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ABSTRACT

This paper argues for an increased role and the importance of higher education in the continuing professionalization of fire service. The article opens by describing the development of higher education in fire service that began with a 1966 Wingspread conference for fire service leaders where a three tiered model and seven content areas were defined. A second Wingspread conference in 1976 evaluated progress in higher education and professionalism for fire service and revised the model to include a private-sector path and graduate education. The next section discusses the similarities and differences between fire and police education noting that to the extent that law enforcement is a profession it is to some degree due to its association with the legal profession. The next section describes central concepts associated with graduate schools and degrees: discrete discipline, research, and body of knowledge. Each of these, the article argues, could be applied to fire service as a graduate discipline. A final section, addressed to fire service members directly, discusses making choices for professional development through additional professional education. (JB)

Higher education and fire service professionalism

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National Fire Academy
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As a fire chief, you represent the pinnacle of fire service professionalism, but your five bugles are only as strong as the higher education infrastructure that supports them. If the fire service is to survive and prosper in the next century, fire chiefs must lead the way by recognizing higher education's importance for their profession and for themselves.

The importance of higher education to the fire service is not new. In 1966, at the first Wingspread conference, fire service leaders stated that "professional status begins with education." They explained that higher education identifies a systematic body of knowledge, sets standards of conduct, helps the advancement and dissemination of knowledge, and identifies minimum standards.

At the first Wingspread conference, the means of achieving professional education were mapped out in a three-tiered educational model. The first step was for firefighters from probationary to craftsman, who would be trained and educated through extension courses and vocational schools. At the second step, junior officers and technicians were trained at the associate-degree level by technical institutions. Finally, chief officers and fire executives would go to baccalaureate programs at universities. (Figure 1)

The Wingspread group identified seven content areas in which the academic community could help meet the fire service's educational needs:

- First, mastery of the scientific method, because true professions are based on scientifically sound theoretical and empirical foundations.
- Second, an understanding of human relations, which leads to
- content areas three and four, effective communications and organizational skills.
- The ability to concentrate while still maintaining an open and flexible mind were the fifth and sixth areas identified.
- Finally, the conference noted, professionals have to keep learning, on and off the job.

The educational model and content areas were identified because the leaders believed that "A systematic and deliberate educational program leading to a broad knowledge base which is acceptable to the academic community is the surest approach to professionalization."

Held in 1976, Wingspread II evaluated fire service progress in higher education this way: "The development of fire service educational programs in the U.S. over the past 10 years has been nonsystematic and nondirectional. It is the responsibility of the educational community to sensitize itself to the needs and prepare students systematically to meet those needs."

Wingspread II also developed an educational model. The two major changes were the inclusion of a private-sector path for the fire protection engineering community and the inclusion of graduate school educa-

