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## **Progress in Philippine Biology Teaching: Biology for Philippine High Schools**

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The heirs of Don Julio Nakpil have rendered a public service by causing this valuable documentary source on the Revolution to be published. Dr. Alzona is likewise deserving of our gratitude for performing so competently her task of editor and translator.

Nakpil roundly asserts that both Bonifacio and Antonio Luna were murdered and that in both cases Aguinaldo was chiefly responsible. It should be noted that Nakpil did not have first-hand knowledge of these tragedies nor of the events that led up to them, although he was close to persons who did. Historians will have to decide what weight to give to his testimony.

Nakpil corrects Kalaw's narrative on a number of points. He notes, for instance, that it was Emilio Jacinto alone and not a delegation from the Katipunan who managed to communicate with Rizal on board the *España* just before the latter left Manila to serve as an army surgeon in the Cuban war. Nakpil adds that he had this from Jacinto himself.

The reader will be impressed by the burning patriotism and blunt sincerity manifest in every page of these notes. One supposes that the same qualities distinguish Don Julio's music, which is almost invariably on a patriotic theme. That, however, is mere conjecture, the present reviewer being completely unmusical. What he is able to appreciate to some extent is Nakpil's high regard for historical truth and for the critical reading of sources as a principal means of arriving at it. "Si acaso he incurrido incorrecciones," he says, "en estas mis apreciaciones, los que ésto leyeren pueden rectificarlo, y de este modo tendremos historia fiel y verdadera."

A hearty Amen to that.

H. DE LA COSTA

## PROGRESS IN PHILIPPINE BIOLOGY TEACHING

**BIOLOGY FOR PHILIPPINE HIGH SCHOOLS: THE LABORATORY, PARTS I AND II, AND THE TEACHER'S GUIDE.**  
Adapted from *High School Biology—Green Version*. Biological Sciences Curriculum Study, American Institute of Biological Sciences. [A joint project of the University of the Philippines, the Bureau of Public Schools, and the Bureau of Private Schools, with the support of the National Science Development Board.] Manila.

Seeing the need to revitalize the teaching of biology, the American Institute of Biological Sciences (AIBS) organized in 1959 the Biological Sciences Curriculum Study (BSCS) under the chairmanship of Profes-

sor Bentley Glass of the Johns Hopkins University. The BSCS was given the task to study the defects of present day teaching of biology and to recommend measures to improve biological education.

There being general agreement that biological knowledge is doubling every ten to fifteen years, the need to up-date biology teaching at all levels of study became imperative. As a start, the BSCS decided to improve first the teaching of biology at the high school level.

Realizing that there is no single best way to teach biology in the high school, the BSCS introduced three different courses of study, known as the Yellow, Blue and Green versions, each of which utilized a different approach in teaching biology. The Yellow version has its major emphasis on the cellular level; the Blue, on the molecular level; and the Green, on the biotic community. Significantly, not one of the three versions puts its major emphasis on the "tissue and organ" level preferred by conventional texts. Furthermore, although each version teaches the course from a more or less different viewpoint, still the majority of the topics covered in each course is common to all three versions. Each version consists of a text, a laboratory manual and a teacher's guide for laboratory work.

These new approaches in the teaching of biology caught the attention of a group of Philippine educators who thought of adapting the BSCS materials for use in Philippine high schools. Under the initiative of Dr. Alfredo T. Morales, Dean of the Graduate College of Education and Vice-President for External Studies of the University of the Philippines, the BSCS Adaptation Committee for the Philippines was organized sometime in 1961 under the chairmanship of Prof. Dolores F. Hernandez of the University of the Philippines. Present members of the committee include: Dr. Luz Sangalang of the Bureau of Public Schools, Mr. Melanio Perez of the Bureau of Private Schools, Prof. Consuelo V. Asis, Prof. Wilfrido Maceda and Prof. Carmen Velasquez of the University of the Philippines.

Of the three BSCS versions, the adaptation committee selected the Green version because of "the availability of flora and fauna all year round, the importance of these to the daily lives of the students, plus a number of other compelling considerations." What are these "other compelling considerations" that led the committee to adapt the Green version instead of the Yellow or Blue ones? Possibly two principal reasons are: the fact that Philippine high schools suffer from lack of laboratory equipment and lag in the study of the physics and chemistry of biology, and the fact that of the three versions, the Green version demands the least number of laboratory supplies and requires minimum studies on the physics and chemistry underlying biology.

