The Dominican Ciriaco Pedrosa, O.P.

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This piece showcases the separate articles of two notable Dominicans: Fr. Norberto Castillo, OP and Fr. Ciriaco Pedrosa, OP. The first is an original feature article penned by Fr. Norberto Castillo, OP about Fr. Pedrosa, a former student of the latter who himself has become an important figure in the University of Santo Tomas where he served as Rector Magnificus for two terms. Fr. Castillo's article reminisces and presents to us the person behind the several publications and textbooks that have benefited generations of science students in the University of Santo Tomas, Manila. The second article is a reprint of one that has been published in *Unitas*. This article provides us a glimpse of how prophetic a writer Fr. Ciriaco Pedrosa, O.P. is.

Keywords: *Ciriaco Pedrosa, O.P., Dominicans, BIG science, SMALL science, Funding in Science*

Introduction

This is a combo publication where separate articles of two notable Dominicans are presented. The first is an original feature article penned by a former student who has later become a big name himself especially in the University of Santo Tomas where he has served as Rector Magnificus

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for two terms (1982-1990).[1] Fr. Norberto Castillo, OP has openly expressed his admiration to Fr. Ciriaco Pedrosa, OP, his mentor and dissertation adviser.[2] When Fr. Castillo became the Rector of the University of Santo Tomas, he honored his former Dean[3] with several recognitions including the testimonial held in August of 1983.[4] In the article below, Fr. Castillo again reminisces the years spent with his mentor whom he finds to be an embodiment of several *Dominican* ideals. His article allows us to look back on what was the University of Santo Tomas in the 1950s to 1960s, as it also lets us see the kind of person that Fr. Ciriaco Pedrosa, OP was. In his 1983 piece on Fr. Pedrosa, Fr. Castillo described him with these words: "This penchant for the essence, for the major arguments, for the main formula, for the primary root, for the overriding priority, seems to be the rule of Father Pedrosa's life."[5] Fr. Castillo recollects from memory the information that he shares in this article, and it is a valuable resource for the younger generation, especially those who belong to the Dominican Order, to look into how their elders in the community have dedicated their lives to witness the mission that Dominic de Guzman had wanted his sons (and daughters) to embrace.

The second article is a reprint of one written by Fr. Ciriaco Pedorsa, OP.[6] The same article was mentioned in Fr. Castillo's essay. Fr. Pedrosa's words are prophetic. The article speaks of the tension between what are referred to as Big and Small sciences, and warns the tendency of the 1960s to shift even the activities of University laboratories to *grand* projects because of the pressure exerted by millions of monetary funding. In 1963, Fr. Pedrosa cited the debates that surrounded the manned space travel project[7] that had eventually found fruition in July 20, 1969. Though he then warned his readers on the power of Big sciences to dominate the future endeavors, he was at the same time hopeful for the potential contribution that these grand projects could give us. He was one with those who opined on the possibility that those grand endeavors of science could help change the world.[8] Despite the contributions of

[1] See *The Varsitarian,* vol. LXXIX, no. 12 (June 10, 2008) <http://varsitarian.net/supplement/rectors_supplement/the_ust_rectors_throughout_the_centuries>.

[2] Fr. Castillo completed his dissertation in 1975; See Castillo, Norberto. *The Unity of the Atom* (dissertation for Doctor in Philosophy). Manila: UST Faculty of Philosophy, 1975.

[3] Fr. Ciriaco Pedrosa, OP was the Dean of UST College of Liberal Arts when the young Norberto Castillo was completing his degree in Bachelor of Science in Chemistry (1958-1962).

[4] The UST archives preserve the documents relevant to this event together with a collection of Fr. Pedrosa's works entitled, *The Essential Pedrosa.* Fr. Castillo's speech for this occasion is published with a title, "Father Ciriaco Pedrosa, O.P.: The Ordinary Dominican," in *Timeless Thoughts and Reflections of Fr. Norberto M. Castillo, OP.* (Manila: UST Public-Alumni Affairs Office, 1986), pp. 38-40.

[5] Castillo, *Timeless Thoughts…* , p. 39.

[6] Pedrosa, Ciriaco, OP. "The BIG and the SMALL Science: A Challenge" in *Unitas* vol. 36, no. 3 (1967): 470-474.

[7] Pedrosa, "The BIG science…," p. 471.

