

In the course of a half-hour's collecting we saw others but were unable to capture any of them. The funnels of these pitcher-plants were moist and cool in contrast to the surrounding dry and dusty woods and undoubtedly offered the most congenial conditions for these frogs.

In 1910 while collecting in Florida we found tree-frogs numerous in the moist troughs formed at the bases of the leaves of the common cabbage palmetto, especially where the surroundings were dry, as was the case near the sand-dunes on Anastasia island off Saint Augustine. The bases of the leaves of the common yucca (*Yucca aloifolia*) also harbor a population of insects and tree-frogs. In extreme southern Florida as well as on the tropical islands of the Caribbean sea it is usually possible to find tree-frogs in the moist centers of the numerous aroids growing on the trees and rocks. In Cuba, during the dry season, tree-frogs inhabit the moist and narrow space under the leaf-sheaths of the royal palms, even along dry and dusty highways.

Near the Harvard Biological Station at Soledad we surprised a small boa hunting out and eating the tree-frogs hidden in a roadside palm; in fact, it was the shrieks of a half-swallowed frog which disclosed the marauding boa. Along the streams near the Harvard Botanical Garden (Soledad) we collected tree-frogs in the same moist hiding-places as well as in the leaf-sheaths of the bananas. The cool damp places under the palm-sheaths, at the base of yucca leaves and palmetto leaves and inside the aroids harbor a great variety of insects, especially beetles, and sometimes earthworms and it has been while searching for insects that we have found the tree-frogs.

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### CENTERS OF RESEARCH

THE paucity and mediocrity of the research produced by some of the graduate schools of our large universities have been the subjects of a great deal of adverse censure. Out of this amazing amount of vituperation has come little or no constructive criticism.

That certain laboratories are making great contributions to science can not be disputed. Why, then, this great disparity between research laboratories? Leaving, for the time being, a discussion of personnel out of account, the author would venture the remark that a large part of the trouble is due to the matter of organization.

There seem to be two lines of development in this country. Either the department of research is under

one outstanding leader or else the research students are divided between several members of the departmental staff.

European centers of research have, in general, adhered to the first method and their success has been attested by the number of American students who have flocked to work under certain great scholars. In this country we seem to have lost sight of this fact and as a result find too often the second plan of organization. If one sets down a list of research centers, classifying them under the two modes of organization just mentioned, I believe it will be a surprise to see how they align themselves.

It seems perfectly obvious that, in a department of research where students are working for a Ph.D. degree, the best results are to be obtained when they are all directed and supervised by one individual who has the *flair* for research.

A real *esprit de corps* can hardly be built up in a divided research group. It is the unity of the group which makes for success. The divided directorate of research suggests too much the chaos which has existed the past few years in China's government.

If an educational institution intends to set up a school of research in any department it will call one man as director of research for that department. The other teachers on the staff will be called to give certain courses and not to direct research. This would not mean that they should not do any research work. On the contrary, they would be encouraged to do it. If of sufficient ability such teachers should have assigned to them an assistant of Ph.D. caliber to help in their research work. So far as actual research work goes, a teacher with a good research assistant can get more done than he can directing six inexperienced Ph.D. candidates. It would be a great stimulus to the students in the department to see this sort of research work going on.

This plea for a centralized control of research is not calling for superhuman directors. It goes without saying that the best men available will be called to such an important position, but many laboratories would be turning out a much better product to-day if their research work were centralized in each department under one individual, even though the director were not a Nobel prize winner.

Our research laboratories would hum if each department could be directed by one leader of thought and action who had the enthusiasm for his subject which is contagious and to whom has been imparted that subtle gift of passing on to others the urge for creative scholarship.

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