DISCURSO

LEIDO EN LA

APERTURA ANUAL DE LOS ESTUDIOS

DE LA

REAL Y PONTIFICIA UNIVERSIDAD DE STO. TOMÁS DE MANILA

EL DIA 2 DE JULIO DE 1886

POR EL

R. P. Fr. Marcos Laynez Hernando

DEL ÓRDEN DE PREDICADORES

PROFESOR EN LA MISMA UNIVERSIDAD

EDICION OFICIAL

MANILA

ESTABLECIMIENTO TIPOGRAFICO DEL COLEGIO DE STO. TOMAS

A CARGO DE D. GERVASIO MEMIJE.

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Foreword

The Annual Opening Lecture on July 2, 1886 by Rev. Fr. Marcos Laynez Hernando, OP Professor, University of Santo Tomas, Manila

Belen Lorezca-Tangco, OP

The esteemed Lecturer, Rev. Fr. Marcos Laynez Hernando, OP, expressed his peculiar objective of a sincere manifestation of enthusiasm and love for science, and the right admiration for the learned men whose wisdom gave fruition to great conquests and resounding triumphs.

Science has always formed from learned men a species of a new race amid humanity, a race of preference whose distinctive character is the talent, whose ideals are more beautiful and aspirations, most noble; a race which lives and animates in the purest atmosphere, breathes in other air under the beneficence of other suns; its feet creeping through the dust, but its immortal soul tends the flight by the immensity of other worlds. It contemplates the sun in its fire, counts the stars one by one, weighs and measures the stars, subjects to compass its orbits and movements, examines the spaces in length and extension, and after having been surprised above the formation and development of innumerable worlds without anything that can inhibit in its career, returns to the earth which men inhabit, extends its colossal arms and measures its diameter, hangs it in its hands and calculates its weight, encompasses with its sight the elliptical which it describes in the space, and leaves it well rested in his mole, like a baby lain in a cradle where he sleeps.

The portentous activity of that race of giants was not for the Opening Lecture. The said race was possessor of extraordinary variety of knowledge, and with perfect conscience on what could be and what values, a day of grandiose idea would occur, that of giving wings to its thought because it could not be left enclosed in the confines of the old Europe. Thoughts plunged into the bottom of the seas and from then on the thought of men did not meet any blockade to its flows into the bottom of huge seas, deeper seas. To the men of other coast lands, these thoughts asked to be valued as coming from other men of the coasts across.

Yet, the aspirations were not satisfactory. It aspires to share well being to brothers and inhabitants from other zones and of all climates, plunge into the bottom of the earth to benefit from its bosom with abundant riches which nature keeps, and strip her steps one by one of all its layers to make with these an immortal book, the pages of which reveal to us the history of life and of death of all species from the Eozoon Canadense till they actually inhabit the surface of the earth.

For the Inaugural Lecture of the Academic Year, Fr. Hernando chose Chemistry, the science which is perhaps more accurate than others that scrutinizes the secrets of nature and

aspires to occupy the first place among them all. He had decided to reflect a while on the first and most fundamental of the questions which the vast domain of Chemistry ventilates. He asked for indulgence, fitting to their century, for at least a dozen to teach others. He also heartily greeted his most dignified professors in the Peninsula: D. Gonzalo Quintero, D. Laureano Perez- Areas, Dr. Jose Solano Eulate, D. Ramon T. Munoz de Luna, D. Mariano Rementeria, D. Manuel Saenz Diez and D. Manuel Rico y Sinobas.

Before making his solemn protest, the honored Lecturer shared that he was like the best lover of the sciences and their progress, and for this he did not like the Assembly to see in his writing any itching to contradict nor any school or party spirit, and much less any opposition to the real breakthroughs of the day.

It is certain that the history of philosophy and the natural sciences reveal to us accordingly the efforts of human intelligence to arrive at the solution of the problem at hand; it is no less that beside those efforts and those works, the smallness of men, with their mistakes, failures and miseries, is highlighted.

The question dwells on the bottom of things to the intimate nature, to the essence of bodies; and the essence of the bodies, the intimate nature of things, for a kind of disconsolate fatalism in the extreme, comes to constitute one of the great mysteries of science that forever remains hidden. If to this is added on the one hand, the fundamental importance of the problem, and on the other hand, the determined commitment of the wise of all times to prove its immeasurable depths, then, this would be the key that explains the infinite variety and multitude of opinions and sentences, of hypotheses, theories, and systems that have been adopted to resolve it. The truth is that there is hardly any point in the vast field of science more widely discussed with all kinds of hypothesis, from the strangest and most ridiculous to even the most fantastic and bright, without which he could be sure that at present it was already resolved.