[8] "The benefits derivable to human welfare from such lavish outlay are not tangible neither

BIG sciences however, Fr. Pedrosa gave out a warning that now deserves the serious attention of contemporary University administrators and science professors. He was then worried that, "the symptoms seem to hint upon the idea that in the *future* a university will not be judged capable of carrying its mission in the field of science *unless* it can avail itself of those high-cost mechanisms; or that a professor cannot be a *good* teacher *unless* he can identify his thought with one of those Big science accessories."[9] This, however, seems to have become the standard of our time - the very future that Fr. Pedrosa was gesturing at when he was writing in 1963. Fr. Pedrosa affirmed that there was a danger with what he called "Federal Grant" university which responds more to government needs rather than to its own.[10] In fact we could say that the same warning has remained relevant not just in relation to government funding but also to corporate funding where universities and its research efforts have become servile to the 'profitable' exploits of big multinational corporations. The need for regulation and ethical practice was hinted when he warned that "[E]xcessive amounts of expensive equipment have at times been purchased. There have been some scandals. There will be *more*."[11] Fr. Pedrosa's call for "peaceful coexistence" between the Big and Small sciences remains to be an important guideline in 'doing' science in the University today. He invited us to find a way where "the Small Science be properly taken care of, and the university science teacher be prevented from falling into a mercenary level."[12] We could ask ourselves if we have responded appropriately to his invitation.

No introduction however could substitute the words of these two great writers. We then provide here their texts, and invite the readers to enjoy them in the manner that we do.

visible; or are we a little short sighted? *Perhaps our society may enjoy them centuries from now*" (*Ibid*. – emphasis added.)

[9] Pedrosa, "The BIG science…," p. 472 – emphasis added.

[10] Ibid., p. 473.

[11] *Ibid*.

[12] Ibid., p. 474.

The View from a Distance: *The Dominican* Ciriaco Pedrosa, O.P.

– Norberto M. Castillo, O.P.

What is a Dominican religious? This is a tough question to respond to, considering the rainbow spirit of the Order of Preachers. It will be tougher still when it comes to describing a person as detached as Father Ciriaco Pedrosa, O.P. Indeed, there was nothing unusual or extraordinary with him and that makes him a difficult subject to paint – extraordinariness in ordinary times.

Father *Akong* of the Main Bldg

The students of the College of Liberal Arts of the mid-1950s fondly called him "*Akong.*" It was a shortened local adaptation to his name Ciriaco, no doubt an expression of affection for the soft-spoken Dominican. Most probably he never knew he was called by that name, but if at all, he was a kind of religious who did not worry about trivial matters. He was a very focused person to be easily bothered. Of average build, slightly bent, he walked fast traversing the distance from the Main building to the Father's Residence in few minutes only. Oftentimes he was silent and meditative unless spoken to.

The College housed at the third floor of the Main building combined the departments of physical sciences, mathematics, physics with the departments of philosophy and letters.[13] The latter was very well known in the country for its graduates monopolized the Philippine world of local broadsheets, government posts and the coveted literary awards, while the former was known for its chemistry and biology departments. The former was chaired by the legendary Dr. Mariano Pangan who later became dean of the College. The biology department was the natural feeder of students for the Faculty of Medicine which the University excelled. The laboratories were located at the fourth floor.[14] Students were few and at most there were two sections per year. Female students outnumbered the males.[15] The wearing

[13] In 1964 however, the *Bachelor of Arts* program was transferred to the *Faculty of Philosophy and Letters* and the College of Liberal Arts was renamed as the *College of Science*. Fr. Pedrosa continued to serve as the Dean of the newly formed *College of Science* from 1965-1968. He would even later be named as Dean Emeritus of the College in 1981 (see documents on Fr. Ciriaco Pedrosa, OP, UST Archives).

[14] These laboratories housed most of the chemicals and other materials that were used in most science experiments when the Sulucan (Sampaloc) campus of the University was opened. Later, especially with the establishment of the Thomas Aquinas Research Complex, science experiments were done in venues other than these laboratories. Much recently, the University Rector has reported the plans to move all science laboratories to one building, the Central Laboratory Building. See the news from *The Varsitarian* on the Oct. 16, 2015 Rector's report <http://varsitarian.net/breaking_news/20151017/rector_bares_integration_expansion_in_tri_annual_report>.

[15] The Miguel de Benavides Library of UST (Filipiniana section) preserves the invitations for the University's Solemn Investiture Ceremonies from 1954-1962 and beyond. The bound invitations for 1954-1962 reveal the list of graduates where a remarkably higher number of female graduates, in comparison to their male counterparts, is evident.

of standard uniforms was compulsory for females. Famous were the two stairs for students to use, one for males and another for females, one at the right and another one at the left.

