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Charles E. Deppermann S.J.:
Philippine Scientist

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Charles E. Deppermann S. J.: Philippine Scientist

JAMES J. HENNESSEY

I

BY COMMAND OF GENERAL MACARTHUR: in March 1945 in the Philippines, papers which concluded with that phrase were given immediate attention. To Father Deppermann, just freed from the concentration camp of Los Baños, a set of papers ending with that phrase was handed which gave him priority on a plane which was to take him to Washington D.C., there to attend meetings at the Pentagon.¹ Why was this priest, broken down in health by the starvation diet of the interment camp presented with "telegraphic invitational travel orders" to Washington? His travel papers gave the answer: for "consultation in connection with weather matters." Father Deppermann had so contributed to the science of tropical meteorology that his opinions on Far East weather were considered important. He was flown to Washington almost as soon as he could stand the strain of the travel.

On the eighth of May this year (1957) just as certainly a war casualty (though years after the event) as any victim of a blockbuster, he died piously in the Lord and ended his scientific work at Manila. The mere enumeration of his publications

¹ Travel papers of Father Deppermann in the Manila Observatory archives.

is a tribute to his genius and his industry.² In this article, a summary of his scientific achievements is presented.

II

In August 1905 Charles E. Deppermann Jr., a lad of sixteen, had the boyish joy of seeing the first of his many published works appear in print. It was an answer book to *Schultze's Advanced Algebra* done in cooperation with the author and William Manguse.³ Young Charles had shown his interest and adeptness in mathematics by solving every problem in the book. The quality of this work is indicated by the fact that it was reprinted nearly twenty-five years later in November 1929. In the preface to another book, *Graphic Algebra* published in December 1907, Dr. Arthur Schultze says: "The author desires to acknowledge his indebtedness to Mr. Charles E. Deppermann for the careful reading of the proofs and for verifying the results of the examples."⁴ For a boy who had just completed four years in the New York High School of Commerce, this first work gave promise of future success in mathematics and science.

In 1910 Mr. Deppermann entered the Novitiate of the Society of Jesus at Poughkeepsie. After four years of spiritual and classical preparation there, he went to Woodstock College for philosophy. Here he could devote more time to mathematical and scientific studies. Apparently he excelled in these matters for he was not only exempted, by previous examination, from some of the prescribed courses but he so favorably impressed his professors and superiors that they determined that his special talent should be fostered by graduate studies

² A complete list of Father Deppermann's published works will be found in the special section on Philippine Bibliography in this issue. His published works include 63 titles, of which 22 were published separately and 41 in periodicals.

³ Arthur Schultze, Ph.D. *Answers to Schultze's Advanced Algebra*. Compiled by the author with the assistance of William P. Manguse and Charles E. Deppermann, Jr. New York. The MacMillan Company. 1905.

⁴ Arthur Schultze, Ph.D. *Graphic Algebra*. (New York, MacMillan, 1907) p. v.

in physics. But before he could begin those studies he had to conclude the three years of philosophical and the four years of theological studies at Woodstock. In 1920 he was ordained a priest in the Dahlgren Chapel at Georgetown University. An additional year at St. Andrew-on-Hudson terminated for him the customary and long course of studies (in his case twelve years instead of the usual fifteen) common to Jesuit priests. He was now ready to resume his study of the physical sciences.

III

On the advice of an older Jesuit (Father Edward Phillips who had taken his doctorate in mathematics) Father Deppermann pursued studies not in mathematics but in physics. As considerable training in mathematics is a prerequisite for a doctorate in physics, he would thus have training in both sciences. During his three years at Johns Hopkins University in Baltimore, Father Deppermann made the acquaintance and won the friendship of several renowned professors as well as of his classmates. Many of the latter were to become outstanding scientists of our time. Among his professors were Dr. Joseph Ames (later president of Hopkins), Dr. Pfund (whose name is associated with a spectral series for hydrogen) and Doctors Anderson, Murnaghan and R. W. Wood. His classmates included Merle Tuve (a pioneer in ionospheric physics and at present director of the department of terrestrial magnetism at the Carnegie Institution), Joseph Kaplan (who is now chairman of the U.S. National Committee for the International Geophysical Year) and Ferdinand Brickwedde (chief of the division of cryogenics for the National Bureau of Standards). As a student at Hopkins, the Jesuit was a bit older than his fellow students. He felt that this gave him advantage over the younger men because earlier he had had more time for private study. He might have finished his doctorate in two years if his first project had not met with a difficulty beyond his control. The particular defect was discovered later on by R. W. Wood who wanted to use similar equipment for one of his research projects. A laboratory technician had coated the interior of a vacuum tank with a paint which volatilized into

