

NONCONVENTIONAL JOB OPPORTUNITIES FOR WOOD SCIENCE AND TECHNOLOGY STUDENTS OR WOOD CHIPS FOR A CHALLENGE

Dean W. Huber

Forest Products Utilization Specialist
U.S. Forest Service, San Francisco, CA 94804

(Received 25 June 1978)

To quote an old cliché, "To be or not to be, that is the question." For our purpose, the question relates to educational training of students in wood science and technology (WST). Specifically speaking, to be or not to be prepared for the labor market of 1985 and beyond. According to Bureau of Labor Statistics as reported by Main (1977),

College graduates—some 2.7 million out of a total of 10 million between now and 1985—will not get the sort of jobs the college graduates usually get.

Is this the plight of WST students? James Deitz (in Pixa, 1978), president of Heald College in San Francisco, states another statistic: ". . . from now to 1990, fewer than 20 percent of the jobs will require a college degree." So what are the future opportunities of WST students?

I contend that for professionals with knowledge in wood properties, products, and production, the future has never looked more active, the opportunities more unlimited, the responsibilities more challenging, or the challenges more respondable. Our future is GR-R-R-EAT (to quote Tony the Tiger) if our educational programs accept the challenge and respond to employment needs of the future.

THE PAST

Our profession is in its adolescent years. We have come through the toddler stage of realizing that wood is variable in all of its characteristics. Our puberty stage saw maturation in basic knowledge of wood technology. And now we look toward the future with gusto—like a teenager with pimples—ready to accept a new challenge.

How will this challenge differ from the past? What new training will be required? Will there be new job opportunities for wood science and technology students?

These questions are not new (nor should they be). At the national meeting of SWST in 1966, A. S. Gregory (1966) acknowledged that:

Many members of SWST are research-oriented and have a tendency to think only in terms of research and development.

However, most of his presentation centered around the fact that:

. . . as far as job opportunities are concerned, there are many more openings—for WST outside of this area than there are within it.

In concise detail, Gregory discussed the opportunities that existed in marketing, sales, production, management, and administration. A close reading of Gregory's

comments indicates that these jobs exist for the person who knows his or her profession and is able to produce results.

Similar concerns for profession and performance were expressed by R. H. Collins (1967):

The problem does not seem to be the quality of wood science and technology courses *per se*. The problem seems to lie in the areas of education that support these programs. We have forest products economists who lack basic abilities to forecast economic trends, wood products engineers without basic training in mechanics and dynamics, forest products marketing men who lack training in the basics of media selection and physical distribution analysis, and wood processing men who cannot conduct a simple time-and-motion study.

The curricula simply does not require the depth necessary.

I cite these two references from a decade ago because they are interesting to compare with the discussions of our 1978 national SWST meeting as contained in these proceedings. The status of WST employment is discussed by Barnes, while Atherton discusses how well our students are prepared for their professional career. Guthrie reiterated the need for adequate training to produce competent professionals who are results-oriented.

Have times changed and the needs become more acute? What about nonconventional employment opportunities outside the forest products industry? Certainly they too will require adequate training for proficiency and performance. The key to the future of WST may depend upon its goal: a degree that is not employable or education that meets and competes in the employment markets.

MARKET CONDITIONS FOR EMPLOYMENT

Employment opportunities and career ladders are directly related to the growth of the profession. In contrast, the worst condition is little or no growth coupled with an overabundance of job seekers. We see the existence of this in our sibling profession—the foresters. Only about one in three college-trained foresters with a B.S. degree is finding employment (Carter 1977). This peril was recognized by Main (1977) who rated forestry as a profession with problems. He gave it a score of -9 , while other professions ranged from -14 to $+31$.

This plight of our foresters has resulted from the western timber supply reaching the status of a raw material shortage. Consequently, we see mills closing down or combining to consolidate. Projected trends for western lumber and plywood production are steady at best and will be downward by the late 1970's (Gedney et al., 1975). Does this imply a concurrent decline of employment in other technical and scientific personnel such as those trained in WST?

As this transition occurs, what new markets can we create for WST to buffer the cyclic changes of a single industry employment?

THE FUTURE

Our future is a function of the past and a product of the present. To the chagrin of many, more technology of wood has been researched and reported than has been applied. (Most graduate student libraries are full of old dusty reports.) It is this storehouse of technology that is our past. We are indebted to its development

for through it, we can begin to meet our future as a product of the present. That product is the result of reality in the business world.