Figure 1 — Wingspread I fire service education model, 1966

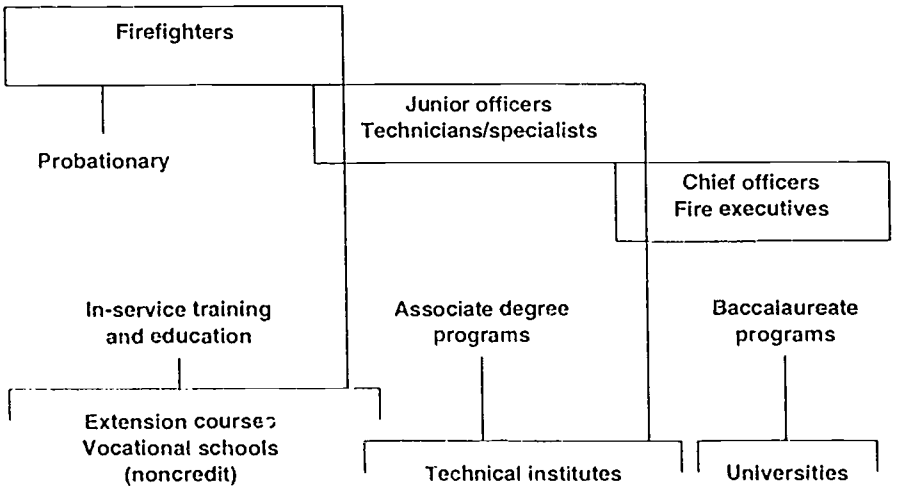
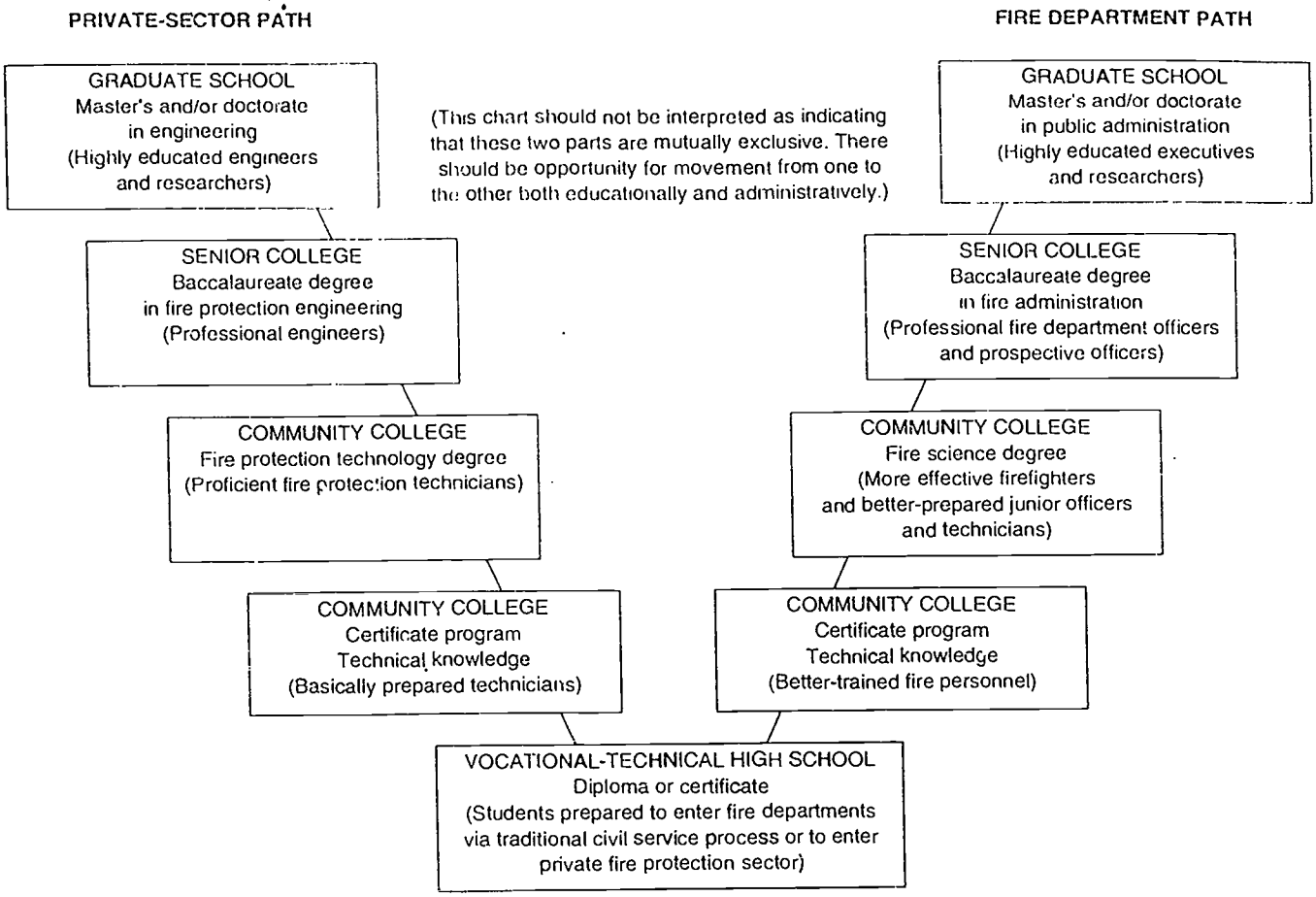