the space of the vacuum. (This experience Father Deppermann remembered all his life and took special cognizance of it in his planning of the restored Manila Observatory).

The work on a second project was a success under Dr. Pfund. This was published as an article in the *Astrophysical Journal* entitled "Some Studies of the Stark Effect." His knowledge of the German language at a time when German scientists were preeminent leaders in scientific productions was a notable asset. In his doctoral thesis he also refers frequently to work done by Japanese scientists. This is an interesting point in view of his subsequent life. Unlike so many candidates, Father Deppermann had no fears about his comprehensive doctoral oral examination, giving as his reason his long experience as a Jesuit in taking oral examinations.

It was the wish of his superiors that Father Deppermann should prepare for the work of the Manila Observatory which at the time was also the Philippine Weather Bureau. Despite his doctorate degree in physics, he realized he still needed more proximate preparation for Observatory work. To this end, the year 1925-26 found him at the University of California and the Lick Observatory studying astronomy. He believed that talent alone was not enough but that thorough training was necessary in order to obtain solid scientific results.

IV

On his arrival in the Philippines in September 1926 he was assigned to the Manila Observatory as chief of the astronomical division. This was the year of the World Longitude tests. To participate in that world study he determined in the two following months the longitude of the Manila Observatory by radio means. His results were closely in agreement with values previously obtained by cable means. To complement this work in longitude, in January 1927 he observed star pairs with a transit telescope to obtain the latitude of the Observatory.

As astronomical chief, it was his principal task to provide for the time service which the Observatory was rendering to

the entire Far East. This he improved by painstaking care and with the aid of a new clock so that "the accuracy which was obtained, less than one-tenth second error, put the Manila time signals into the First Order grade under the Classification of the United States Hydrographic Office of the U. S. Navy."⁵

At this time the variety of his scientific interests is apparent from his published works. In those early days of ionospheric discovery he was writing about the height of the Heaviside layer, the name commonly given to the ionosphere when so much less was known about it. Several studies likewise were made of electricity in the atmosphere at Manila. The famous nineteen-inch refractor telescope at the Observatory on Padre Faura Street was subjected to a number of scientific tests and a report was written. He published at that time a star atlas adapted for fifteen degrees north latitude, that is, central Philippines. Father Deppermann made the charts with the feature original with him, though not uniquely so, of printing the northern and southern sky on the same page. They were monthly charts and showed the stars visible in Manila (and the Philippines) which meant incorporating almost all the stars of both hemispheres.

The occurrence of the total solar eclipse of 1929 afforded him his first and only opportunity to visit the southern Philippines. In conjunction with a party, including the famous Schmidt from Hamburg, Germany, the Manila Observatory party had Father Deppermann in charge of the expedition to Sogod, Cebu. The "seeing" at Cebu during the eclipse nearly spoiled everything from the visual and photographic standpoint. Still, he took and published his electrical observations on atmospheric potential.

Back in Manila, the nineteen-inch equatorial refractor telescope was used from October 1929 until February 1931 to obtain information about variable stars. Two lists of these variable stars were published. All of these activities with their results found in his publications are an index of the breadth and depth of his astronomical interests.

⁵ W. C. Repetti S.J. *The Manila Observatory* (Washington, D.C. 1948) p. 31 et seq.

