

Reviewing Environmental Health Education in the United Kingdom: A Month-Long Sabbatical

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Abstract

Between May 11 and June 8, 1998, the author examined seven undergraduate environmental health programs in England, Ireland, Northern Ireland, and Scotland. This opportunity was provided by the NEHA/Chartered Institute of Environmental Health Sabbatical Exchange Program, funded by NSF International. The author visited programs at both large and small universities, two health departments, and the seat of city government in Belfast. The focus was the academic programs that educate environmental health officers in the United Kingdom and the Republic of Ireland, the U.K. approach to preparing students for environmental health practice, and their general educational preparation. A philosophy and system have been developed that lead students from the classroom to the workplace. Although the programs are housed in institutions that vary from small regional universities to a world-renowned research university, all graduates of the U.K. system possess a common body of knowledge. The author's interactions with faculty and environmental health professionals in the United Kingdom have prompted the realization that changes in the U.S. system are imperative if we are to advance as a profession.

The Tour

My experiences as an environmental health professional and educator have spanned 21

years in the Commissioned Corps of the U.S. Public Health Service and eight years teaching in undergraduate environmental health

science programs. Because of these experiences, it has long been my desire to learn about academic environmental health programs in other countries. The NEHA/Chartered Institute of Environmental Health (CIEH) Sabbatical Exchange Program, funded by NSF International, Inc., gave me the opportunity to fulfill that desire by spending four weeks in the United Kingdom, visiting with and learning from environmental health faculty in England, Ireland, Northern Ireland, and Scotland.

King's College and Oxford

When my wife and I arrived at Gatwick Airport, we were greeted by one of our primary hosts and contacts, Norman Parkinson, director of the Environmental Health Program at King's College, London. We spent our first week in Blackheath, a suburban area of London, talking to our host about the program and facilities at King's College. As Norman guided us through the main King's College campus in downtown London, I observed a marble plaque commemorating a famous former faculty member, Sir Joseph Lister. Lister was a pioneer in aseptic surgical technique, noted for introducing misting

carbolic acid into the operating theater. That innovation reduced the potential for infections and ultimately increased the probability that patients would survive surgery.

We also had the opportunity to visit with staff members of the Royal Borough of Kensington and Chelsea Environmental Health Services. We took a walking tour of the borough and met with Guy Dennington, special projects team manager for Kensington and Chelsea.

In London we traveled by subway, better known as "the Tube." Travel in and out of London was best accomplished with the local train service, which runs frequently to suburban areas.

From London, we headed north for Oxford, where our hosts were Mike and Ann Dooley. Ann is an environmental health officer (EHO) with the Oxford Health Authority and a previous winner of the NEHA/CIEH Sabbatical Award. Because she received her environmental health education in her homeland, the Republic of Ireland, our discussion provided me with yet another perspective on the practice of environmental health.

During a luncheon in Oxford, I learned that EHOs are responsible in many jurisdictions for investigating noise complaints with the police. The EHO is on call for this duty and may be required to confiscate noise-making devices such as stereo equipment. That is a duty I hope does not become routine in the United States!

Next, we traveled to Manchester, where we were met by another primary contact, Eric Foskett. Eric was an excellent host and took responsibility for arranging most of our visits with the various university environmental health programs in the United Kingdom.

Northern Ireland and the Republic of Ireland

Our tour of the various university environmental health programs began with a train trip to Holyhead, Wales. We had Britrail passes, which allow unlimited travel over a specified number of days to anywhere in the United Kingdom. From Holyhead, we traveled to Dublin, Ireland, on a large ferry boat. While in Dublin, we met with the environmental health faculty at the Dublin Institute of Technology (DIT), and a wonderful luncheon was given in our honor by Dr. Marlene Proctor (head of school), Mr. Shamus Kiely (lecturer), and other members of the faculty. In addition, we had an opportunity to meet the director of environmental health for the

Republic of Ireland. After the luncheon I gave a presentation about environmental health programs, university operations, and environmental management in the United States.

The Republic of Ireland is not part of the United Kingdom, nor is the DIT program accredited by CIEH. My visit to the program arose from a desire to obtain a broader view of European environmental health programs.