Father Modesto Mata, O.P., Prefect of Discipline, seemed to be ubiquitous in catching offenders. Seldom were students seen to use the front wooden stairs which were used by College officials and guests. Classic murals reputed to be works by Botong Francisco and Fernando Amorsolo graced the lobby marble walls, and a stately chandelier hangs at the entrance as centerpiece. The Main Building which was reputed to be earthquake-proof[16] was located at the center of the campus with its P. Noval kin building, earlier built because it housed the Fathers' Residence and the Ecclesiastical Faculties. The University of Santo Tomas grew out of the Ecclesiastical Faculties as initial seed following the European model of academic universities.[17]

The UST Main Building (R) and the Dominican Residence (L) ca. 1940s

Father *Akong* was dean of the College[18] and he took particular care of the departments of natural sciences and physics/mathematics, while the assistant dean, a canon lawyer, Florencio Testera, O.P., took care of the humanities. Father *Akong* was quite visible to students of the college since he faithfully patrolled the corridors during class hours and during break time, always in his Dominican habit. His mere presence was enough message of the need of good behavior and silent talk. The dean did not have to assert authority in matters of discipline. Proper behavior pervaded the atmosphere of the College. Faculty members were at the forefront of discipline as they were visibly the good examples to students.

During the afternoon sessions, Father *Akong* would be seen coming to office on time and he would walk the corridors praying his divine office. He looked rested fresh from a short *siesta*.

[16] A description of the newly constructed main building was narrated in *Philippine Educational Magazine* (December 1927). The book of Fr. Fidel Villaroel, OP, *A History of the University of Santo Tomas*, vol. 2, quoted in length this description (Manila: University of Santo Tomas, 2012), pp. 342-343.

[17] See Fr. Fidel Villaroel, OP, *A History of the University of Santo* Tomas, vol. 1 (Manila: University of Santo Tomas, 2012), p. 37.

[18] Fr. Ciriaco Pedrosa was Dean of the *College of Liberal Arts* (1949-1964) and continued to hold this post (1965-1968) when the college was renamed as *College of Science* in 1964 (see UST Archives, files on Fr. Ciriaco Pedrosa, O.P.)

Father *Akong* at 2016

In 2016, Father Ciriaco OP would have been more than a centenarian by birth having been born on August 8, 1900 on the very feast of St. Dominic. In a little less number of years, he would have celebrated a centenary as a professed Dominican religious having professed on September 8, 1916, the birthday of the Blessed Virgin Mary. An observant Dominican religious, prayerfulness was part and parcel of his life even when he was inside his office doing his multifarious duties.

He finished his theological studies in Rosaryville, Louisiana. Later on, he was sent to Notre Dame, Indiana to pursue studies in physical sciences. From Notre Dame, he continued his studies in the sciences at the Catholic University in Washington, D.C. earning his master's diploma while he simultaneously continued his theological studies at the Dominican House of Studies across the Catholic University. It was early in life as a religious that he learned the value of time and the essence of good working habits.

He started his academic administrative experience at the *Colegio de San Juan de Letran* in Intramuros, Manila, where he earned his *Lectorate,* a characteristically Dominican degree, in 1929, while at the same time teaching mathematics and physics.[19] At the College, he got a more serious and overall initiation in administrative office serving as secretary general of the college. Aside from deanship experience, he was regent of the *College of Commerce*, moderator of the *Varsitarian* and the *Unitas*,[20] and Vice Rector of the University.[21]

He attended various international conferences. As result of his services to the scientific world here and abroad, he was awarded the special decorations of *Golden Cross* and the *Pro Ecclesia et Pontifice*. Taciturn by nature, he preferred to do what he was about to do in silence without fanfare. That he accomplished whatever was expected of him well is manifested by the increasing duties and offices he was appointed to perform.

The Writer

Those were the times when every college and department of the University had a journal. The faculties of medicine, law, education, sciences, ecclesiastical

[19] On the account of the first lay Registrar of the University of Santo Tomas (Sulucan campus), Dr. Norberto de Ramos, Fr. Pedrosa's stay in *Colegio de San Juan de Letran* was from 1926-1936 (see UST Archives, files on Fr. Ciriaco Pedrosa, O.P.).

[20] The *Varsitarian* was the official student broadsheet of the University, while the *Unitas* which today is no longer published, was the official academic journal of the faculty members.

