

December 18, 1964

Dr. T. W. Johnson, Jr.  
Chairman, Department of Botany  
Duke University  
Durham, North Carolina

Dear Professor Johnson:

Al Sussman has asked me to reply to your queries about OTS. My qualifications for doing so are that I have had some part in the formation of that organization, am currently one of its directors, and serve on the Michigan Committee for Tropical Studies that represents OTS on this campus.

You ask what membership in OTS entails, and what benefits it brings to the participating university and the people involved. To begin with, I can say that in the present stage of OTS operations the obligations and responsibilities of membership outweigh the benefits; we are building for the future, and in time a balance will be achieved, but no institution should join OTS that is not prepared to share the cost and labor as well as to reap the benefits. The founding universities have set their hands to a big and important undertaking, the success of which depends on good planning, hard work, and considerable investment of staff time and institutional funds. Any university that has something to contribute as well as to gain will be welcomed.

The basic premise on which OTS is founded is that the tropics are important, both for science and because of the role they are destined to play in man's future. We know far too little about them, and too few able scientists are now engaged in their study; it is urgent that many young scientists be led to undertake careers of investigation of tropical problems. Tropical agriculture and clinical medicine are already amply provided for, but there has been no organized attempt to develop a program of research and training centered on the tropical environment and man's interrelations with it. OTS is an attempt to fill this gap.

We at Michigan, after some years of unsuccessful effort to establish a Center for Tropical Studies in southern Mexico, came to realize that no single institution commands the staff resources, field facilities and ability to secure funds from granting agencies that are required to carry out a program of such breadth and depth. Similar attempts on the part of other groups at other institutions led them to the same conclusion. Only by joining forces could the job be done, and the result was OTS. This organization makes it possible to bring to a focus all the knowledge, talent, and teaching skills of specialists interested in tropical problems who are scattered among many faculties - men working in such diverse fields as geology, geography, zoology, botany, ecology, climatology, limnology, pedology, demography, and various aspects of natural resources.

The OTS program can be described under three heads: teaching, facilitation of individual research projects, and organized attack on selected problems. For the present all three of these activities are centered on and largely confined to Costa Rica.

Teaching. The OTS teaching program includes a basic introductory course in tropical environments and ecology, and a series of advanced courses. The latter will change from term to term, and will be given by specialists from the member institutions and occasionally from others. Examples from the 1964-65 offerings are: Biology and Evolution of Tropical Plants (Baker, Univ. Calif., Berkeley, and Ferreyra, Univ. San Marcos, Lima, Peru); Tropical Forest Ecology (Richards, U. North Wales); seminars in the biology of coral reefs (Goreau, Univ. West Indies, Jamaica), tropical population biology (Hairston, Univ. Mich.), tropical social insects (Michener, Univ. Kans.), tropical marine biology (Vannucci, Univ. São Paulo), and physiology of tropical forest trees (Zimmermann, Harvard Univ.). Others are contemplated on the orchids, herpetology, and fishes of Costa Rica, on patterns of land use in the tropics, on land forms and physiographic processes in a tropical climate, on tropical soils, etc. No courses in this program will be such as could equally well be given outside the tropics, and nearly all will involve extensive field work. Registration is limited, and students are selected on a competitive basis, with no special consideration given to those from member institutions.

Facilitation of individual research. Persons planning to offer courses in the OTS program will be encouraged and helped to prepare themselves by spending some time in Costa Rica, engaged on some research problem and familiarizing themselves with the tropical environment. Students taking the advanced courses will also be encouraged to undertake individual investigation, and when possible to stay for an additional period of full time research. Some of them are expected to return later for work on doctoral problems. Individual investigators with their own grant support will be welcome to use OTS laboratory and field facilities as they become available in excess of the needs of teachers and students. Members of the teaching staff and other professors will, it is hoped, bring graduate students to work with them on their research projects.

OTS research programs. Projects of individual investigators cannot be expected to provide all the basic data fundamental for certain kinds of research, nor to have continuity and intermesh closely. One of the functions of OTS is to see to it that certain kinds of necessary information are obtained, and to plan and arrange organized attacks on selected problems of importance and general interest. Two long-term projects have already been tentatively approved: study of the sequence and nature of soil and vegetation changes on the recent ash-deposits from the eruption of Volcán Irazú, and biotic inventory and analysis of the ecology and energetics of the wet tropical forest of the Osa peninsula. Soil-vegetation surveys of study areas and limnological

investigations of selected bodies of water are other obvious possibilities. Individual research projects will when feasible be tied in with these long-term studies, and specialists will be sought and employed to deal with aspects not sufficiently covered by those projects.

What I have just described is OTS as we envision it a few years from now, equipped with adequate facilities and in full operation. Its present capacities are far more limited, on account of lack of sufficient classroom and laboratory space at the University of Costa Rica, not-yet-constructed field stations in the four or five sites selected for them, and limited funds for staffing and support of students. All these difficulties are surmountable and are being dealt with. OTS has great assets that seem to assure its success. These are: (1) the groups of biologists and other scientists at the founding universities and other institutions dedicated to the project; (2) the solid backing of nine of the leading North American universities; (3) the cordial hospitality and cooperation of the University of Costa Rica, and the favorable attitude of the government of that country toward the undertaking; (4) the interest and support of the National Science Foundation and prospects of help from other foundations; and (5) the unsurpassed opportunities for tropical studies afforded by the varied and relatively accessible environments of Costa Rica.