Figure 2 — Wingspread II fire service education model, 1976



tion at both the master's and doctoral degree levels. (Figure 2)

Another important aspect of this model is the identification of a discrete discipline, or content area, at each academic level. At the community college level, fire protection technology and fire science are listed. At the senior college level, baccalaureate degrees in fire protection engineering and fire administration are listed. Finally, at the graduate school level the concept of fire is dropped out, and engineering and public administration are identified.

The most recent conference, Wingspread III in 1986, did not address higher education. The only relevant statement they made was "professional development in the fire service has made significant strides, but improvement is still needed."

Fire vs. police education

The attendees at Wingspread I and II clearly understood the importance of higher education if the fire service is ever to achieve professional status. To illustrate the correlation of higher education to professionalism, we can compare the fire service to the police service.

There are more than 1,100 associate degree programs related to the police service, compared to 314 fire service programs. At the baccalaureate degree level, there are 36 fire programs and 648 police programs. At the master's degree level, there are four fire and 130 police programs. Finally, at the doctoral level there are 19 police programs and just one fire program. (Figure 3)

> We have been training-oriented, from the bottom up, with an experiential/consensus knowledge base. What we need to become is education-oriented, from the top down, with a research/science knowledge base.

Higher education for the police service clearly outweighs the fire service at all levels. But the most striking difference is at the graduate school level, where the fire service as a discipline is almost nonexistent. Even the Wingspread I and II groups did not consider fire science a discipline to be studied at the graduate school level.

To the extent that law enforcement is more of a profession than the fire service, it is so largely because of its inherently close association with the legal profession. Similarly, EMS providers, both within and outside the fire service, are driven to greater professionalism through constant contact with highly educated medical professionals.

The importance of postgraduate education to a profession is clear when the purpose of such programs is understood. Lucht describes the purpose of such programs as follows:

"Master's programs, offering graduate degrees in the discrete discipline, training practitioners for the job market and in preparation for doctoral work. Graduate students also serve as a pool of workers to

help professors with their teaching and research, contributing to the body of knowledge.

Doctoral programs, offering degrees in the discrete discipline; preparing highly specialized expertise for industry and creating a pipeline of qualified personnel to serve as faculty; doctoral students also help professors with their teaching and research, making major contributions to the body of knowledge.

College and university faculty, with doctoral degrees in the discrete discipline, teaching future practitioners, driving important research to add to the body of knowledge and writing definitive textbooks."

The three central concepts associated with graduate schools and degrees are discrete discipline, research and body of knowledge.

Discrete discipline

When an area or subject matter content is identified and used almost exclusively by practitioners of that subject area, it becomes a discrete discipline. For example, accounting, engineering, law and medicine are discrete disciplines.

The argument can be made that the fire service does not constitute a discrete discipline, because it uses other disciplines to practice its art and science. The fire service uses engineering, law, management, medicine, education, political science, chemistry and physics, all of which are themselves discrete disciplines. The fire service practices these disciplines under unusual conditions and in unique environments, however, which in many cases changes the fundamental theoretical foundations of these disciplines, or at the very least affects the empirical research results.

For example, the fire service is the only occupation that regularly employs personnel on a 24-hour shift and has them sleep on the job. Sleeping on the job does not fit into standard economic or personnel formulas. Neither does the fact that about 80% of fire suppression service is conducted by volunteer personnel.

Even the concepts of chemistry and physics change when removed from the controlled environment of the laboratory to the uncontrolled environment of emergency operations.