[21] Fr. Pedrosa was also once appointed as Acting Rector of the University of Santo Tomas: December 1960-March 1961 (see UST Archives, files on Fr. Ciriaco Pedrosa, O.P.).

faculties, high school, etc., had their own staffers and published regular journals.[22] It is not surprising that the students learned to write because there were venues available for their articles. It is no wonder too that excellent professors and mentors in the English language mushroomed and were nurtured in the University classrooms. The premier venue which became a well-known university flagship and even throughout the archipelago was the *Varsitarian* which, aside from news features, carried literary articles in magazine form.

Father Pedrosa was no exception and he contributed articles to the journals *Unitas, Acta Manilana, Philippiniana Sacra* and *Ciencia Tomista*. Some of his publications in the Unitas, for example, were "*The Eclipse of the "Inventors*" (1963, vol 36, 2); "*The BIG and the SMALL Science: A Challenge*"(1967, vol. 36, 3). With these examples, you will note that he would publish regularly in the publications of the university despite the many duties he had to perform. He wrote textbooks in physics and cosmology.[23] He edited the journal on natural sciences, the *Acta Manilana,* which turned out to be a premier international journal on natural products till today. He co-authored articles with the Thomists in the campus like Professor Pedro Gabriel, who was a chemist too, on the link between natural sciences and Thomism. Like a good son of Saint Dominic, he evangelized through the written word. He was not particularly known was an excellent speaker, but he was a prodigious writer. His times depended a lot on the published materials and print media and this medium was the most popularly used. His brains went straight to his fingers and despite a myriad of duties, e.g. administration and teaching, he still found time to read and write articles. This speaks of the discipline in his lifestyle. His was the typical Dominican hardware of scholarship – contemplation and publication.

His style of writing spoke of his personality. His prose was short and in outline form, and it always aimed at the substance of the subject free of embellishments. Classic examples would be his textbooks and laboratory manuals in physics which were entitled *Lecture Outlines for College Physics*. His pedagogy was clear and student oriented followed by *Guide Questions* and *Exercises* at the end of every chapter. The same approach was used in his textbook *Guide to Cosmology* and *Special Questions in Cosmology*. The style was modular devoid of verbosity. The topics worked out were fundamental and relevant.

[22] Some of these titles include *Acta Manilana, Unitas, Philippiniana Sacra, Boletin Eclesiastico de Filipinas, UST Commerce Journal, UST Law Review* and later *Journal of Graduate Research* (1970), and *The Flame: Journal of the Humanities* (1973). Student publications, which are still published until the present, were also circulating like *The Varsitarian* (for College students) and *The Aquinian* (for UST High School).

[23] His textbook in Physics, *Lecture Outlines for College Physics*, was reprinted several times and was used for classroom instruction from the 1950s to the 1980s. His book on cosmology, *A Guide to Cosmology*, was also reprinted several times and was used from 1970s to the 1980s.

After long years of service as a Dominican religious, he was hospitalized at the University hospital. His mind remained strong and conscious even when his body was beginning to fail. It was a case of a superior spirit over matter. Up to the last moments, he was conscious, and when his Prior asked him whether he could remove the last tubes which sustained him, he relented with an assent in his face.

He died at the University of Santo Tomas on November 7, 1989. The University offered a funeral mass at the university chapel presided by the Rector. He was interred in the Dominican cemetery at San Juan City.■

The BIG Science and the SMALL Science: A Challenge
– *Ciriaco Pedrosa, O.P.*

En varias ocasiones hemos dicho que la ciencia es un lujo propio de paises muy ricos y de gran desarrollo industrial. Y que al tiempo estan muy desarrollados porque tienen una gran actividad investigadora
– Doctor Severo Ochoa, Premio Nobel associado, en Medicina, 1959.

Parallel to the collective planning (Unitas, June, 1963), we find another feature with no lesser impact in the spectacular outburst of science. The corporate scientific institutions have risen to what we may call the Big Science. The scientific undertakings have acquired such huge proportions that the genuine interest of science seems to disappear behind the gigantic display of financial and technical resources.

Alvin M. Weinburg in an article written in the scientific journal *Science*(July 21, 1961) has sounded a warning note regarding the alarming trend where scientific research institutions are heading for. Certainly his observations are concerned mainly with the United States and other nations where fabulous sums are spent in the name and for the sake of science. And although it is true that in the majority of countries the problem is non-existing yet, the pattern is becoming very discernible and it is worthwhile watching with caution for its future objectionable developments.