The next day we took a train from Dublin to Belfast, Northern Ireland. The train was late, and there were rumors of a bomb explosion or threat to the railway ahead, but we experienced no trouble. Upon arrival, we checked into a local bed and breakfast in Whiteabbey, just outside Belfast. Mr. Harold Harvey, director of the Environmental Health Program at the University of Ulster, was our host.

A very scenic spot, Whiteabbey is on the bay, or lough, where the Titanic was constructed. My review of the environmental health program with Harold and Oliver Hetherington, another faculty member, coincided with final exams. From my visits to this and two other universities (Oxford and King's College), I concluded that U.K. universities focus more on academics than do American universities. The paraphernalia of school pride, athletic events and other extracurricular activities are not nearly as apparent as in the United States.

The next day, we met with City of Belfast officials, including Brian Hanna, a former EHO and chief executive of the City of Belfast. We also met with William Francy, director of health and environmental services, and Damien Martin, environmental strategy manager. In Belfast, program planning based upon risk assessment is on the forefront of the agenda, and it was apparent that these efforts are based on solid strategic planning.

By coincidence, we were in Belfast when the referendum concerning Northern Ireland and the Republic of Ireland was voted on. There was much activity in the city, with loudspeakers on cars advocating various stances on the issue.

The next day we took a sea ferry to Strenraer, Scotland, where we began the long, scenic train trip back to Manchester.

Manchester

I visited Manchester Metropolitan University (MMU) with Ann Clayton, program director of MMU's environmental health program. It was becoming evident that entry into U.K. programs is much more competitive than entry into U.S. programs. Students initiate

the effort while in high school: They take tests to earn their "marks," and they score points in the proper subject matter (math, sciences, etc.) so that they can compete for slots in accredited programs. The scores required for entry vary by program, but my impression was that students enter these programs with the goal of working as EHOs. They do not seem to wander into the programs, or, even worse, drift into the profession—as seems so prevalent in the United States.

Scotland

Our next trip was to Glasgow, Scotland, and the University of Strathclyde. The Strathclyde program is not CIEH accredited, but it is accredited by the Royal Environmental Health Institute of Scotland. According to Dr. Michael Jackson, program director, the Strathclyde program is going to attempt dual accreditation. The program offers a B.Sc. degree in environmental health, and its structure resembles that of programs in U.S. universities. Dr. Jackson's program is located in the Department of Civil Engineering; as in the United States, environmental health programs in U.K. universities are housed within different departments or schools.

While in Glasgow I met with David Spires, from the local health authority. Because Glasgow has a small inland port, EHOs must do port environmental health work, which mainly consists of deratting and galley inspections.

Leeds and Salford

At Leeds Metropolitan University, about an hour by train from Manchester, I met with Dr. Jeff Cram, senior lecturer in environmental health, and Terry Moran, lecturer, and received a copy of a student's research paper. Students in U.K. environmental health programs are required to write "honors papers" that involve considerable research. The quality of these efforts is at least equal to that of graduate-level thesis work in the United States.

After my return from Leeds, Eric Foskett and I traveled by car to the University of Salford, which is very close to Manchester. Dr. Denise Rennie, head of department, and Norma Ford, lecturer, were our hosts. Like many other environmental health programs, Salford has students who do not pursue the EHO-accredited track, but who follow programs in areas such as occupational health. Some of these graduates work in the private sector, where the accredited curriculum is

not required. Graduates who do not receive EHO accreditation also may work for the health authority in a technician-level position. This arrangement restricts them to working in a particular area, such as air pollution or occupational health. They cannot serve the health authority in multiple areas

of environmental health, even if they have advanced degrees in their fields. Thus, the track to working for the local borough as an EHO involves training in a broad range of subjects, but can take only one path: an honors degree in environmental health from a CIEH-accredited curriculum.

Back to London

Later, when we returned to London, we visited the John Snow Pub on Broadwick Street. As you probably know, Snow is considered the "father of modern epidemiology" and is credited with explaining the transmission of cholera long before the germ theory was developed. The Broadstreet Pump no longer exists, and the street has been renamed, but the pub does bear Snow's name and holds some interesting memorabilia.

