

case of Nigeria, the potential resource person was a fresh physics graduate who was persuaded about twenty-seven years ago by an expatriate astronomer on the staff of the local physics department to do a doctorate degree in radio astronomy at the University of Cambridge, U.K. Three years later, this resource person had returned to Nigeria, equipped with a Ph.D. in radio astronomy, and joined the physics department of his alma mater. It was this same resource person, who some years later had seen to the injection of a good quantity of astronomy topics in the national science curricula at both the primary and secondary levels; the initiation of astronomy programs at the University of Nigeria, Nsukka, with an astronomy option in the B.Sc. (physics) degree, as well as M.Sc. and Ph.D. programs in astronomy and astrophysics; the local production to date of 4 astronomy/astrophysics Ph.D.'s (with another 2 in the pipeline) as well as 10 M.Sc.'s in astronomy/astrophysics; the transformation of the former department of physics into the present department of physics and astronomy; and the recent establishment of a Space Research Centre at the University of Nigeria with a 10-meter parabolic antenna being equipped with a VLBI terminal to provide a long north-south baseline for the European VLBI Network. Other highlights include the formation of a National Committee on Astronomy and Nigeria's joining of the IAU in 1985.

It is proposed that potential resource persons be self-identified through competition for international scholarships and fellowships for doctoral studies abroad. It is also proposed that a package of support incentives be made available to these resource persons on the successful completion of their doctoral programs. These initiatives perhaps may not fit into the purview of IAU Commission 46 on the Teaching of Astronomy. Perhaps the time is ripe to consider upgrading Commission 46 or merging Commissions 38 (The Exchange of Astronomers) and 46 into a new Commission on "The Training of Astronomers," or perhaps an entirely new commission on the training of astronomers should be established. Alternatively, instead of having a Commission just on the Teaching of Astronomy, we might upgrade it to a Commission on Astronomy Education, which is a more comprehensive title.

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The needs of the developing countries pertaining to teaching resource materials — namely, books, audiovisual aids, *etc.* — and understanding of concepts have been dealt with already.

One problem that has not been covered in sufficient detail is the training of school teachers. Most teachers have very little exposure to astronomy and themselves have problems grappling with basic astronomical concepts. While this conundrum also exists in the developed countries, the situation is more severe in the third world, where the media coverage of astronomy is non-existent or at most scant.

These teachers are many in number, they are scattered throughout the country, and have no resources at hand. The training process thus becomes a mammoth undertaking for what is usually only a handful of dedicated astronomers.

This takes us to the question of whether a developing country needs a greater number of qualified astronomers (as opposed to whether it needs more, for instance, qualified engineers). It is usually appreciated that in order to advance research, a critical number of people is required to carry out and sustain the research effort. The problem highlighted in the previous paragraph, however, indicates to us that if the science education in a country is to progress it must have qualified scientists. Therefore, developing countries need a greater number of qualified astronomers, not only so that research is advanced (which is not normally regarded as a justifiable reason in the developing countries) but especially so that the education base may be broadened and so that a high standard of education is ensured.

Another dire need of the astronomy teacher in the developing nations is to be in contact with the outside world. Isolation leads to stagnation and boredom, which do not make for enhanced teaching standards. Links between astronomy teachers in a region should be established in the form of cheaply produced newsletters, *etc.*

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The astronomy education needs of the developing countries are so many and so varied, that I decided to restrict myself to the two that appear to me as most important.

While listening to the talks of the U.S. participants, one gets the impression that in the U.S., supply and demand are more or less balanced in what refers to astronomy education. If anything, supply may exceed demand. This is, of course, not the case in México where we have about 40 professional astronomers for a population that is above 80 million people. This gives one half an astronomer per million people. In contrast, there are 10 to 20 times more astronomers per million people in the developed countries. This situation is further compounded by the fact that in México a large fraction of the population is young and demanding education.

Then, while in the developed countries the concern is in improving the quality of education, we face a more basic problem of quantity. Any teaching or popularization activity made by one of these very few Mexican astronomers is valuable and is absorbed like a drop of water in the desert. What can we do to increase the number of professional astronomers in México? It is quite interesting to summarize the growth in the number of astronomers in México during the last few decades. In 1960, a few pioneers started sending students abroad to get doctoral degrees in astronomy. By 1970, the number of professional astronomers had grown to 9. An explosive increase marked the period 1970–1980: at the end of this decade we were about 30. The reason for this increase was, I believe, a result of the oil boom of