With so much preamble I am ready to answer your questions more specifically.

What does membership in OTS entail?

By joining OTS a university undertakes to help make it go. It is expected to contribute in many ways, among which are the following:

A) Contributions of funds or the equivalent.

- 1) An entrance fee of \$2500, and agreement to pay up to a total of five assessments of not more than \$2000 in a given year, as called for.
- 2) Travel expenses for attendance of its representative(s) at Council and Board meetings.
- 3) Release of paid time of professors to teach OTS courses in Costa Rica and to conduct research in the tropics.
- 4) Provision of space, equipment, supplies and secretarial help for the work of the local Committee on Tropical Studies.
- 5) Provision of occasional honoraria and travel expenses for OTS-sponsored lectures on the home campus.

- 6) Financial assistance for graduate students who wish to undertake doctoral research involving field work in Costa Rica, to the extent that conditions at each university permit.
- B) Incorporation of OTS into the University. It is expected that each member institution will so far as possible incorporate OTS into its research and teaching structure and will treat OTS activities as an integral part of its own operations. This should include listing such OTS courses as meet its standards in its catalogues as a part of its own offerings.
- C) Inclusion of OTS in considerations of policy. Full participation in the work of OTS entails an institutional commitment to tropical studies, a consideration of needs in this area when making appointments, and recognition of meritorious performance in OTS as being among the grounds for promotion and salary increase.

-----

Items A 1-4 are minimum prerequisites that must be acceptable to the administration of a prospective member institution before it should consider joining OTS. The others are desirable objectives which have been attained to varying extents in the founding universities; the exact means by which they can be accomplished will vary from institution to institution.

-----

What advantages have come to Michigan from its membership?

So far only a few tangible and many intangible benefits. Remember that OTS is only now in its first full year of operation, and that few students and professors have so far been involved. Several of our graduate students have taken the basic course offered in the summer, of which they were critical with some reason; the course is being revamped and improved, with much greater emphasis on supervised field work. Professor Hairston spent six weeks in Costa Rica this summer, paid from NSF funds, to give a seminar and conduct research. Other members of our faculty who may be invited or volunteer to give advanced OTS courses in coming sessions include Warren H. Wagner in botany, Robert R. Miller on fishes, Irving J. Cantrall, Richard D. Alexander and Thomas E. Moore on insects, Ross N. Pearson on geography, Charles E. Olson on patterns of tropical land use, and other men in geology, zoology, botany and natural resources. Charles F. Walker has used the facilities and help of OTS in conducting personal research on Costa Rican herpetology. Equivalent numbers of students and faculty of most of the other member institutions have been involved in OTS activities or have carried out studies with its help.

The intangible benefits have been more important thus far. The OTS project has brought together the men on our faculty interested in tropical problems, welded them into a group with common interests and an inspiring goal, and enabled them to speak convincingly about the

needs of this field to the administration. The establishment of a Committee on Tropical Studies as an officially recognized agency of the L.S. & A. College (now to be transferred to the Graduate School), with its own small budget for expenses, also helps to give this field and the men representing it increased recognition within the university. The Committee has direct access to the Dean of the College, and serves as a means of communication between the administration and OTS. Its job is to stimulate interest in tropical studies among faculty and students, to secure maximum staff participation in OTS teaching and other activities, to advise students about OTS opportunities, and to insure that the views of the local group of participants are brought to the attention of the officers of OTS.

One thing that membership provides is the opportunity to help plan and direct the activities of the Organization, which are determined by the Board of Directors acting with the advice of the Advisory Council. Each institution has two members on the latter body, and each newly joining institution has a voice in the election of the seven at-large members of the Board of Directors. (Each of the founding institutions has one director, in recognition of its efforts toward and contribution to the creation of the Organization).

Another benefit to member institutions, inherent in the way in which OTS must operate, is that their faculties have preferential opportunities for teaching and research in Costa Rica. This is so because the advanced courses will to a large extent have to be taught by professors on paid released time from their own institutions, and only the member universities are likely to enter freely into this arrangement. The released time should often include a period for field work and study in preparation for giving the course.

Does OTS provide something that could not be obtained by other means?

I don't really think I need to answer this in detail, after what I have already said. Obviously, students from Duke can attend OTS courses without Duke being a member institution, provided there is an OTS. Similarly, Duke professors can use OTS facilities if they have their own grants, or go elsewhere for their research. OTS provides something that would not be available if it did not exist, but does not restrict its offerings to its member institutions. What it does provide is the opportunity for all institutions interested in promoting tropical studies to help overcome the difficulties and contribute to the success of this cooperative venture.

Yours sincerely,

Theodore H. Hubbell  
Director