U.K. Institutions Accredited in Environmental Health/Science

Institutions Accredited for Undergraduate Study

University of the West of England

Faculty of Applied Sciences
Coldharbour Lane
Frenchay
Bristol
BS16 1QY
TEL. 0117 9656261

Course Director: Melanie Grey

University of Wales Institute, Cardiff

School of Environmental Sciences
Western Avenue
Llandaff
CF5 2YB
TEL. 01222 551 111

Course Director: Andrew Currin

University of Edinburgh

Medical School
Department of Public Health Sciences
Teviot Place
Edinburgh
EH8 9AJ
TEL. 0131 650 1000

Course Director: Dr. Ian Beverland

Leeds Metropolitan University

Calverly Street
Leeds
LS1 3HE
TEL. 0113 2 832 600

Course Director: Catherine Gairn

University of Greenwich

School of Land & Construction Management
Dartford Campus
Oakfield Lane
Dartford
DA1 2SZ
TEL. 0181 331 8000

Course Director: Stuart Allan

King's College, London

School of Life, Basic Medical and Health Sciences
Campden Hill Road
London
W8A 7AH
TEL. 0171 836 5454

Director of Studies: N. Parkinson

Middlesex University

School of Applied Sciences
Bounds Green Road
London
N11 2NQ
TEL. 081 368 1299

Course Leader: Alan Page

Manchester Metropolitan University

Food and Consumer Technology
The Hollings Faculty
Old Hall Lane
Manchester
M14 6HR
TEL. 0161 247 2000

Course Leader: Ann Clayton

Nottingham Trent University

Burton Street
Nottingham
NG1 4BU
TEL. 0115 9 418 418

Course Leader: Ann McCarthy

University of Salford

Department of Environmental Management
Salford
M5 4WT
TEL. 0161 745 5000

Course Tutor: Norma Ford

University of Ulster

Shore Road
Newtonabbey
Co. Antrim
N. Ireland
TEL. 01232 365 131

Subject Director: Vance Kyle

Provisional Accreditation

Norwich City College of Further Education

Ipswich Road
Norwich
NR2 2LJ
TEL. 01603 660011

Course Director: Dr. Michael Howard

Accredited Institutions That Offer Postgraduate Qualification

University of the West of England

Faculty of Applied Sciences
Coldharbour Lane
Frenchay
Bristol
BS16 1QY
TEL. 0117 9656261

Course Director: Mr. Andrew Tubb

University of Birmingham

Institute of Public and Environmental Health
Edgbaston
Birmingham
B15 2TT
TEL. 0121 414 7180

Senior Tutor: Mrs. J. Higgitt

A Comparison of Curricula and Professional Practices

The Schools and Curricula

According to CIEH, 12 universities in the United Kingdom offer a four-year, accredited bachelor of science (B.Sc.) degree in environmental health/science (1). Two universities offer an accredited postgraduate qualification in environmental health, consisting of a two-year master of science (M.Sc.) degree. As in the United States, each university has its own admission requirements, which are based on final grades attained by students in the U.K. equivalent of high school. The student must obtain "A" levels in a certain number of courses, most of which are in the sciences. Accommodations may be made for "mature" students and others holding certain national diplomas or certificates. The national application process works somewhat like a clearinghouse. Students apply to various environmental health programs using the national application. Since they must compete for slots in the program, they have an investment in the process. They are focusing on and committing to careers as EHOs from the time they enter the university.

Our own recruitment of environmental health students contrasts sadly with this system. We harvest our students from among the "undeclared" or from other majors. Rarely does a freshman or transfer student start out declaring an environmental health science major. Also, entering an environmental health program requires minimal investment on the part of students since enrollment is little more than an exercise in paperwork. The propensity of U.S. academia to focus on the number of students enrolled does not allow the luxury of requiring students to compete for openings in most programs.

We need to begin educating students in the early grades about environmental health science and steering them into accredited

programs. Maybe we will eventually reach the point of competition for what should be highly coveted openings.

