Photo courtesy of Pierre Darriulat

Students Huyen, Dong, Thao, Nhung, Thieu, and Diep with Pierre Darriulat on the roof of the laboratory where their detectors are installed.

Modern physics built from scratch

It is difficult to summarize my experience in Vietnam in a few lines as the boundary conditions differ so radically from those that apply in the scientific environment of Western countries. Thirty years of war made it impossible to build a modern scientific culture in Vietnam and resulted in the loss of two generations of professors and researchers. Thirty additional years have elapsed since then, but the country has not yet overcome its handicap; university training and fundamental research are far from being at the level the country deserves. It is not a matter of reconstruction, as was the case in Europe after World War II, but of building from scratch.

Vietnam is a country with a long history of teaching humanities, with a high respect for culture that is deeply rooted in its traditions. But modern physics, as it developed in the West between the 17th and 20th centuries, has been virtually absent from the scene. The government is fully vested in trying to satisfy the urgent needs in energy and infrastructure that are necessitated by very rapid development, leaving no time to acquire the long-term vision that might make them conscious of the importance of fundamental research. Their priorities are decided by urgency, and research and university training are kept in the background. The most spectacular illustration of the situation is given by the low wage levels of lecturers and researchers, typically US$50 a month, or about one quarter of what is needed for them to survive. As a result, they need to earn the missing three-quarters from a second job that distracts them from their research and teaching tasks. A catastrophic brain drain from Vietnam is one of the results of this unfortunate situation.

Some five years ago, a cosmic-ray laboratory, VATLY, was created in Vietnam at the Hanoi Institute for Nuclear Science and Technology, headed by Vo Van Thuan. This lab would not have been possible without his welcoming help, nor without the material, moral support, and friendship of many physicists in Europe and the United States. Particularly crucial is the assistance of the Pierre Auger collaboration, in which my colleagues and I participate, and to which the laboratory owes its name: "VATLY," meaning "Physics" in Vietnamese and simultaneously representing the English acronym for Vietnam Auger Training LaboratorY. The laboratory operates a number of simple detectors, scintillators, and Cherenkov counters as well as associated electronics (NIM and CAMAC), donated by western research teams. The aim of VATLY is to train students and to create a group with sufficient stability and competence to take an active part in the Auger experiment.

Worth mentioning is our effort to introduce astrophysics into the program of Vietnamese universities: apart from lectures that I offer at the Hanoi National University, modern astrophysics is not being taught in Vietnam. The difficulty here is to fight the general unawareness of the rapid development of this branch of science, and of its richness. Many people see it as we used to see astronomy 50 years ago—it has no application; therefore, it does not need to be taught.

Notwithstanding the material obstacles that we must overcome in order to progress—in particular collecting additional financial support to allow the members of the team to work full time on research and teaching—the whole exercise makes sense only if Vietnam will offer its students a future matching their talents. Such a hope implies an act of faith. If Vietnam were to fail in giving its youth such a future, our efforts would be lost for the country, if not for science, and would simply augment the already-worrying brain drain.

Fortunately, young Vietnamese are full of life and resources. VATLY students are bright, enthusiastic, and strongly motivated to make their country progress toward a more brilliant future, for university training in particular and scientific culture in general. Let us hope that their country will be able to offer them the future, dignity, and responsibilities that they deserve. Allow me to wish for them a happier life than that of their parents and grandparents. The international scientific community can help them as long as the intellectual rigors and the ethics of science continue to ignore borders.

Pierre Darriulat was the spokesman of the UA2 experiment and the director of research at CERN (1989–1994). He now teaches in Hanoi.