

CURRICULA STANDARDS, CERTIFICATION, AND OTHER POSSIBILITIES
IN CARTOGRAPHIC EDUCATION

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BIOGRAPHICAL SKETCH

The author is an associate professor of Geography and a member of the Graduate Program in Ecology at the University of Tennessee, Knoxville. He has chaired the Education Committee of the American Cartographic Association for five years and is a director of the American Congress on Surveying and Mapping. Prior to getting his doctorate, he worked for the U.S. Geological Survey and as a plane table mapper for the State of Indiana. He has also served as a consultant on a number of projects involving computer assisted cartography and geographic information systems.

ABSTRACT

The American Cartographic Association Education Committee has developed some programs which need to be continued, but the Committee could address many other issues. This paper examines some of the topics that the Committee might consider, including seeking registration of cartographers, certification of cartographers, accreditation of cartographic programs, model curricula in cartography, and guidelines of what should be expected of a cartographer.

INTRODUCTION

In the past few years we have seen the growth of a distinct cartographic profession. For many years the primary cartographic organization was called the Cartography Division of the American Congress on Surveying and Mapping. In 1981 the group became formally known as the American Cartographic Association, one of the three member organizations under the American Congress on Surveying and Mapping. A standing committee of the ACA is the Committee on Education. No specific charges have been given to this committee, but there are many concerns that fall naturally under the purview of this committee.

One concern addressed by the committee has been to find out who is teaching what, and where, in cartographic education in North America. This work has been largely that of Richard Dahlberg (1979, 1984), the first chair of the committee. The focus of these studies has been on college, university, and technical school programs. A second activity undertaken by the committee has been to offer a program of workshops for our members. "Workshops" being a convenient term to refer to all programs in continuing education, whether they be in actuality workshops, short courses or seminars. The first workshop was offered in 1979

in conjunction with a national meeting. Subsequent workshops have been given, but with only one exception, all have been associated with a national meeting or an Auto-Carto program. The Committee remains open to proposals for workshops, either with national meetings or as independent activities. The primary task is to find volunteers to organize and conduct such programs. There is a desire and a need for such continuing education, for as reported by Morrison (1984), 97% of our members think that continuing education is important.

Beyond continuing the activities now underway, there are many other things that the Education Committee could address concerning the proper and appropriate training for cartographers. Confronting some of these issues may require that we decide what a cartographer is and is capable of doing. Likewise, some of these issues have such basic roots that either implicitly or explicitly it will require that we have working definitions of cartography as a field of study and practice.

REGISTRATION AND ACCREDITATION

At one extreme, we could seek legal status for cartographers and seek to have cartographers registered. Professional engineers, surveyors, and architects have professions that operate under the influence of registration. In each of these professions, the individual states have legislated that certain tasks in these fields must be done, or approved by, a registered professional. The basis for the legal status is that the works of each of these professionals affects the health and safety of society. Because the state requires minimum standards in the people they register, there has to be a basic standard over which the applications for registration will be tested.

The professional organizations associated with the engineers, surveyors, and architects have taken a lead in establishing educational standards that will prepare a student to meet the standards laid down by the states. To guarantee that the educational standards are maintained, the professional organizations provide for the review of educational programs and the granting of accreditation to acceptable programs. Currently the surveyors and most engineering programs do this through ABET, the Accreditation Board for Engineering and Technology. ABET is supported by the various engineering societies, including the American Congress on Surveying and Mapping. The architects do their accreditation through the National Council of Architectural Registration Boards, or NCARB. Accreditation of programs is an expensive process, in spite of the fact that most of the examiners are volunteers, but it does guarantee that accepted educational programs have a common direction and achieve basic standards. We should keep in mind that accreditation could be undertaken solely for the good of the profession and that it need not be just a response to state registration requirements.