General Education and Supporting Work

The U.K. student entering a program jumps directly into the environmental health curriculum. The U.K. programs essentially do not require general-education courses, unlike accredited universities in the United States, which require students to take 50 to 60 semester hours of general education. This requirement includes courses in English, history, psychology, basic sciences, and other subjects. The U.K. programs consider this work to have been adequately covered by the U.K. National Curriculum students follow in junior high and high school. The U.K. faculty I visited considered the last year of "high school" in the United Kingdom as roughly equivalent to the first year of college in the United States. This arrangement entails perhaps one shortcoming of the U.K. system: Most U.S. students appear, at least on paper, to be more broadly educated than their U.K. counterparts. The U.S. accreditation body, the National Environmental Health Science and Protection Accreditation Council (NEHSPAC), requires that students complete courses in basic biology, microbiology, chemistry and organic chemistry, physics, communications, and mathematics to the precalculus level (2). The U.K. system assumes that entering students have adequate "underpinning" knowledge in Level 1 subjects such as biology, physical science, basic ecology, and algebra/trigonometry. This assumption allows the program to spend much-needed time in the technical areas of environmental health. Level 2 subjects such as advanced biology and ecology, microbiology, calculus, math modeling, wave mathematics, and computing are addressed within the curriculum.

In the United States, the general-education curriculum is an important and necessary component of higher education. It may be time, however, to examine why universities require students to revisit so many courses they have taken year after year in junior high and high school. I find that many seniors cannot remember who was President after FDR, let alone any issues related to the Louisiana Purchase. Yet, much valuable college time has been spent revisiting these subjects. Perhaps, instead of encountering another "resurfacing" during higher education, students should be made more accountable for bringing "liberal arts" knowledge with them.

Environmental Health Curricula

The U.K. Curriculum

In the United Kingdom, the core curriculum, as required by CIEH, is arranged into three knowledge groups. Group 1, Holistic Areas, addresses strategic planning and policy development in environmental health. The courses also provide a holistic framework for understanding concepts and recent developments in public health and sustainability and for applying priorities.

Group 2 covers knowledge and skills applicable to all environmental health specialties. These courses consider legal issues, administration, inspection techniques, investigative techniques, compliance strategies, interpersonal skills, professional conduct, organizational management, pest and vector control, human health impacts, epidemiology, the built environment (housing and institutions), risk assessment and risk management, problem solving and decision making, health promotion, and business and commercial awareness.

Group 3 supplies technical knowledge applicable in specialist areas. These areas include environmental protection, food safety and standards, port health, housing, occupational health and safety, and public health.

A detailed knowledge of the three curriculum groups enables EHOs to undertake their duties competently within individual specialties. In addition, each student must complete a 240-day professional placement (internship), either between the second and fourth year of school or after completion of the degree requirements. During this internship the student must work toward a series of specified professional competencies and must complete a detailed 300-page Professional Training Logbook with a supporting portfolio of evidence. This material is assessed by CIEH at a charge to the student of approximately \$100.

The U.S. Curriculum

Like the U.K. system, NEHSPAC divides its requirements into three groups. Group 1 comprises separate courses in epidemiology, statistical methods, and toxicology. Group 2 provides a basic understanding of environmental economics, environmental health management, law and public policy development, and risk assessment and risk communication. Group 3 involves an in-depth study of four technical areas with exposure to a majority of the others. These course areas are given in the sidebar above.

U.S. Environmental Health Curriculum, Course Group 3

Air Quality Control
Environmental Chemistry
Hydrogeology
Environmental Health Planning
Environmental Epidemiology
Housing
Hazardous Materials
Environmental Microbiology
Global Environmental Health
Food Protection
Injury Prevention
Noise
Industrial Hygiene
Institutional Health
Soils
Water Quality
Water Supply
Solid Waste
Radiation Health
Recreational Environmental Health
Wastewater
Vector Control
Occupational Health/Safety

NEHSPAC requires the student to complete an internship that lasts a minimum of 180 clock hours (22.5 days). This requirement normally is fulfilled in the summer, between semesters, but internships can be completed during any semester.

Entry into the Profession

The United Kingdom

A U.K. student who aspires to become an EHO first must be accepted into a CIEH-accredited course of study at a university or college. Upon completion of this curriculum, the student receives a B.Sc. in environmental health/science. To qualify as an EHO, the student must complete the degree with honors (Hons.), which indicates a certain ranking within the class. In addition, a structured practical training experience of at least 48 weeks is required. The graduate then must acquire a Certificate of Registration by the Environmental Health Officers Registration Board (EHORB) by completing the training logbook, which CIEH reviews. A formal assessment with a written examination, a risk audit paper, and a formal interview follow. The process costs about \$200.