V

The failing health of Father Jose Coronas leading to his resignation from the Observatory and Weather Bureau after twenty-four years of service, called for a rearrangement of the staff. Father Deppermann, toward the end of 1931, was told to prepare to head the meteorological division. According to his own high standards of performance he saw the need of direct preparation for weather work. Consequently, at the beginning of 1932 he took ship from Manila for Washington to learn the procedures of the United States Weather Bureau. These did not satisfy his needs so he proceeded to Norway to the Geophysical Institute in Bergen and the Meteorological Office in Oslo. He learned the theories of weather as propounded especially by Bjerknes and Petterssen, and noted the way they applied their observations for forecasting. This nine-month period was sufficient immediate preparation for the best scientific work of his life. Back in Manila in November of 1932 he was named assistant director of the Weather Bureau while continuing his post as chief of the meteorological division. He held this latter office until succeeded in 1933 by Father Bernard F. Doucette S.J.

As assistant director, Father Deppermann now devoted himself wholeheartedly to meteorological problems as his principal and almost sole research study. His papers, of which twelve particularly explain his theories, are not just articles of a few pages but rather ample treatises. This is not the place to explain his theories on the weather. He himself has published a summary article in the pages of *PHILIPPINE STUDIES*.⁶ However, he was a pioneer in applying the Norwegian ideas of frontal and air-mass analysis to the weather of the Philippines and its vicinity. In looking over his papers one notices the clarity of thought and expression that shows the master's touch. He had a profound knowledge of his subject gleaned by careful study and selection from the sources. It is worthy of note that the year 1933 marks a turning point in the historical analysis of tropical meteorology. The shift from the

⁶ C. E. Deppermann S.J. "General Features of Philippine Weather" *PHILIPPINE STUDIES* II (June 1954) 102-115.

climatological approach to the air-mass method is in no small measure due to the influence of his writings.

Those who write reviews or summaries of a field of science endeavor to classify various scientists in a particular school. By such a leveling process, authors can be dispatched or extolled with the school to which they belong. In tropical meteorology Father Deppermann belongs to the school of frontal analysis and air-mass theory. Even if this school of thought becomes outmoded—and that is surely the trend with most scientific theories of the last few decades—the papers of Father Deppermann will still have to be read by any serious student of typhoons and tropical meteorology. There is more to his papers than the defense of a scientific position; there is the clear exposition of the solid basis, the actual observations, upon which any and every theory must rest. Besides, he is most careful to make the necessary distinctions which the data require. He was aware that he was in the vanguard. Constantly, then, he expressed the desire that others would take up the work either to advance it along the same path or to go back and proceed in another direction. His conclusions, based on information which was about as complete as was then available to anyone, allowed for modification in the light of more thorough subsequent observations.

When the adequate history of typhoons and tropical meteorology is written the work of Father Deppermann will be included. *Meteorological Abstracts and Bibliography* has abstracted and presented his papers as a permanent feature in the reference literature of tropical cyclone theory.⁷

The *Compendium of Meteorology* is a large tome whose aim in part is to "take stock of the present position of meteorology, to summarize and appraise the knowledge which untiring research has been able to wrest from nature." The name of Father Deppermann is mentioned there about forty times in connection with tropical meteorology and more than a half dozen times in connection with cloud physics. Besides these

⁷ *Meteorological Abstracts and Bibliography* American Meteorological Society (Boston) Vol. 7, Nos. 9 and 11, Sept. and Nov. 1956.

references by name to his works, there are explanations of the ideas he has propounded. A few brief quotations from this authoritative work, done by recognized leaders in their fields, will illustrate their opinions of his work.

