

CONTINUING EDUCATION—THE ANTIDOTE FOR PROFESSIONAL OBSOLESCENCE¹

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One of the problems confronting wood scientists, professional wood technologists, and foresters is revealed when young and inevitably inexperienced graduates, possessed of new knowledge relevant to the work they may be expected to perform, are unable to mesh their efforts with some managers whose own training is, at best, more than a generation old. This situation is not peculiar to the forest industries, however; it is merely a manifestation of the same general problem in engineering and other professions and so aptly pointed up by Chamberlain:

The older a man grows the less professionally adequate he becomes. For a period, perhaps an extended period, he may compensate for this obsolescence of his professional capital by the experience he acquires on his job. As a specialized researcher . . . , he may come to know more and more about his subject. As an administrator, he may acquire skills in dealing with other professionals. As a teacher, he may develop competence in imparting knowledge to students. But the odds are yearly becoming greater that at some point in his career, while he is still in his prime, the subject he has researched, or the functions which he administers, or the body of knowledge he has to teach will have changed so greatly that his lack of current professional competence will stand revealed.²

Chamberlain goes on to comment:

It takes no special insight to spotlight our educational processes and philosophy as the major cause of the sputter in our social engine. We are still operating as though a person can acquire in the first twenty [or twenty-five] years . . . of his life all the formal education he needs to keep him on an ascending career line through the remaining forty years or so of his working life. But the fact is that the clock starts running down the moment a young man . . . steps from the commencement platform, be it college [or technical school] or high school.

¹ Based on a paper presented at the annual meeting of the Society of Wood Science and Technology at Washington, D. C., June 23, 1968.

² Neil W. Chamberlain, "Retooling the Mind," *The Atlantic*, September, 1964. (Reprinted as Leaflet No. 14 of the American Alumni Council.)

The fact that older people are comparatively at a disadvantage does not mean that their services can be dispensed with. Rather it points up the crying need for what Chamberlain has termed "retooling the mind"—a process requiring effective forms of continuing education. Notable among these is the opportunity for professionals "to renew their formal education repeatedly, perhaps at intervals of three to five years" along the lines of their changing responsibilities.

This kind of repeated formal discipline of continuing education will be especially valuable to our [faculties]. The teacher at age forty or fifty usually suffers the same kind of obsolescence of knowledge as any other professional person. If we are to disseminate more rapidly [and effectively] the fruits of new knowledge, we should do our best to ensure that [the older as well as] younger instructors are adequately equipped. . . . If our teachers are to be given tenure [throughout their active careers], do they not have an obligation of lifetime updating of the instruction which they pass along to our youth?

It has been said of the practicing graduate engineer that not only will half of what he has learned in the university be obsolete in a decade or less, but that half of what he will need to know ten years from now is not even available to him today. Surely, in the present state of wood science and technology, what has been said of the engineer is no less true of those in our profession. What may be different about the world of the wood scientist is simply the greater insensitivity to the problem that seems to pervade the thinking of some of the less perceptive industry decision-makers who in a sense direct the destinies of the scientists and other professionals they employ.

In highlighting the adult-career problem in today's world, I do not intend to minimize the importance of improving basic undergraduate education in our field and making the most effective use of what are, after all, the best years of life for systematic learning and mental development. While

reviewing some of the literature about the education of wood scientists, I was attracted to Alan Marra's article on "Xylotonics—One More Option," which appeared in the June, 1967 issue of the SWST Log. What impressed me were the writer's comments about a shift in the basic needs of the forest industries and attendant educational prerequisites, both of which have long been concerned with "the traditional fulcrum of wood properties and processes characterizing many conventional programs." And here I quote briefly:

Without forgetting that the *status quo* is the bread and butter of the present which must be served if there is to be a future, it must be realized that many curricula inevitably produce relatively narrow specialists, even though they come out of what we believe to be an incredibly broad spectrum of basic and practical disciplines. Unfortunately, this narrowness deepens further in practice, due to the pressure of new knowledge which continually impinges upon one's competitive performance.

Much is owed the *status quo* specialists for their contributions to making forest products a paying proposition. However, it would be over-extending good fortune to hope that they could also innovate the field into the cybernetic, jet-propelled future. A somewhat different breed is needed here; people with enduring or renewable breadth far beyond what we feel instinctively it is possible to produce. Already we are having trouble producing the breadth necessary for the narrow specialist. How can we hope to embed in a single mind a workable quantity of an even larger number of technologies so as to induce a 'critical mass' effect necessary to permit generation of new concepts in wood utilization?

. . . By regarding the present science and technology as a point of departure rather than a professional destination, it should be possible to introduce efficiencies into the educational process which will make time for broadening.

This reference of Marra's to the background preparation of the wood scientist brings to the fore the entire question of the educational experience to which we subject our professional neophytes. University administrators and educators in general, with their avowed concern for what they consider the proper role of the liberal arts and humanities in professional education, have become increasingly critical of the precisely job-oriented undergraduate curricula which have evolved over the years in engineering,

forestry, and comparable professional fields. These critics contend that our science-and-engineering-oriented professional schools are so imbued with the significance of the wide-ranging scientific and associated technological advances of this day and age that they are not facing up squarely to the equally compelling necessity for understanding present-day and impending socio-economic and even political developments which will largely dictate the future course of events in all professions. Surely, the wood science and technology programs, with their marked concentration on the technical, applied-science aspects of instruction, are susceptible to this same general criticism.