After two years in a first job, the EHO is qualified to undergo an "assessment of pro-

essional competence" (APC). This assessment follows the typical model for a United Kingdom chartered profession. Professional competence is defined by CIEH as "the completion of tasks to the satisfaction of the employer, client and/or professional peers, within the recognized field of expertise of the profession, using all due care and without serious fault or error."

The purpose of the assessment is to evaluate the EHO's ability to apply professionally the knowledge and skills developed during qualification. Investigative, analytical, interpretive, communicative, educative, organizational, and attitudinal abilities are assessed in three ways:

1. a case study,
2. a log of professional practice, and
3. a professional interview.

Once EHOs have passed the APC, they are entitled to "corporate membership" in CIEH. This credential is critical; job advertisements often specify "Corporate Membership of CIEH" or "passing of the APC."

After being entered on the Environmental Health Officers Registration Board ("the Register"), EHOs have an ongoing responsibility to continue professional development throughout their careers. CIEH members must complete 20 hours of suitable continuing-professional-development (CPD) activity each year, with 10 hours occurring in the "core activities." Core activities relate directly to professional environmental health functions. "Supplementary activities" are organized endeavors linked to personal development with indirect relevance to professional functions. Examples include computer courses, management courses, language skills, and social sciences. Each year, a random sample of 10 percent of the CIEH membership is checked for compliance with the CPD requirement. Failure to comply can result in removal from membership.

Thus, corporate membership denotes that an individual has both achieved and maintained professional competence in the field. There is a *common body of knowledge* that each individual must possess before being employed and "registered." This requirement is important to employers, the courts, the public, and other government departments.

The United States

The complexity of the U.S. system amounts to a nonsystem in which local, state, and federal agencies have differing employment and registration requirements. The following

overview is representative of the profession in the United States. Enormous variations make it impossible, however, to cover requirements for every state and situation.

Graduates of NEHSPAC-accredited programs compete with all other graduates, regardless of their academic majors, for government positions in environmental health. The 50 states and the federal government take different approaches to filling these positions. There are basically five approaches to filling entry level positions:

1. Selection is based solely on academic qualification—a degree in environmental health/science from a NEHSPAC-accredited school. The Commissioned Corps of the U.S. Public Health Service takes this approach, requiring that any applicant who holds only a B.S. degree must have majored in environmental health/science at a NEHSPAC-accredited school. No professional test or merit exam is required.
2. The minimum requirement is a B.S. degree with an applicable science major such as chemistry, biology, geology, or environmental health science. This system is used by the state of Florida.
3. A B.S. degree in any field is accepted, but a minimum number of science hours are required. The state of Kentucky takes this approach.
4. Applicants may be required to have the qualifications listed under approaches 2 and 3, but they also must take a "merit" exam that helps rank them. The merit exam may or may not be relevant to the field of environmental health.
5. Some college hours in science are required, but no minimum academic degree is required.

Registration as a sanitarian or environmental specialist also differs from state to state. A few states have no registration requirement. Others require sanitarians to take and pass a registration test within a year or two. The focus varies from testing knowledge of a wide range of environmental health subjects to testing knowledge of state regulations. Some states also accept the national registration examination associated with NEHA.

Similarly, states that require registration may or may not mandate "continuing professional development" or "continuing education," and in those that do, the number of course hours varies, as does acceptable content.

Discussion and Conclusions

My sabbatical experience in the United Kingdom, while enjoyable and informative, also caused me shock—and often embarrassment—when I compared the typical education and qualifications of U.S. practitioners with those of our U.K. counterparts. We lag sadly, and our system needs some major overhauling. We cannot be a photocopy of the U.K. system, nor should we be. We should, however, emulate those aspects of the system that will improve environmental health in this country.

I do not mean to reflect negatively on any member of our profession. The future is before us, and the changes I suggest below are meant only to strengthen and advance the profession. I will start with some shortcomings in my own segment of the profession—education—but many of the important issues are interconnected.

Issue 1: Student Recruitment

We must begin to recruit students well before they enter college—and we must inform them that the profession exists. Many students are unaware of what we are about, even after they graduate from college. The ranks of our accredited schools are filled with individuals who have drifted in from other majors. Sometimes they come out of real interest, but all too often they are just looking for a major that will accept the hours they have already completed for some other major with which they are dissatisfied or, sadly, some preprofessional program in which they have failed to make the cut.