Probably the most systematic analysis and compilation of the characteristics of tropical cyclones were those of Deppermann for the Philippine area,⁸

says Gordon E. Dunn of the U. S. Weather Bureau. And later on the same author singles out Father Deppermann:

Tropical meteorology is deeply in debt to Father Deppermann for his painstaking assembly and analysis of typhoon characteristics in the Philippine area.⁹

In another chapter Herbert Riehl after several references to the papers of Father Deppermann states:

Deppermann is one of the few writers who has made a detailed effort to calculate radial and tangential velocity components. Apart from Deppermann other writers have contented themselves with application of simple hydrodynamics.¹⁰

Charles F. Brooks quotes Father Deppermann frequently and cites him among others as follows:

For comprehensive discussions of aerological interpretation of clouds, the reader may refer to... the studies... of convective clouds in tropics by... Deppermann.¹¹

VI

Scientific works in any language, because of their technical nature, are perforce limited to a few readers. Publishers do not go to the trouble of issuing translations or reprints of such restricted work unless the subject matter is of some remarkable worth. Therefore the reissuing of the papers of Father Deppermann, while he himself was a prisoner in a Japanese internment camp, was no mere polite compliment nor

⁸ Gordon E. Dunn "Tropical Cyclones" in *Compendium of Meteorology* American Meteorological Society (Boston 1951) p. 887 col. 1.

⁹ *Ibid.* p. 900 col. 2.

¹⁰ Herbert Riehl "Aerology of Tropical Storms" *Ibid.* p. 907 col. 2.

¹¹ Charles F. Brooks "The Use of Clouds in Forecasting" *Ibid.* p. 1167 col. 1.

obsequiousness. There was advantage to the people who did the reissuing. Who were these people and why did they want his papers? Those who have been concerned with the new issues of his papers fall into three groups: (a) Japanese scientists; (b) the Royal Australian Air Force and (c) the United States Weather Information Branch.

Japanese weathermen have long respected and admired the scientific work of the Jesuit Fathers of the Manila Observatory. Perhaps, experience of some typhoons striking them from the Philippines has helped towards this appreciation. At any rate, Father Deppermann's works were eagerly studied by the Japanese. To make sure the younger meteorologists would have access to his papers, they translated at least nine of his papers into Japanese. Besides arranging the translation, Dr. Kazuo Ogasahara has been especially laudatory of Deppermann's research work. In publishing his own work, *Kishogaku Tsuron* (Handbook of Meteorology), he expressed his debt of thanks to Father Deppermann as follows:

On the completion of my new book, I should like to express my sincerest gratitude in the name of science to Father Deppermann whom I owed many guidances and helps directly and indirectly in my present work. Dr. Deppermann, the famous scholar-priest has shown a profound understanding for the Bergen school. The Father has bestowed many suggestions and advices on me in my long studies and is regarded as my great benefactor in my researches of the South Seas meteorology.

That explains why the weathermen of Japan translated so many of Deppermann's articles into Japanese.

The second group of scientists to make use of Father Deppermann's works were the Australians. After the outbreak of World War II the Meteorological Service of the Royal Australian Air Force sent a letter to the Riverview Observatory in Australia requesting the loan of Father Deppermann's *Upper Air Circulation in the Philippines and Adjacent Regions*. This was sent to them. It was returned a month later. After a further month there was another request for a second loan. This was on 27 March 1942 when the loan was made. Finally, a year later, the director of the Meteorological Service returned the copy to Riverview with this statement: "This work has

proved so valuable to us that we have had it reproduced for general distribution to forecasting officers." The reproduced copy is like the original, except that it is a looseleaf edition in a stiff cover on which the title is reproduced as in the original, with the following additions: at the top "R.A.A.F., Directorate of Meteorological Services" and at the bottom, "For Official Use Only" and "Reproduced at Melbourne, January 1943."¹²