It is not uncommon to see men who are honored with the title of the wise, shout at all hours and in all elegance: experience, observation, facts, falsities, war on ideas. As if reason, queen and sovereign of the faculties that embellish men could abdicate its empire and be satisfied with poor knowledge that the senses provide. It is certain that the natural sciences demand a continuous and careful experience, that is why no doubt they are called experimental, but it is not enough. It is necessary to rise from the field of facts to the field of ideas, from the field of the senses to the domain of reason; it is necessary in order to unite, compare, deduce, generalize, and all this is without a doubt well above the facts and the senses. Nature does not and cannot do more than introduce itself to the human observer in all its beauty and splendor, manifest the magnificent inventory of its wealth, and hurt his imagination with an all new world of surprising phenomena and wonders; everything else remains to be done, and it is the turn for the reason of man when comparing the phenomena and the facts with all their circumstances, drawing the consequences, and generalizing those deductions until he reduces them to their final and supreme causes.

What is there is that each interprets the facts and explains these in his own way, and with completely different criteria; and completely different consequences are deduced. From there, multitude of opinions regarding the same phenomena, infinite variety in the explanation of the same facts, and inextricable confusion in the doctrines of science.

Clearly, if the multitude and variety of opinions with its struggles and animosities reach men of true science to induce confusion and distrust, they are not certainly less subject to these

attacks, they, without having extended and profound knowledge of those, are young yet in their kind of studies, and for the same, have not yet formed a firm criterion assured to judge rightly the reasons given by both sides. With this, what really happens is that not only teachers get discouraged and confused but they easily transmit the error to others.

It is without doubt that the harm in final result come to reflect on science itself, and on everything when on the part of those litigants, serenity and moderation attached to the name of the wise, are imposed on them. One of the sciences that suffer more from that vice is Chemistry precisely. We have already indicated that there is only one question that does not bear a multitude of diverse explanations founded over another different hypothesis, surrounding each of its phalanx of defenders.

Reverend Fr. Hernando mentioned some of the revered names in Chemistry, and included these in his discussions on the contribution of the wise to the world of science, history, and progress: Antoine-Laurent de Lavoisier (1743-1794), a French nobleman and chemist, known for combustion, identification of oxygen and hydrogen, and discovered hydrogen, carbon, silicon, and known as "Father of Modern Chemistry." Jon's Jacob Berzelius (1779-1848), Swedish Chemist, who along with Robert Boyle, John Dalton and Antoine Lavoisier, became one of the founders of Modern Chemistry, recognized the need for a new system of chemical symbols, best known for his determination of atomic weights, discovery of silicon, selenium, and cerium; Francis Bacon (1561-1626), English pioneer of scientific method, and named as the creator of empiricism; Charles Adolphe Wurtz (1817-1884), Alsatian French chemist, best remembered for his decades-long advocacy for the atomic theory and for ideas about the structures of chemical compounds, and known for Wurtz reaction-a coupling reaction in organic chemistry, organometallic chemistry and inorganic main group polymers; Amedeo Avogadro (1776-1856) Italian, known for his Avogadro's Law: under controlled conditions of temperature and pressure, equal volumes of gases contain an equal number of molecules;

Andre-Marie Ampere (1775-1836) Lyon, France, founded and named the science of electrodynamics, now known as electromagnetism. His name endures in everyday life in the ampere, the unit for measuring electric current; Charles Frederic Gerhardt (1816-1856) of Strasbourg, France, known for notation for chemical formulas acetylsalicylic acid; Stanislao Cannizzaro (1826-1910)of Palermo, Italy, chemist and political activist, known for his Cannizzaro reaction and for his influential role in the atomic weight deliberation of the Karisruhe Congress in 1860, known reaction: the self-oxidation and self-reduction of aldehydes;

Hermann Staudinger (1881-1965), German organic chemist who demonstrated the existence of macromolecules, which he characterized as polymers. For this, he received the 1953 Nobel Prize in Chemistry. He is also known for his discovery of ketenes. Adrian Armand Maurice Hanriot (1854-1933) French physician and chemist, studied in detail the preparation of glycerin derivatives; Pierre Louis Dulong and Alexis Therese Petit, French physicists, known for the Dulong-Petit law which states the classical expression for the molar specific heat capacity of certain chemical elements; Joseph Louis Proust (1754-1826) French, known for Law of Constant Composition 1794; Jeremias Benjamin Richter (1762-1807), German, known for stoichiometry; Eilhardt Mitscherlich (1794-1863), who discovered the phenomena of crystaleographic isomorphism 1819; and Joseph Louis Gay-Lussac(1778-1850) who stated that water is two parts of hydrogen and one part of oxygen.

The respected Lecturer avers the idea that what Chemistry gives is of composition. Chemists focus on considering the matter of bodies alone, and much more, the force that unites the composition of the different portions. It does not say a word that comes close to the great attributes that originally emanate from the essence of the composition. The extension and activity, and the unity and specific differences which define many serious questions that have to resolve all systems or doctrines concerning composition and its formation, remain intact for Chemistry.

After having discussed and analyzed the laws and principles of Chemistry in its own ground, the following results are shared:

1. There is the lack of precision and accuracy that characterize the principles of true science;

2. Neither is there the universality of scientific principles;

3. There is dependence on the accuracy of a large number of hypotheses, which are far from being a genuine expression of the truth;

4. The authors are in constant struggle in reaching the significant and the extension of those hypotheses;

5. A marked deference to the authority of the wise is very frequently observed.

The first commonly proceeds, as Wurtz says, that the practice of following an opinion many times engenders the conviction of its exactitude. As regards the second, Naquet says that a well-demonstrated exception is enough to bring down a theory that is to be established at all.