Entry into the curriculum should be an honor, not an escape hatch. It is a well-known principle that human nature treasures a goal achieved through hard work far more than one reached easily. Most university administrators, however, are so saturated with the idea of maintaining class numbers, that it will be a difficult transition to focusing on student quality. To our credit, once students enter the curriculum, most become committed to the profession and wish they had been in the program from the beginning.

A recent initiative to develop environmental education in school-aged children should help. Such projects must, however, emphasize our role in protecting public health, not focus on the fashionable birds-and-whales efforts with which we are often confused. To educate the next generation about what we do, we must define ourselves. Also, we must work toward a system in which students compete for slots in our programs.



Left to right: Norma J. Ford (Univ. of Salford instructor), Dr. Daryl B. Barnett, and Denise Rennie (Director, Dept. of Env. Mgmt., Univ. of Salford).

Issue 2: NEHSPAC Improvements

Our counterparts in CIEH, while not perfect, have clearly defined the generic knowledge and skills needed by an EHO. They have also established the technical knowledge required and then used a holistic approach to putting it all together. Unlike the NEHSPAC system, theirs is not a "buffet" approach to a curriculum. If we are ever to become a profession like nursing or medicine, we must establish a common body of knowledge.

The graduates of the U.K. programs mentioned above basically have identical training and capabilities. They share a core of knowledge. The NEHSPAC system is upside down. It *requires* courses in non-environmental health areas (i.e., epidemiology, statistics, toxicology) and dictates "understanding" of others (i.e., economics, management, law and policy, risk assessment and risk communication). These bodies of knowledge are important and should be addressed, but, in the words of one of my favorite Baptist preachers, we are "minoring in the majors and majoring in the minors." With respect to our core of knowledge, NEHSPAC requires only that students complete four technical areas "in depth" and be "exposed to a majority of others." This means that a curriculum could be accredited by offering specific courses in environmental chemistry, environmental epidemiology, environmental microbiology, and hydrogeology and merely "exposing" stu-

dents to all of the other subjects.

We need more specificity in our requirements, particularly with respect to food, air, water, wastewater, solid waste, and vector control. All of the other subjects listed are valuable and could be addressed *after* the environmental health core requirements have been met—not instead of them. The curriculum should not be designed around what faculty members can or want to teach, but around the core of knowledge required by the profession.

Issue 3: Who Is Hired

When I received my initial education (B.S. in Environmental Health, East Tennessee State University, 1970), I studied with two esteemed environmental health professionals, Dr. Monroe T. Morgan and Dr. Trenton Davis. Neither had received undergraduate education in the field of environmental health. They entered the field with science or health degrees. At the time there was no other alternative. Unfortunately, we have progressed little since then.

In the United Kingdom, one must graduate from an accredited program to be employed as an EHO, and our goal in this country should be to have the same requirement for government positions in environmental health. The following three hiring issues also should be pondered.

First, we often employ the individuals with minimal or lesser qualifications. The best

preparation for a profession is an education tailored for that profession. Some states require only 18 hours of sciences for environmental health professionals. In addition, the quality of the academic work is questionable. Courses may be listed as sciences yet have little value in preparing one for environmental health work. Biology, chemistry, and physics courses provide valuable supporting knowledge, but do courses such as "Game Birds of the State," "Geography of Bolivia," or "Taxonomy of Flowering Plants" contribute to an understanding of environmental health principles? I am convinced they do not! Yet courses like these often are applied toward qualifying hours. Individuals with such credits may be employed over environmental health graduates because of local politics or because supervisors fear that the new graduates will know more than they do.

Second, even a biology or chemistry degree does not prepare the student for environmental health work. I have encountered health department employees with these degrees who, after three to five years of employment, admit that they do not fully understand what they are doing and why. In my opinion, it takes the non-environmental health graduate a minimum of five years of work experience to acquire the knowledge base of an environmental health graduate. So why are non-environmental health graduates often employed rather than the environmental health graduate? One reason is that "birds of a feather flock together." Supervisors who have biology or chemistry backgrounds themselves may look for those graduates who resemble them. The thinking is that "I am doing a great job with a biology degree, so therefore this person can too."

