, and the vocational schools sticking to the subjects that are not of a technical nature. If forest hands are to be turned out the only place for the process is in the vocational schools which are few in number. This opinion is also held by those who would have the students get their practical training outside of the schools. The author has endeavored to point out the fallacies in both of these education features and thinks that he has succeeded.

Conclusions

There is a vacancy in the education field for the forestry institutions to fill. Neither the vocational training schools in the forestry field nor the technical schools completely take care of the demands of the forest industries and the federal services. There is a definite demand for the professional men to have a knowledge of the practical, every-day forest problems and their solutions, which points to a broader practical training. The college graduates in forestry do not start at the top and work down but have to start at the bottom and work up. That statement is not meant to be impertinent but it adequately describes the philosophy of education in the
technical institutions. The job immediately confronting the graduate may be the viewpoint and aim typical of youth, but nevertheless it is the job that will tell whether or not the technical training will ever be used. In short, students need the equipment that they are getting if they are to go far in the field, but they also need to get a grip on the lower rungs of the ladder before that upward progress can start.

There definitely is a place for a limited amount of practical training in the college curriculum of the technical institutions of the country.

Recommendations

Rather than adhere strictly to a definite cleavage between the vocational and the technical schools, would it not be a step in the right direction if a middle course were worked out that would give the student the advantages of both schools. The technical forester should not take up forestry with the idea of being a forest hand as his ultimate goal; on the other hand the author sincerely believes that the graduating forester should not lose sight of the fact that he will have to be a good forest hand before he can become a first-class forester.

There are numerous subjects that are the heritage of the vocational schools, and rightly should remain in
them. Certainly an exhaustive study of such things as internal combustion engines, saw filing, hanging and sharpening of small tools, packing and care of the horse, gasoline lamps, phone set-up and repair, and radio, together with a knowledge of wiring, plumbing, forest structures, cement mixtures, and industrial terms, would take more time than any student could afford to spend and the value of intensive study along these lines is doubtful. If, however, a smattering of these subjects could be taught in a general course or two I believe there would be a rise in the value of the graduates to the men in the field. It would tend to eliminate the prejudices of some of our eminent predecessors.

Perhaps a course along this line could be sandwiched into the regular curriculum, maybe it would necessitate a fifth year. The five-year course is rapidly becoming a probability.

There is a possibility of working some of this subject matter into a lab in conjunction with General Forestry. Another possible solution might be the creation of a new course especially designed to initiate the embryo foresters into the field of practical forestry. This type of course might be either required or optional. If it were required a great number of students would be forced to take it who would dislike the idea very much; if
it were made optional the author believes it could be attractive enough to take in the majority of the students who would benefit from such a course. The attraction of a course along this line could be enhanced by a title which would create the idea in a student's mind that "here is the course to take if I want summer work."

If it is possible to find a place in the school, as it is set up at the present, for these things, we are immediately faced with the problem of how many hours to allow for the course and what subject would have to be sacrificed to make room for it. These problems will have to be worked out by the administrators of the technical schools.

One item that could be worked out along this line would be to get the different equipment companies to demonstrate the merits of their respective machines, and to give some elementary instructions for their care and maintenance. Perhaps this type of information would also be useful to those few individuals who attain administrative positions, for they could at least tell whether the men under them were abusing their equipment.

Mr. A. Whisnant of the Pacific Logging Congress has given the loggers at the school (Oregon State College) an idea, and is now working on the proposition, that would enable graduate students to get some practical training
before entering industry.

Mr. Whisnant thinks the graduates could be given an opportunity to work in a going mill and forest operation entirely owned and operated by students.

The idea is as follows: to have enough O and C lands set aside to maintain a mill of 50 M or 75 M capacity on a sustained yield basis. Obtain a mill that is about to go under and place it on the area. This would eliminate the feature of increasing any oversupply of lumber. The manager could be a full-time man. The students would only be allowed to work for one or two years before moving on to make room for the men coming out of school. Nobody but students would be allowed to work in the mill and the pay would be comparable to the going wages of the industry. A chapter of one of the unions could be organized at the mill which would eliminate trouble from that source, etc. Of course there are many difficulties which would have to be ironed out.

This plan would give men an opportunity to get valuable experience in a going concern—something it is extremely difficult to get under ordinary circumstances.

Perhaps the ideas expressed in this paper smack of adolescence, and may be interpreted as the raucous railing of youth; but unless the education of foresters has become a static institution of perfection, wrapped smug-
ly in its own idealism, the author believes that this report will find many attentive, if not sympathetic, ears.
LITERATURE CITED


