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Science Survey—1955

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Notes and Comment

Science Survey — 1955

A previous paper¹ reported on the general status of scientific research in the Philippines. The observation was made therein that one serious drawback was the financial situation. From this datum was made the prediction that the trend of scientific research in the Philippines would be mainly along practical lines rather than in areas of basic research.

An attempt is now made here at a representative sampling of research activities in the Philippines during 1955. This sample was made by the writer in consultation with Dr. Joaquin Marañon, Dr. Patrocinio Valenzuela and others, whose official positions afford them an excellent view of the general situation.² The sample indeed bears out the predicted ascendancy of applied research over basic research.

The native grown *kalimatas*, under assiduous analysis by leading pharmacologists³, has yielded an important alkaloid called phaeantharine chloride. Heart ailments, fast becoming a number one killer, may now be relieved by the use of this new product, in virtue of its proven effectiveness on the cardiovascular system and its possibilities as a ganglionic block. It is still being tested for side effects.

Of the immense Philippine flora of about 10,000 species, 483 have been screened in the search for antibiotics. It is found that *datiles*, *acacia* and garlic can be effectively used against harmful bacteria. Of these, the first two are especially potent against tuberculosis germs.

More than 300 artesian wells have been sampled, to determine their water composition. Samples were analyzed for their bacterial, physical and chemical constituents, especially their iron, chloride and sulphate contents, to see if any given sample would render the well fit or unfit for domestic and/or industrial uses of the particular locality. This routine of the Institute of Science and Technology has already had a telling impact on the community life of the barrios.

The solar eclipse of June, besides affording a sensational spectacle to the millions who watched it, also furnished valuable data to the scientists in the form of photometric records and ionograms. Two independent series of photographs⁴ of the totality have captured on film the present shape and quality of the corona, thus adding another chapter to the eleven-year biography of a solar cycle. More than 300 ionograms taken at Baguio will presently tell the story of how the ions over Luzon behaved when the sun went in hiding.

On the subject of upper atmosphere, over 200,000 ionograms have been accumulated by the end of 1955 at the Baguio station of the Manila Observatory. Of the chain of cooperating ionosphere stations all over the world, the Philippines is unique in its position near the magnetic equator. For this reason, international bodies engaged in radio-propagation research have a high regard for Philippine ionograms.⁵

The manufacture of paint has been given a big boost by the discovery of a technique for treating castor oil with common clay. Hitherto, paint manufacture needed the importation of millions of pesos worth of linseed oil. Now, the chemists of the IST will save the Philippines that much money by their discovery of this use of clay.

The typical Filipino diet has not been judged sufficiently healthy in comparison with that of other countries. A substantial improvement in nutrition may now be expected as a result of two studies in this field, analyzing the contents of Philippine foods for their nutrient values, especially for the percentage of sodium and potassium of different foods.⁶

A well-equipped library is a "must" for scientific research. The library of the IST, starting from zero in 1945, has now piled up a collection of 15,000 bound volumes dealing with all the na-

tural sciences, and 3,109 scientific periodicals and bulletins. This keeps the Filipino scientist in touch with all the important researches going on all over the world. That this valuable wellspring of scientific knowledge is actually serving the cause of scholarship is evidenced by the fact that 12,337 users of the library registered during 1955, — mostly graduate students, research scholars and industrial technologists.

The coconut scourge *kadang-kadang* has been challenging the ingenuity of our scientists. Although they are now fairly sure that no insect is responsible and that therefore a virus must be the guilty one, they have not yet succeeded in identifying it. Efforts at cornering the culprit have been a source of despair to some investigators, of stimulation to others. The former have given up hope, and have recommended that coconut plantations found infested with *kadang-kadang* be immediately liquidated and tapped for their *tubá* possibilities. The latter have turned to radioactivity: isotopic tracers, like radio-zincum and phosphorus, are used to measure mineral uptake of diseased tissues as compared with that of healthy tissues, with the hope that the accumulation of such clues will reveal the nature of the virus.⁷

A young and ingenious physicist⁸ at the IST has worked out a mathematical hypothesis on the symmetry of energy and matter. His hunch seems to have been confirmed a few months ago when the California bevatron revealed the existence of the anti-proton. He feels that the hypothesis can be directly verified by bringing an electron and a positron together, each with an energy of about twenty billion electron-volts, and thereby producing two gamma-rays, whose energy will be as calculated from the hypothesis. Its quantitative verification may well take the ground out from under the controversial view of the positron as "a hole in a negative sea."⁹ But to do this, he needs a bevatron, and bevatrons are very expensive. And so he has turned instead to more practical matters and constructed for the civilian defense authorities a working model of a portable radiation-detector, made out of spare parts from his electrical shop.

In summary, the scientific activity of the nation appears to be aimed primarily at satisfying practical and immediate needs. Basic research is for the most part set aside. The inventions of the past decade are mothered by sheer material necessity.

Money is lacking. But the know-how is here, the men are willing and the future is bright.

VICENTE MARASIGAN

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¹ Miguel M. Varela, "Scientific Research and Philippine Progress", PHILIPPINE STUDIES II (Dec. 1954), 360-366.

² Dr. Marañon is the director of the Institute of Science and Technology. Dr. Valenzuela is the executive secretary of the National Research Council.

³ Drs. Alfredo C. Santos, Conrado Dayrit, Gerardo V. de Leon, Horacio R. Estrada, Ernesto V. Valdez, Natividad E. Diaz, Romulo Guevara and Mrs. Gertrudes Aguilar-Santos. In this connection, Dr. Dayrit was named the "Outstanding Young Man in Science" by the *Sunday Times Magazine*.

⁴ One by Ricardo Cruz, chief astronomer of the Weather Bureau, and the other by Hans Arber, amateur astronomer in Pasay City. Mr. Arber is in collaboration with Professor Waldmeier of the International Astronomical Union.

⁵ See also PHILIPPINE STUDIES III (June 1955) 164-186.

⁶ Engaged in these projects are Dr. Solita F. Camara-Besa, Minerva Bataclan, Mrs. Carmen Ll. Intengan, Leon G. Alejo, Velona A. Corpus, Rosita D. Salud, Isabel del Rosario, Rosario Gomez, Jesusa Henson and Isabel Concepcion. The partial results of the latter study are published in the *Philippine Journal of Science*, (June 1955), pp. 263-273.

⁷ *Araneta Journal of Agriculture* (April-June 1955), pp. 15-27.

⁸ Ralph Blanco, a technician in the division of Tests and Standards, formerly an instructor in mathematics at De La Salle College.

⁹ First expounded by Dirac in 1930, and later called into doubt by Louis de Broglie in *Revolution in Physics* (transl. by Niemeyer, Noonday Press, N.Y. 1953), pp. 256-257.

Literary Survey-1955

In March 1954 and again in March 1955 PHILIPPINE STUDIES presented a general picture of the literary output of the preceding year. Continuing this effort, the present writer through the courtesy of the personnel of the copyright office made a study of the books registered there during the year 1955. Though some books were probably published without copyright, we may in general assume that the list presented below contains all the worthwhile titles that appeared in the period under consideration.

In all there were a few over two-hundred books registered with the copyright office. Of these more than half were texts,