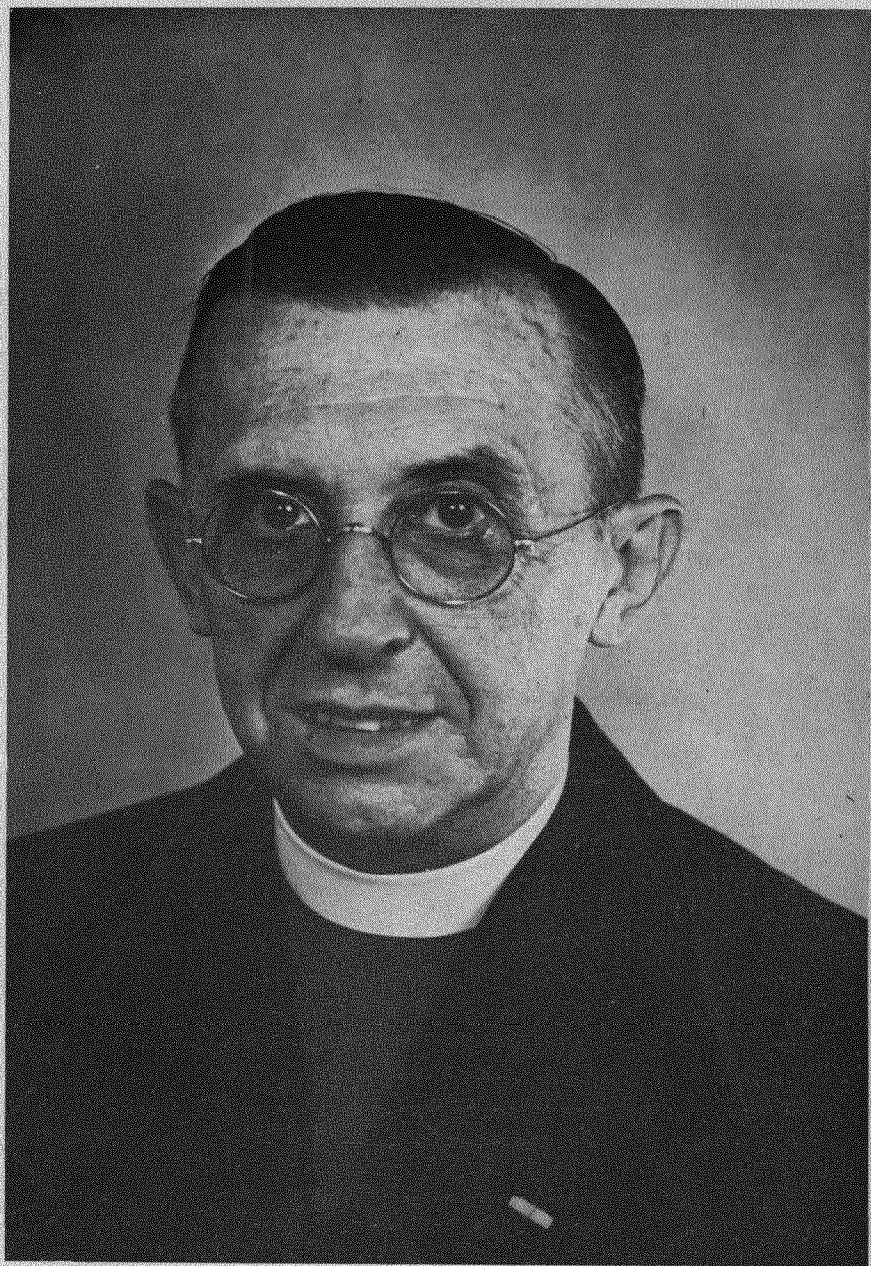
The Forces of the United States did not fail to take cognizance of these valuable papers. They too reproduced at least four of his papers. Report No. 45 of the Publications of the Weather Information Branch, Headquarters, Army Air Forces reproduced in September 1943 Deppermann's *Outline of Philippine Frontology*. At the top and bottom of the cover occurs the word "restricted." Deppermann's *Typhoons Originating in the China Sea* is their report No. 787; *The Upper Air at Manila* their report No. 806 and *Are Thunderstorms Around Isolated Island Stations in the Philippines Frontal?* their report 820. It is not surprising that the author of these reports upon his liberation from Los Baños was given "invitational orders" to go to the Pentagon.

VII

Dr. Ivan Ray Tannehill, now retired from the U. S. Weather Bureau, has written several authoritative books on typhoons and hurricanes. One of his recent books is *The Hurricane Hunters*. To head each chapter of this book he has selected an apt quotation from some renowned person, among them Euripides, Shakespeare, Dante, Tennyson, F. D. R. When he comes to the chapter on typhoons he selects his quotation from Father Deppermann. In that chapter the author says, "Father Charles Deppermann S.J., formerly of the Philippine Weather Bureau, did as much as any man to help people prepare for these catastrophes (typhoons)."¹³

¹² Explanatory letter from Riverview under date of 27 August 1955 in the Manila Observatory archives.

