Editorial

METEOROLOGY EDUCATION:
ARE THE MAJOR UNIVERSITIES FAILING? (1)

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One of the great debates in higher education has centered on whether colleges and universities should turn out graduates immediately fit for employment or rather just well-educated people who will need specific training for a job. Academics maintain they will not provide job skills; their goal is to instill understanding. Universities are not like and indeed are above technical schools. Employers, on the other hand, like students who need little or no extra training. They emphasize practical applications, not theory.

This debate is nowhere more apparent than in meteorology. In our field, the opposing sides have polarized. This is partly due to the nature of the field. Meteorology is definitely a science, but its applied version, weather forecasting, is a combination of science and art. Indeed, there are few fields where you can have such total opposites still being called by the same title, meteorologist. A pure theoretician can derive any equation and can explain in mathematical terms what is happening in the atmosphere. Often he can not make a simple forecast and, in fact, considers doing this well beneath him. On the other hand, a person can be an excellent forecaster but not have the slightest idea why things are happening. He may consider the mathematics to be superfluous and certainly wants no part of them.

Education falls into the middle of this debate. Ideally, a meteorology graduate would be able to make a forecast and explain it physically and mathematically. There, of course, would be great difficulties in terms of time to produce such students. We're almost discussing two separate courses of study. Even if it were feasible it would take a teacher who not only could function as an operational meteorologist but also one who understands and could explain the mathematical aspects. One way of doing this would be to hire two different people, one an applied type and the other theoretical. This leads to a basic problem in meteorology education, the professor.

In the education system, a natural selection process takes place in meteorology.

This process favors a theoretical, dynamic meteorologist and works against the more applied, synoptically oriented one. To teach in almost any university today, you must have a PhD. Doctorates in meteorology require a great deal of mathematics. There are many more schools which give doctorates in dynamic meteorology than in synoptic. Even those which have a synoptic option often rely heavily on mathematics. In fact, people interested in forecasting often leave school after obtaining a B.S. degree because of this. Therefore, math-oriented people are likely to be the professors at most universities.

This, in itself, might not be bad if these people were good teachers and could explain the mathematics to the students. The truth of the matter is that most university professors are not good teachers. Putting it bluntly, major universities do not care if their professors can teach. They are only concerned with research and research money. A major university can not build its reputation on teaching; it must rely solely on the research results of its faculty. In comparisons between schools, they do not look at teacher evaluations; they look at amounts of research grants.

Being involved in academics for over 15 years, I can site a number of personal examples. I have had job interviews at several of the major universities. I do not remember ever being asked if I could teach or if I considered myself a good teacher. Course assignments were discussed but only as unavoidable duties. Their main interest was always research.

Another example involves the latest revision of the AMS Curricula in the Atmospheric and Oceanographic Sciences. Added to the questionnaire that went out to all schools teaching meteorology were questions involving research grants and the amount of money in each grant. The reason given for requesting this information was that potential graduate students would like to know the size of such grants. Personally, I believe potential graduate students are only concerned with the type

of research and the availability and amount of assistantships. They really do not care if a grant is worth $40,000 or $1 million as long as it will pay their way through school. Again it seems we have these schools in a contest to see who has the most research money.

The above criticism seems harsh. I do not mean to infer there are not any excellent teachers in major universities. However, I believe good teachers are there by accident,

not by choice. There are two cases which are particularly aggravating. One is when a researcher from another country has trouble with English and is made a professor and given students to teach. The other is the arrogant snob who treats anyone associated with operational meteorology with contempt.

My feelings on this are obvious. I believe universities should be more concerned with the teaching abilities of their professors. I look forward to hearing your comments on this.

The National Weather Digest is happy to introduce three new Feature Editors.

John G. Bernier
Feature Editor for Media

John G. Bernier is the chief meteorologist for CBS affiliate WEHT-TV in Evansville, IN, and is responsible for all prime forecasting and severe weather coverage. He received his B.S., magna cum laude, from the University of Lowell in Lowell, MA in 1980. He became a sports writer, as well as a writer for special stories such as Mt. St. Helens and its effect on weather. Shortly thereafter, he began work as a television meteorologist. He belongs to and is an active member of a number of professional organizations concerned with both meteorology and the media.

N. Arthur Pore
Feature Editor for Marine Meteorology

N. Arthur Pore is currently working at the Techniques Development Laboratory (TDL) at National Weather Service Headquarters. He serves as Chief of the Marine Techniques Branch, which is responsible for developing methods of forecasting variables in the marine environment. He began his career in meteorology as an Aerographer's Mate in the U.S. Navy. From there he attended Pennsylvania State University, earning a B.S. and an M.S. in meteorology in 1953 and 1954, respectively. He began working for the U.S. Weather Bureau, developing practical storm tide forecasting methods, and in 1965 began work at TDL.

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Ed Brotak received his B.S. and M.S. in meteorology from Rutgers University and his Ph.D. in biometeorology from Yale University. He has taught meteorology and climatology at Kean College of New Jersey, Lyndon State College in Vermont, and Wesleyan University in Connecticut. Currently, he is an Associate Professor and Director of the new Atmospheric Sciences Program at UNC-Asheville. His specialties include synoptic meteorology and climatology and forest fire weather. His commitment to excellence in teaching meteorology will be the basis for his editorials.