- A. Law and product liability raise the question: Is wood good?
- B. Labor relations and personnel management raise the following questions:
 - 1. What is a lumberjack?
 - 2. What is a professional?
- C. Severe competition in tight financial markets poses the following question: Does money grow on trees or in them?
- D. As wood enters its age of raw material shortage, one ponders the difference between renewable resources and resource reserves.

Hark! And pay heed! For within these tantalizing questions from industry, we hear the rephrasing of several familiar cliches. And between the lines, we get glimpses of new and nonconventional job opportunities. These opportunities will dictate the detail training required to supplement WST curriculum and occupation.

NEW OPPORTUNITIES

1. The medical profession started a new era with its paramedic program. The legal profession has followed with a similar paralegal aid. Why not us? Numerous law firms do a significant part of their business within the wood products industry. Yet they service us via indirect technical knowledge. Both the law and the technology of wood are complex. What additional employment could be opened for wood science and technology students with a strong minor in law? Do we really expect a lawyer to understand shrinking and swelling of wood as explained at the microfibril level; or, an invoice error that confused 2 & Btr with 2 Shop & Btr? Yes, "wood is good" and wood science and technology can maintain its esteem by providing technical support to the legal profession.
2. Tell me please, is there a difference between a lumberjack and a professional? To paraphrase the question, can a professional be a practitioner? Questions of this type are being evaluated by societies such as SWST, by labor unions, by personnel managers, and by labor relations negotiators. But how many of our curriculums even touch the subject of people management? I submit to you that a very fruitful opportunity exists in our industry to train some wood science students in people management. Who else is better equipped to understand the problems of a dry kiln operator trying to produce KD quality lumber when his management will not provide maintenance; or the irritability of a grade cutting sawyer who is given cull logs; or a saw filer who doesn't understand the technology of hertz readings and 4th nodal diameter? Wood technology students know the "story behind the story" of these pressures and frustrations. If trained in labor relations, they could provide a real service to our industry.
3. Now be honest with me. Have you ever seen money grow on trees? If it did, every banker would have a tree in his office. But, a good mill man knows how to get extra lumber recovery from a tree—and this increased recovery converts directly to money. The problem is often capital availability and the severe competition for it. We have reached the asymptotic part of a curve that relates

lumber recovery to dollar investment. A simple stud mill with 4-saw scragg and edger costs \$50–75,000 and may have a lumber recovery of 7 to 8 board feet per cubic foot of log. A 25% increase in recovery may require a 250% increase in capital. And a 35% increase in recovery may require a \$2½ MM investment in computerized sawing. (I'll let you calculate the percent increase in capital.) This type of expenditure is real banker's talk because it is high finance. But how many banks and/or loan institutions have the professional support of wood technologists? While a class in general accounting does not fill the need, a B.S. in Wood Science and Technology with an M.B.A. graduate degree is the other extreme. Can we design an improved middle level curriculum for students interested in business, banking, and finance?

4. Many people confuse resource reserves with renewable resources. Liquidation of old growth stands is using up our resources reserves and has one style of economy. A different type of economy exists in the replacement costs of renewable resources. This change in economy follows through to the processing line and product mix. The tendency is to use historical cost data that may not be current or relevant. Here we see a potential market for wood science and technology students with industrial engineering and operations research experience. Both recovery and efficiency will be essential to industrial survival.

IN CONCLUSION—YES

Are these ideas in a world of make-believe? Like a Barnum and Bailey Show? No! I think these are very valid ideas to ponder and explore. Our profession has an opportunity to apply itself and recognize new employment opportunities. What value is there in being professionals and knowing everything about something we can do nothing with? Our historical past has not changed. But our future will certainly be expanded if we can answer *yes* when someone asks if we are prepared: "to be or not to be?"

We have met the enemy—I hope he is not us.

REFERENCES

- CARTER, M. C. 1977. Supply and demand statistics in brief. *J. For.* 75(3):123–124.
- COLLINS, R. H. 1967. Today's graduate looks at wood technology. *SWST Log.* July.
- GEDNEY, D. R., D. OSWALD, AND R. FIGHT. 1975. Two projections of timber supply in the Pacific Coast states. USDA Forest Serv. Res. Bull. PNW-60. 40 pp.
- GREGORY, A. S. 1966. Present and future supply and demand for wood scientists and technologists. *SWST Log.* September.
- MAIN, J. 1977. Careers for the 1980's: 10 of the best—and 10 of the worst. *Money* 6(11):62–69.
- PIXA, B. 1978. When the goal is a job, not a degree. *San Francisco Examiner*, August 14, 1978: p. 23, col. 1, 2, and 3.