¹³ Ivan Ray Tannehill *The Hurricane Hunters* (New York 1956) pp. 167-168.



The U. S. 54th Weather Reconnaissance Squadron likewise began its recent (1956) report with a quotation from Father Deppermann. The author took pleasure in referring to Father Deppermann as "this eminent scientist, who had been plotting and studying the characteristics of typhoons for many more years than there has been a Weather Squadron on Guam."¹⁴

When Major General W. O. Senter of the U.S.A.F. was leaving the Air Weather Service, quite spontaneously he took the occasion to write the following in a personal letter to Father Deppermann:

Air Weather Service has benefitted from many of the techniques you have developed and much of the knowledge you have recorded on tropical meteorology. Our work in the Philippines at the close of World War II was facilitated by your progressive and cooperative attitude.¹⁵

The foregoing illustrations have been given to show that the period of his life from 1933 until the outbreak of the war was most scientifically productive. The papers he wrote during that period are his monument. The reader who merely looks at the list of titles would scarcely be in a position to evaluate their worth. But the testimony of world weather men in regard to their meteorological significance leaves no doubt of the high place Father Deppermann holds among these scientists in various countries.

VIII

Sometime before World War II started, he devoted much time and effort to a study very pleasing to him. From this, he has left a thorough set of notes which have never been published. The notes consider in general the philosophical aspects of modern physics. The matters treated are divided into six sections: (1) the special theory of relativity, (2) the general theory of relativity, (3) the quantum theory, (4) the methodology and scope of modern physics, (5) philosophical systems

¹⁴ Captain Reginald Shinn *54th Weather Reconnaissance Squadron Report* (Guam, June 1956) p. 15.

¹⁵ Private correspondence 19 April 1954.

of modern physicists and (6) the evidence for subatomic particles. These papers show that despite his major field of concentration (meteorology) he still read deeply in the current literature of physics. In this work the burden of his references falls upon the periodical literature coming out at the time of writing.

With the outbreak of war it was inevitable that his scientific work should be curtailed by the interruption of normal operations. For the first two and a half years he continued his labors in private (the Observatory buildings and equipment had been seized by the Japanese) but from July 1944 to liberation days he remained behind the barbed wires of the prison enclosure at Los Baños. The ravages of war not only told on his health and on the complete destruction of the Manila Observatory—its buildings, its library and its instruments—but also for him personally they destroyed the fruits of his previous work—work which can never be duplicated for the original source material perished in the ashes.

In the first week of the War five hundred copies of his monograph entitled *Upper Air Characteristics (1-4 km) of the Philippines and Adjacent Regions* were published. Despite planned efforts at distribution, the havoc of war destroyed every copy. For years after the war Father Deppermann traced down every faintest lead about any copy of the monograph but not one proved successful.

Besides the total loss of that paper, the original and carbon copy of the manuscripts of seven other papers which he had laboriously produced during the early years of the war were completely consumed in the flames of the siege of Manila. The destruction of these papers is a loss not only to Father Deppermann but also to the body of knowledge of meteorology. The titles of these lost papers are listed in the bibliography published elsewhere in this issue under number 45, itself an article which summarizes the conclusions of the destroyed papers as remembered by Father Deppermann after his return to Washington.

IX

After the liberation of Los Baños on 23 February 1945 Father Deppermann was, as we have seen, flown to Washington. This flight was really the first step in the resurrection of the Manila Observatory which died in terrible agony during the Battle of Manila on February 1945. Scarcely taking any time to recoup his lost energies he threw himself at once into his scientific work. He continued to write papers in meteorology. All the while he was thinking about the restoration and resumption of the scientific work in the Philippines. At the end of February 1946 he was back in Manila. Having lost in the war 5000 of the cloud pictures he had taken, he set out to duplicate that work. From 3 March 1946 to 15 March 1947 he took at least one picture daily of the clouds over Manila and several photos on typhoon days. Much correspondence and much thinking and praying went into the future work of the Manila Observatory.