Cartographers appear to have little basis to argue that they should be registered. What kinds of tasks do we do that non-cartographers should be excluded from by threat of law? If the states have not seen fit to legislate the need for a registered cartographer in the past, they are not likely to do so now. On top of this, the Federal Trade Commission and many individuals have taken a stand against professions seeking to define an exclusive territory that can only be practiced by those holding the blessings of the profession. The argument is based on the restraint of trade. It is possible that there is a basis for registration, but it is not evident to this author at this time.

CURRICULA STANDARDS

While accrediting educational programs represents an extreme, often undertaken to meet external needs, it would be possible to take a lead in defining educational programs without going to the time and effort required for accreditation. We could define a series of courses and the contents of those courses that make up what we as a profession deem the basic program in cartography. We might want to do this for many levels of education--a basic introductory course, a two-course sequence, an undergraduate concentration, an undergraduate degree, and an advanced degree. We would then be in a position to inform instructors and academic administrators that this is what the professionals in the American Cartographic Association consider the basic instruction in cartography. Without formal accreditation we would be in no position to evaluate if the recommendations are followed or how well they are followed. In such cases adoption of such a program would be voluntary, but there could be power in a school saying that 'we have adopted and follow the ACA curriculum.'

Having stated what should be taught in the basic sequence in cartography, or any cartography course, would have many far reaching benefits. It should have some influence on the textbooks that would be produced to meet the needs of these courses. In addition, graduate programs are normally reviewed every few years by external peers. If we as a profession have stated what should be the standards in cartography courses, then the persons reviewing graduate programs would have a basis to evaluate the offerings in cartography. As of now, they have nothing to guide them in their evaluations of any cartography offerings. Still another dimension of this possibility concerns the U.S. Federal OPM Standards for cartographer. Reportedly, the Office of Personnel Management approved the 1370 standards for cartographer without requiring any coursework in cartography because there is such diversity in what passes for coursework in cartography. This fact alone should be cause for the cartography profession to try to set some standards in education programs.

CERTIFICATION OF INDIVIDUALS

At still another level, we could award certification to individuals recognizing that they have the standards that we think a cartographer should have. This approach is used by many of the professions having similarities to cartography. The American Society of Photogrammetry awards a voluntary certificate as a certified photogrammetrist. The ASP notes that there is no inherent economic, political, nor employment significance attached to this certification. It is solely a statement by the profession that the profession has found that this person has met the qualifications to be called an ASP Certified Photogrammetrist. The ACSM is currently developing a certification program for hydrographers, making a distinction between those qualified as inshore hydrographers and those qualified as offshore hydrographers. It is noted that "Certification is voluntary, and it does not substitute for professional registration which is a legal act by the several states." (ACSM, 1984)

Outside of the ACSM/ASP umbrella, there are many professions that have certification programs. The Ecological Society of America has a certification program for ecologists, based on education and experience. One of the specific goals that the Society lists for this program is "To guide biologists, government agencies, courts, and the public in defining minimum standards of education and experience for professional ecologists, and to encourage all practicing ecologists to meet such standards." (Ecological Society of America, no date) It would be hard to argue against having such a goal for the cartographic profession.

The American Meteorological Society and the American Institute of Certified Planners have programs of certification that require passage of a written examination in addition to minimum standards of education and experience. In the case of the planning profession, the certified planners have their own organization within the framework of the American Planning Association. The American Meteorological Society has two such programs. They offer a certification program for consulting meteorologists and they also grant a seal of approval for radio and television weathercasters. All that any of these certificates do is let the user use the title, but there is an obligation to guarantee that such titles are not misused to the detriment of the profession.

If a profession takes on a certification program, then the profession has to take responsibility for all that this implies. First, there must be a committee that establishes what criteria are required for granting certification. Next, there has to be a committee that evaluates each candidate for certification. Then, there has to be an appeals procedure, in the event that someone is denied certification and chooses to ask for a review. There also has to be a committee that oversees that the holders of the

certificates are performing up to the standards required of the profession--a professional ethics committee. This is the minimum committee structure that would be needed.