As regards the third, Berzelius says that in the sciences, nothing should be based in uncertain possibilities, and that science should not be a fabric of conjectures but a system of demonstrated realities. The fourth, Bacon warned that some doctrines have the characteristic offering of a brilliant and fascinating aspect, but if they are opened and analyzed to procure the enclosed fruit, only unending questions and barren struggles are manifest. Finally, with respect to the authority in matters of experience, as Saez Palacios writes:

> In the sciences of demonstration like Chemistry, there is nothing more authoritative than the well-researched facts, conveniently exposed, and if they ignore the facts, but well-proven facts, you walk from error to error until you reach the absurd....we should never forget a very important thing: that if from the meditations of the wise, big truths broke down, big errors have also gone out, and there is nothing more serious than the error that one of those men whom we call authorities, spreads.

What can be deduced from all that was exposed? That Chemistry in its practical and experimental part has only produced more positive results than all the other sciences; that this which is called to open continuing new horizons in the arts, industry, commerce, and that, with given the dizzying speed with which its findings and discoveries proceed each day, it is not easy to predict until where its advances and progress will arrive.

It is also precise to confess that in its theoretical aspect, as science, there is much to be desired, to be discovered in a state of transition and still, of confusion, as Liebig says, to the point

that, after reading the multiple and varied doctrines that enclose in its bosom, discarded by some with contempt, vigorously upheld by others, and modified on every step with infinite number of ephemeral hypotheses and theories, what only remains is decay in spirit, doubt in understanding, and emptiness in the soul: there is only encouragement to write, like Boyle, a work that bears for the title, " The Skeptical Chemist."PS

MARCOS LAYNEZ HERNANDO, OP (1851- 1916): A native of Calamocha (Teruel), Marcos Laynez Hernando was born on April 25, 1851. He received the habit at the Convento- Colegio de Sto. Domingo de Ocana on November 30, 1866. On December 23, 1867, he made his simple profession at the said place, and on January 11, 1871, his solemn profession.

Assigned to the Philippines during his second year of Theology, he finished there all his academic studies at the end of 1874, taking the examination for himself as Confessor. In Manila, he received all of the Sacred Orders: on September 20, 1872 the first tonsure and four minor orders, and the following day, the sub diaconate; on June 7, 1873 the diaconate, and on May 30, 1874, the presbyterate. On May 16, 1873, he was assigned as Lector of secondary education at the Colegio de San Juan de Letran. He was transferred to the University of Santo Tomas as Director of Colleges on June 26, 1875. He received the Licentiate grade, and the doctoral tassel together with Rev. Fr. Garcia Navacerada, OP, and was named Professor of Philosophy on January 17, 1877. In 1878, he was assigned to the Colegio de Santo Tomas de Avila as Chairholder of Philosophy, passing by a little later to the Colegio en Ocana , and without causing any damage to his being Chair in Philosophy, he took the post of being the Director of college students and Postulants, and later, Socius to the Master of Novices. After having studied science programs at the Universidad de Madrid, he returned to Manila on the first days of August 1884, being assigned at the University of Santo Tomas as Chairholder of Chemistry.

In the Provincial Chapter of 1890, he was named Preacher General and Depositary of the Province, and in 1894, Rector-President of Colegio de San Juan de Letran, Manila. Among the best which were accomplished and merited special mention during his term as Rector was the Grand Auditorium, the best there was, during his time, in the colleges in Manila.

Feeling ill health in February, 1903, he was allowed to return to Spain.

He was assigned to Convento de Sto. Domingo de Ocana as "Lector of Moral Cases." In the founding of Colegio de Sta. Maria de Nieva (Segovia) in 1904, he was named as its first Rector. At ending his first term, he retired at Convento de Sto. Tomas de Avila where he was designated SubPrior and Professor of Theology. In inaugurating the new General School of Theology in 1911 in the Province in Louisiana (United States), Fr. Laynez was named as its first Rector. Not feeling well in health condition in 1913, he embarked for Manila, being for sometime Socius to the Master of Novices at the Convento de Sto. Domingo, thereafter being assigned to the University of Santo Tomas where he was named Vice Rector during the Provincial Chapter of 1914. He died in Manila on April 18, 1916.

Writings: "Discurso inaugural de los estudios en la universidad de Manila," 1886 (imp. colegio de Sto. Tomás); "El Amigo del Colegial," Manila 1894; "Gramática inglesa," Avila 1909; Muchos articulos en diversos periódicos ("Correo español," "Libertas," etc.) (MV V 14-15). Source: Misioneros Dominicos en el extremo Oriente 2 1836-1940, Eladio Neira, OP; Hilario Ocio, OP; Gregorio Arnáiz, OP; pp. 161-162.