Research

If you don't accept the argument that the fire service is a discrete discipline, you must realize how lacking fire service research is. Graduate schools conduct and sponsor the research that builds the body of knowledge the practitioner uses.

Figure 3 — Police vs. fire: Number of degree programs offered

Discipline	Associate	Bachelor	Master	Doctorate
Law enforcement/criminology	1,141	648	130	19
Fire science	314	28		
Fire protection engineering		8	4	1

Again, we can compare fire and police. In 1992 there were 196 doctoral dissertations that related to the police service, but only five dealing with the fire service were conducted. Dissertation Abstracts, the national database for doctoral research, does not identify fire as one of its 248 subject areas, though criminology and penology are listed.

(Some of the more esoteric subjects include cinema, home economics and folklore. There are nine master's degree programs and five doctoral programs in folklore, and 85 dissertations were classified under folklore in 1992.)

The importance of research to the fire service was acknowledged by the Wingspread II group when they identified one of the products of graduate schools to be highly educated researchers. Wingspread I identified the "mastery of the scientific method" as the fire service's first educational need.

Body of knowledge

A discipline's scientific research is what generates its body of knowledge. The body of knowledge for the fire service can be found in its literature: books, journals, manuals, standards, and educational and training materials.

Much of the fire service's body of knowledge is based on consensus and experience, neither of which is considered a scientifically sound methodology.

The quantity and quality of the literature a discipline is based on also serves as a measure of its professionalism. A comparison of fire and police periodicals illustrates the difference.

Ulrich's periodicals directory lists 220 periodicals under criminology and law enforcement published in the United States, compared to 55 under fire prevention. In addition, only one fire periodical was listed as being a "refereed serial," compared to 20 "refereed serials" for criminology and law enforcement. Refereed serials (journals) are considered more scientifically sound, because the material is reviewed and approved by a panel of judges before publication.

Higher education and you

Professionalism is complicated, but the fire service becoming a professional occupation doesn't mean that every fire chief needs a Ph.D. Few police chiefs have doctorates.

Much of the fire service's body of knowledge is based on consensus and experience, neither of which is considered a scientifically sound methodology.

The fire service profession's needs are identical to what Lucht said is needed for the fire protection engineering profession: "A permanent academic infrastructure must be put in place to train practitioners, perform research, and produce advanced scholars of the next generation. This includes strengthening existing programs and expanding the family of curricula at the BS, MS, and Ph.D. level."

So what does all this have to do with you? Hopefully your professional development has not stopped because you have five bugles. Many of you already have bachelor's degrees and some of you hold master's degrees. If an opportunity for continued graduate study and research were made available, some of you would take advantage of it.

Once a fire science academic infrastructure is in place, more people will choose teaching and research as their career path. I believe there is enough funding from the insurance, apparatus and equipment industries and from other philanthropic sources to sup-

port fire service higher education.

If you don't want to go to school any more, and doing research does not sound like fun, the results will still be valuable to you. If you had scientific research to show why you need an automatic defibrillator on each engine, your chances of getting them would be greatly increased. If we investigated each firefighter death as completely as we investigate each airplane crash, the research would save lives.

Finally, these concepts apply to you because fire chiefs are the cultural leaders of the fire service. As a discipline, in the 20th century, we have been training-oriented, from the bottom up, with an experiential/consensus knowledge base. What we need to become, for the 21st century, is education-oriented, from the top down, with a research/science knowledge base.

If you, the fire service leaders of today, believe and say that higher education and research are important, they will become important and the systems will be created. In the meantime, maybe your next firefighter of the year award will go to a member who has conducted an outstanding research project.

In 1861, Yale University awarded the first Ph.D. degrees in this country to Eugene Schuyles, James Morris Whiton and Arthur Williams Wright. In the year 2000, who will be the first students to receive their Ph.D.s in fire science, and from what school will they graduate? FC

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