DIVERSITY IN CARTOGRAPHY

To consider what we would want in a certified cartographer reveals the diversity of this profession. Is there one basic cartographer who can speak with authority about all aspects of the profession? Or, might we want to consider granting certification to such various forms of cartographers as: historical cartographers, mathematical cartographers, thematic cartographers, or topographic cartographers. In many ways cartography is like architecture in that there is an aesthetic element, a mathematical element, an historical element, and a functional element. We should not expect an architect to be able to speak with great authority and depth on all aspects of architecture, and by the same reasoning, no cartographer should be expected to be competent in all aspects of the discipline. One implication of accepting this logic is that it points out that a one-person program in cartography cannot be comprehensive. The field is bigger than what can be covered by a single individual.

Another thing that the Education committee could address is what is expected of a cartographer? The specific question foremost in my mind concerns the beginning professor who will be evaluated for tenure in a few years. I have been asked to evaluate the applications for tenure of persons who call themselves cartographers. In some cases the candidate has spent much of his or her time writing and installing computer programs, setting up photo-mechanical laboratories, and developing new courses at the expense of publishing in the professional journals. Some argue that the nature of cartography is such that this is the way it has to be while others say that the academic cartographer is no different from any other academic and should have the same quality and quantity of referred research. We might do the profession a service by stating what should be expected of the academic cartographer under different situations. A clear statement would let beginning academics know what is expected of them and help them allocate their time to achieve what they need to be accepted by their peers. The same statement would tell academic administrators what they should expect from the person they employ as a cartographer. We all know of stories of the colleague who spent months or years working on an atlas or map series only to have it not counted as significant in the tally of publishable research because the evaluators do not know what is involved in producing a quality map.

CONCLUSIONS

This paper is an attempt to point out some issues that could be addressed by the Education Committee of the American Cartographic Association. Certainly not all of the

possibilities identified here will be adopted nor should they be. But in an attempt to advance the profession of cartography, issues of this type need to be examined. Many of these issues are central to or touch upon educational topics and thus are within the purview of this committee to consider. To fail to consider such issues may be a dereliction of duty.

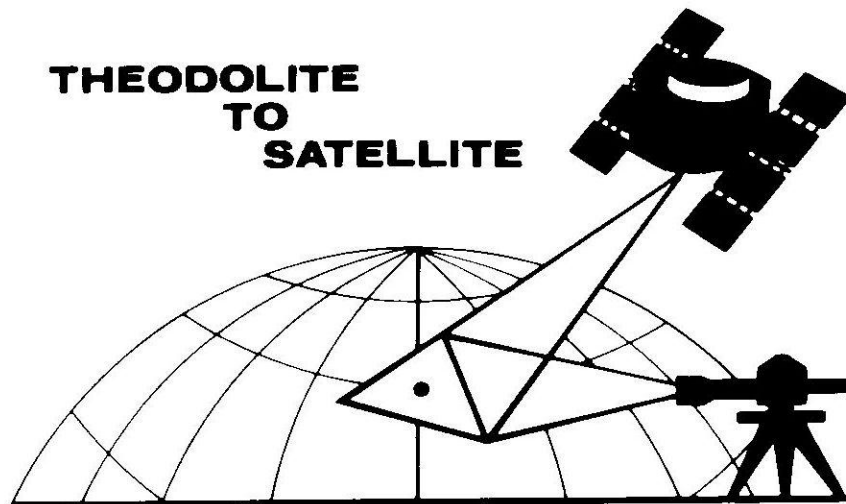
To consider these possibilities will pose questions that will not be easy to resolve. While these are hard questions to answer for those of us who are in the profession, consider how difficult it is for the general population who knows far less about cartography to come up with informed answers. Yet, many less informed than we are have to confront such questions and they do come up with answers. If we do not like the quality of their answers then we should be prepared to provide them with better answers, which means we will have to face the questions.

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