It soon became clear that the Manila Observatory would not resume its splendid record in weather work started back in 1865. The Philippine government had decided to start a Weather Bureau independent of the Observatory. Father Deppermann, nothing daunted by the possibility of abandoning the scientific field he had so illustriously served, now turned his attention to geophysics. After a few months in the summer heat of Washington he transferred to the equally hot city of St. Louis in August 1947. For the third time we find him making immediate preparation for future work. At St. Louis University under Father James B. Macelwane S.J. he laid the foundation for his seismological studies. To switch at the age of fifty-eight to a new field of science and to enter upon it wholeheartedly is a tribute to his scientific versatility. His much earlier fundamental training as a Jesuit and a physicist served him well now.

While at Georgetown University, he was appointed acting director of the Manila Observatory on 19 July 1947. On 23 February 1948 he succeeded Father Selga as director. The effects of the war years and the intense toil at their close finally accumulated to wear down his health. He was forced to

retire to the sidelines for about a year in order to regain his strength. During this period he was quietly planning the course of the new Observatory. The results of his planning have been published in the first issue of *PHILIPPINE STUDIES*.¹⁶ The resurrection of the Manila Observatory is his greatest postwar triumph.

X

In November 1954 a UNESCO Symposium on Typhoons took place in Tokyo. "It was probably for the first time in the history of study of tropical storms that so many world authorities on this subject have been able to meet and discuss the results of their observations and research."¹⁷ At the head of the list of consultants was the name: Reverend Charles E. Deppermann S.J. When the time came for Father Deppermann's talk, the chairman (Dr. Simpson) amid applause introduced him thus: "Introducing Father Deppermann to this assembly is like introducing the President of the United States to his people."

During the Eighth Pacific Science Congress held on the campus of the University of the Philippines at Quezon City in November 1955 Father Deppermann was the convener for the symposium on microseismology. He produced three papers on seismology for this congress.¹⁸

In early 1956 Father Deppermann was requested to write a message to introduce a book on weather for the school children of Japan. This was a task of love, for many of those children of Japan had joined their small coins together to make a sizeable gift through the UNESCO for the restoration of some parts of the instruments he needed for the Observatory. The Japanese author was most pleased with the message and deigned to put it in Japanese on the first page of the book.

¹⁶ Charles E. Deppermann S.J. "The Manila Observatory Rises Again" *PHILIPPINE STUDIES* I (1953) pp. 31-41.

¹⁷ *Proceedings of the UNESCO Symposium on Typhoons* (Tokyo, November 1954).

¹⁸ *Proceedings of the Eighth Pacific Science Congress* (1953) Vol. 1 p. 91.

The author, then, concludes his preface with these words:

This book is treated from first to last with a view to elucidate the meteorological phenomena of Japan and its neighborhood based on the Norwegian school. The author feels it a great honor and joy that Father Deppermann is kind enough to send his message for this little book to encourage the younger generation of Japan. The present writer hopes that the joy will be shared by them all. It is also the author's belief that they, reading this book can well understand Father Deppermann's frontology which he propounded to the learned circle and with which he has come to his conclusion. Father Deppermann, Director of the Baguio Observatory, is devoting himself to the valuable pioneering work. It is the earnest desire of the author that meteorology of Japan will grow into a gigantic tree as a national science through the hand of our younger generation and the prayer by Father Deppermann.

XI

Two pieces of private correspondence may be mentioned here. The first letter, dated 26 August 1953, is from the executive office of the department of meteorology and climatology of the University of Washington. This letter to Father Deppermann requested "that you honor us with an autographed photograph of yourself to be mounted in our Distinguished Meteorologists Panel." The second letter written in 1956 was addressed to the Manila Observatory from a gentleman in Houston, Texas. It begins: "During World War II, Admiral Nimitz wrote a letter on Typhoon Doctrine and addressed it to his Fleet Commanders. In his letter he referred to the observations made over a number of years by a Father Deppermann, at the Manila Observatory." Such quotations may be considered isolated incidents but they do indicate the extent of the name and fame of this priest-scientist.