The third issue concerns the "merit" examinations. A merit examination should address the field in which the individual is to be employed. An examination for an environmental health position should cover the common body of knowledge in environmental health. If the examination measures knowledge of chemistry, biology, and physics, then the process will favor people holding degrees in those fields although they have little knowledge of environmental health science. NEHA and the state organizations must make a unified effort to establish the environmental health science degree as the minimum requirement for entry into government environmental health positions. Initially, preferential hiring of environmental health graduates, when available, may help.

Issue 4: Continuing Education

U.K. environmental health professionals are on average better qualified than their American counterparts. CPD requirements equal and exceed our continuing-education requirements. Fortunately, many American practitioners continually try to upgrade their skills in the field. Unfortunately, just as many refuse to do any more than necessary to stay abreast. Many will not attend a night professional meeting or take a local university course. These are, as one of my colleagues puts it, "minimum Johns and Janes." This attitude, if it prevails, will drag down the profession.

The quality of the continuing education also must be assessed. Continuing-education units (CEUs) should be evaluated strictly. During my tenure at Eastern Kentucky University, the environmental health faculty, in an agreement with the Kentucky Sanitarian Registration Board, evaluated all continuing-education work and assigned the amount of credit. This was done gratis, as a service to the profession.

Issue 5: The Reality of the Profession

In the United Kingdom, an EHO belongs to a chartered profession that requires two years of professional experience followed by an "assessment of professional competence." Statutory, minimum qualifications for "inspectors" in food safety and occupational health and safety have been set and can be obtained from CIEH or the Institute of Food Science and Technology (IFST). The Certificate of Registration of the Environmental Health Officers Registration Board also is a specified qualification.

Central to the other issues I have addressed are the following questions: What is a professional? What is a profession? According to the 1992 *American Heritage Dictionary*, the first definition for the noun "professional" is "a person following a profession, especially a learned profession." The first definition for the adjective "professional" is "of, relating to, engaged, or suitable for a profession: a professional field such as law; professional training." It is in defining the second term, "profession," that we gain insight into what we are. The first definition for that noun is as follows: "an occupation requiring considerable training and specialized study; the professions of law, medicine, and engineering." The problem is that we want to be "professionals" in the sense of these first definitions but that we are still professionals only in the sense of the second def-

inition—that is, "engaging in a given activity as a source of livelihood or as a career."

Some readers may be insulted by the implication. It is meant to refer to the field as a whole, not personally to individuals. The reality, however, is that the words we want to use to define ourselves and our work will not wash when the dictionary meaning is applied. Why? Entry into a profession requires specialized study. One cannot become a lawyer without graduating from law school, a physician without graduating from medical school, or an engineer without graduating from engineering school, where one learns a common body of knowledge. There is one common door into a profession. For us, that door would be an accredited undergraduate degree in environmental health. We often boast that our profession requires abundant knowledge of science, mathematics, and environmental health. Yet many practitioners are employed with inappropriate degrees; some have completed no science courses, minimal science courses, or unrelated science courses. They learn the duties of the profession solely from on-the-job training.

Many people still argue that one can learn the field just by being employed in it. Consider an analogy. Would you seek medical advice from a physician who has majored in history with a biology minor and then has worked as an apprentice in another physician's office for a certain number of years? Doubtful. Yet we assert publicly that our professional decisions affect the health of hundreds of people every day. Should we be any less appropriately trained and qualified than the professions we often envy for their status?

I am not inveighing against those who currently work without degrees in environmental health/science. The point is that the environmental health profession will not be elevated, advanced, or respected outside of its membership until at least two things occur.

First, everyone entering the profession must possess a common body of knowledge. This knowledge must be obtained through undergraduate or graduate training in environmental or public health. Second, the field as a whole must grasp the concept that requiring entrants to have an undergraduate degree in environmental health will strengthen the profession, thus elevating both those currently in it and those yet to enter.

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Did you know...

"Asthma is the number one reason for school absenteeism in America. Among children, it causes 10 million missed school days and 200,000 hospitalizations each year."

Source: Centers for Disease Control and Prevention

REFERENCES

1. "Core Curriculum for Qualifying Courses with Integrated Practical Training" (1997), London: Chartered Institute of Environmental Health.
2. "Guidelines for Accreditation of Environmental Health Science and Protection Baccalaureate Programs" (1992), National Environmental Health Science and Protection Accreditation Council.