The on-the-job failures of professional foresters and wood scientists in the past have seldom been for lack of technical competence. Rather the inadequacies are much more often related to: lack of ability to communicate effectively; lack of understanding of human behavior and the consequent inability to work effectively with other people; lack of imagination and of capacity to adapt to change; unwillingness to assume enlarged responsibilities because of feelings of inadequacy; and lack of understanding of basic business principles. To a large degree, these are all deficiencies which can be strongly influenced by the educational experience of the professional, particularly at the undergraduate level.

I have a strong conviction that today's task of preparing undergraduates for professional careers establishes so strong a case for a well-rounded general education that significant specialized training in any real depth is far better left to the more appropriate environment of graduate study. Pre-supposing that the undergraduate program has provided an adequate scientific, mathematical, and economic base, such advanced study can be much more effectively designed than any undergraduate experience to provide the quality and degree of specialization needed in today's and tomorrow's professional arena. Such a broad-based general education background, well rooted in the pertinent natural and social sciences

and humanities, may also be the keystone in the arch of later-life exposure to continuing education.

But to return to the primary subject of continuing education, the antidote for professional obsolescence. Three major ingredients are involved: the practitioner himself, the employer, and the program for providing the necessary educational experience.

The wood scientist or professional technologist, as an employee, has three hurdles to clear if he is to remain competitive throughout his career. These relate to his *perceptiveness* in recognizing his further educational needs before the problem assumes insurmountable heights, to his *initiative* in seeking out effective ways and means for gaining the requisite knowledge, and to his *perseverance* in pursuing his objective at whatever intervals and costs may be indicated. Conceiving the need for continuing education may not be so difficult, especially after an obvious defeat in competition for a desired promotion or a more challenging job assignment, or upon realization of inability to comprehend the full context of publications or talks in one's special field of interest. Likewise, with the mounting attention being devoted to planning and activating continuing education programs, it will become increasingly easy to find suitable offerings. Undoubtedly the most difficult aspect will be the acceptance of a lifetime commitment to learning. There will surely be a significant dropout problem in the area of continuing education, as one person after another gives up the struggle to extend the reach of his mind. Learning is hard work and the absorption of knowledge is sufficiently demanding for many well-intentioned people to find it distasteful. Naturally, this is apt to be increasingly so with advancing years, and the one spur to action may well be the competitive urge to maintain position and professional recognition—to save face, if you will.

One of the potential roadblocks to the effective use of continuing education is apt to be the attitude of those employers who give little or no encouragement to the self

improvement of professional members of their staffs when this may involve some temporary loss of service or even a limited expense to the organization. The support given to continuing education by enlightened executives has been outstanding in some fields which are notable both for the inservice programs that have been established and the extent to which professional and administrative personnel are encouraged to make use of educational leaves. Already well-established and of proven value in some industries and private businesses, the "mid-career" educational program is also becoming a must in many of the larger public organizations. Unfortunately, with notable exceptions, the wood-based industries have lagged behind in this respect, as a consequence of administrative indifference and the limited size and scope of many of the concerns being served by wood scientists and technologists.

Now for the third ingredient in the continuing education complex—the program. Recognition of the projected obsolescence of much of our present specialized knowledge and the resultant need for repeated updating of the practicing wood scientist's scope and detail of understanding has been given by the Society of Wood Science and Technology, notably by the establishment in 1964 of its permanent Committee on Membership Services. It is not my intent to discuss the role and program of this committee relating to continuing education. Rather I want to indicate what I conceive to be the responsibilities of the forestry schools and allied academic departments in this situation. The potential role of these institutions seems crystal clear, for they are unique in their capacity for providing the formal instruction, informal guidance, and allied facilities needed for continuing professional and scientific education in appropriate fields. Some progress has already been made in this area, through various seminars and other types of professionally oriented short-term instruction being offered by many schools. But these represent only a limited start toward meeting the real need.

To some degree, the desired results can

be obtained through study for an advanced degree, but such procedure is too time-consuming or otherwise unfeasible for most practitioners. A more reasonable solution appears to lie in the establishment of non-degree programs specifically tailored to the needs of wood scientists and technologists. These might well take the form of coordinated series of one- and two-week seminars and other forms of short-term instruction held at strategic intervals throughout the year; or they might be month-, semester-, or even year-long resident programs involving flexible course and conference-type combinations, with the student relatively free to pick and choose his activities with such faculty guidance as necessary. Such procedure would require more than passing attention on the part of the faculty and place a special responsibility on some instructors. But the benefits to the participating students and instructors alike, and the educational prestige for the institution, would be far greater than any burden such activity

might impose. There is a rare opportunity for effective educational service, the real significance of which as yet appears to be only dimly perceived by many university administrators and faculty members.

Increasing recognition is being given to the fact that in wood science and technology, as in all professions and all fields of specialization, regardless of the original (undergraduate and graduate) preparation, there is primary need for continuing education throughout one's active career. Learning, once regarded as a prelude to adult life, is increasingly coming to be regarded instead as a life-long process, with every man engaged in a career race between his obsolescence and his retirement. Success will come to those who have the perception to identify the problem, the determination to seek appropriate ways and means of resolving it, and the ambition and mental stamina to "see it through" to its final satisfactory conclusion.

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