A letter written after the death of Father Deppermann deserves to be quoted in part. Dr. Kazuo Ogasahara, previously mentioned, after expressing his "deepest regret and sorrow" for the passing away of Father Deppermann, continues:

My friendly intercourse with him extended about thirty years. The reason why I had paid unending honor to him was this that he had lived an honorable life in which, serving both God and Nature he harmonized science with his devotional faith. I believe this way of living is a fundamental spirit of Catholicism.

And again,

Father Deppermann has acquired "air mass theory" and "frontology" of Norwegian school and opened up a new era in the sphere of typhoon researches. His enormous treatises on Philippine typhoons were faithfulness itself. I fear some of their detailed parts may undergo correction with advance of aerological observations, but I firmly believe that his ideas for the general setup of typhoon origination will not suffer change. No one can deny that Father Deppermann was a prominent meteorologist.

XII

It is often asked why a Jesuit priest like a Secchi or an Algué or a Faura or a Selga or a Deppermann should dedicate his life to scientific research. The answer may be stated in the words of Pope Pius XII. In addressing the delegates to the Tenth General Assembly of the International Union of Geodesy and Geophysics held 24 September 1954 the Holy Father said:

We are happy to grant this audience... for it gives Us the opportunity of making known to this impressive and learned audience, the interest which We personally take in the development of the sciences, and which the Church itself never ceases to manifest on every occasion... The first geodeticians... were serving the same aims which inspire modern scientists: disinterested intellectual curiosity, the desire to measure certain physical phenomena and as a result of reasoning, to draw conclusions of general value.

And the Pope continues:

Nevertheless, neither the existence of national and international organizations nor the perfecting of the instruments constitutes the most important factor in scientific progress. The latter results, before all else, from human effort, personal initiative and persevering courage, which can never be supplied by any machine. Is it not moving, gentlemen, to think of the fidelity, at times heroic, of someone or another servant of science, lost in his far-off observatory, who, due to the lack of a competent collaborator, must remain at his post, day and night for months and years, to assure proper use of the instruments which are entrusted to him?

Scientific campaigns demand of them so much self-denial, and (their) success is a tribute to their character no less than to their competency.

And yet, even though endowed with the most wonderful qualities of mind and heart, a scientist would not be worthy of the name, if he did not at times lift himself above technical considerations and immediate solutions to face the essential problem which gives a meaning to the whole of life.¹⁹

In another address to the Pontifical Academy of Science on 24 April 1955 the Pope says:

The mission confided to you, therefore, ranks among the most noble, for you should be, in a sense, the discoverers of the intentions of God. It pertains to you to interpret the book of nature, to describe its contents, and to draw the consequences therefrom for the good of all.

Teach others to behold, to understand and to love the created world so that the admiration of splendors so sublime may cause the knee to bend and invite the minds of men to adoration.²⁰

Thus spoke the Vicar of Christ. In all things, even in his scientific work, Father Deppermann the scientist was a man of God and a priest of Jesus Christ.

The remains of this "prominent meteorologist" lie next to those of his predecessor, Father Selga, in the Jesuit cemetery at Novaliches, Quezon City. Father Deppermann is buried in Philippine soil. He wanted that. His life work was done in and for the Philippines. Thirty-one years of his adult life were devoted to his scientific work in the Manila Observatory. All of his previous life was merely a training for this, his real work. Even the few short absences from the Philippines—and he was always in a hurry to return—were periods of preparation for some aspect of the work of his beloved institution, the *Manila Observatory*. May his scholarly example lead many others to walk in his giant footsteps.

¹⁹ Pope Pius XII "The Scientist" 24 September 1954. English trans. in *The Pope Speaks* (Third Quarter 1954) pp. 253-257.

²⁰ Pope Pius XII "Science and Philosophy" 24 April 1955. English trans. in *The Pope Speaks* (Summer 1955) pp. 113-120.