With support from the National Science Development Board, the Bureau of Public Schools, the Bureau of Private Schools, the Univer-

sity of the Philippines and other agencies, the adaptation committee completed sometime in 1963 the adaptation of the Green version laboratory manual and teacher's guide, both of which were subjected to experimental use in some public high schools during the school year 1963-64.

Although it is the aim of all laboratory manuals to stimulate the student's interest in biology, develop his power of observation, sharpen his power to interpret biological data and encourage independent thinking, needless to say, most manuals have fallen short of these aims. Happily, the adapted BSCS Green version laboratory manual may well be cited as showing promise of living up to its objectives.

This adaptation is not radically different from conventional manuals. Many of its exercises are common and conventional, especially those demonstrating or illustrating biological principles that have withstood the test of time. But the adapted edition has more to offer. Compared to traditional manuals, it presents more exercises dealing with living specimens, provides more physiological exercises and introduces more exercises that are investigatory in nature. It discourages "cooked-up" experiments that abound in conventional laboratory manuals. On the other hand, it puts major emphasis on "open-ended" experiments, the results of which can not be derived from the text. Furthermore, it also emphasizes studies on the ecological and behavioral aspects of biology which are barely taught today.

With the exception of six new exercises introduced by the adaptation panel, all other exercises contained in the adapted edition were obtained from the experimental and revised BSCS editions. In adapting this manual, the committee deleted certain exercises from the BSCS editions, rearranged the order of exercises, introduced locally obtainable specimens and rewrote the exercises.

The rewriting of many of the exercises, however, seems unnecessary. There is no significant difference between the original and the adaptation as far as the introductory explanations to the exercises, the procedures to be followed, the materials or data to be used and/or the questions to be answered are concerned. Phrases and sentences have merely been reconstructed, paragraphs rearranged, but the essentials have remained unaltered. Many of the BSCS exercises are suitable for local use as they are, without the need of rewriting.

In some exercises, the introduction of local specimens did not require rewriting, especially since the names of recommended specimens had not been specifically mentioned. The recommended specimens were named only in the teacher's guide. Thus, it seems, for some of the exercises, the teacher's guide precluded the need to adapt or revise.

It must be noted that the inadequacy of laboratory facilities in Philippine high schools necessitated the omission in the adaptation of

certain exercises found in the BSCS edition. In fact, in some instances, this reviewer doubts that some of the adapted exercises, which involve the use of compound microscopes, can be performed satisfactorily in most of our high schools. It is a common observation that many Philippine high schools have only one or two microscopes for a class of forty or fifty students.

In spite of the existence of the *Teacher's Guide*, it seems clear that a teachers' training program is still necessary for the successful implementation of some exercises. I refer, for example, to the exercises involving the study and cultivation of microbes.

There is, nevertheless, no question that the introduction and the adaptation of BSCS materials in the Philippines is a step forward in the task of upgrading and updating the teaching of Biology in Philippine high schools.

JAIME C. JOAQUIN

## CHRISTIANITY AND HISTORICITY

**FAITH AND THE WORLD.** By Albert Dondeyne. Pittsburgh: Duquesne University Press, 1963, 317 pp.

This work, written by a professor of the University of Louvain, is the first of a theological series that is to be published by the Duquesne University Press. It establishes a dialogue between faith and civilization, showing by a profound analysis the autonomous nature of each, and the relations and tensions that exist between them in the world of today.

Dondeyne believes that several factors, especially, have contributed to bring about the crisis of faith which people, in an ever increasing number, are passing through today. The exact study of nature and the development of the historical sciences have made modern man less naive, more critical with regard to truth and knowledge, particularly when they concern supernatural realities. Furthermore, technology is reducing the distances that formerly separated peoples and cultures, and is bringing about the unification of a spiritually heterogeneous world in which believers and non-believers meet and work together. Modern man, therefore, needs personal insight and conviction to support his moral and religious life against the ever present danger of relativism and skepticism. Finally, the new and incredible projects that science and technology are making possible for him in his profane task of building a civilization, threaten to absorb his entire attention and to eliminate concern for the religious dimension of his existence.