The above mentioned author points out some of the features that seem to be most representative of the new trend in the present development of science. Is the Big Science absorbing and impairing the Small science?

Is the Big Science giving out its money's worth? Is the financial display

worth the benefits derived from it? Is the Big Science spending more money than thought? Is the Big Science invading the University? Of course to qualify science with adjectives Big or Small might be found non too proper; but its meaning will be easy to grasp.

Future historians will look to Big Science as one of the characteristic achievements of our era, much in the same way that the pyramids represent the grandeur of the Pharaohs, the Colosseum, the dominating attraction of the Romans for public entertainments, and the gothic cathedrals stand witness to the high religious spirit of the Medieval Ages. Spectacular issues, like the manned space travel and high energy physics seem to attract and engage such an amount of manpower and material resources as if science had no other responsibility. And yet there are other issues that bear a more profound impact in human welfare, and that should reflect a higher concern in science. In the case of manned space travel, speculations are made for $30 to $40 million credit for a trip to the moon. Not all, however, admit the advisability of spending such staggering sums to finance experiments of that kind. British astronomer, Fred Hoyle, is decidedly opposed to United Kingdom's going into large space research on the ground that the intrinsic scientific interest is not worth the money and manpower that go unto it. The benefits derivable to human welfare from such lavish outlay are not tangible neither visible; or, are we a little short sighted? Perhaps our society may enjoy them centuries from now.

Much are the same argument could be used in case of high energy physics where the sky seems to be the limit to the large scale spectaculars. Taken at random from the current scientific journals, we can see that high energy machines are built seemingly in a race to beat each other by millions of dollars. Reactors are constructed on a basis of a cost higher than that of any of those previously built. The Scientific American announces the construction by Stanford University of a linear accelerator at an initial estimated cost of 114 million dollars. Another journal announces the building of radio-telescope for 180 million dollars. Plans are outlined for the expenditure of billions of dollars in certain projects within a limited period of time. Scientific enterprises are growing to such magnitude that the suspicion that they are spending more money than thought can hardly be repressed. It is true that without financial support, thought can not go very far in the way of accomplishments; in other words, money is necessary; but let us admit that money alone cannot do everything. The two factors must grow together, help each other, balance each other. But when the resources grow plentiful, and the thought is overfed, it readily becomes fat and lazy. It seems as if a scientific thought can no longer be developed by using the working material at hand, and that every new thought must be accompanied or followed by a lavish display of money. The line between the spending of thought and the spending of money, some might suggest, seems to be blurring.

The initial planning seems to have been quite different. The huge laboratories

like Oak Ridge were intended to segregate the Big Science and prevent it from absorbing the Small Science. But whatever might have been the initial planning, the trend now seems to take another path, to the extent that the Big Science is menacing to enter the educational stream. In fact, Bev accelerators and megawatts reactors are a common thing in many North American campuses. How fast this trend will move is not easy to anticipate. But the symptoms seem to hint upon the idea that in the future a university will not be judged capable of carrying its mission in the field of science unless it can avail itself of those high-cost mechanisms; or that a professor cannot be a good teacher unless he can identify his thought with one of those Big Science accessories. The issue has become highly controversial, the pros and cons being the subject of frequent debates in the scientific journals. Some think of it as a movement in the right direction in the sense that the incorporation of manpower and talents represents an upgrading of the university's scientific availability. Others maintain that such movement signifies a loss of dignity, a surrender of its autonomy and a sacrifice of values that cannot be estimated in terms of money. Some might even recall the well known sale of the first-birth rights for a pottage of lentils.

The arguments denouncing the absorbing ambitions of the Big Science are still open to concede that a reasonable margin should be allowed to carry out large scale experiments, some of which might be needed for national security. But if we admit that, if for one reason or another, Big Science is here to stay, any obstructing derivation on the development and progress of the Small Science should be vigorously opposed.

Such invasion of the University is causing great concern because it involves a grave menace to the traditional university autonomy. I refer in particular to the operation of scientific laboratories under the state management, or the acceptance of research projects under contract from some of the State agencies. Clark Ker, President of the University of California, in a recent speech, (TIME, May 3, 1963), frankly denounces the seriousness of the present situation. What force feeds the University, he says, is federal money – the impact of government science research that began flooding the universities in World War II. The U.S. pays for about 75% of all university research. The result is what he calls the "Federal Grant" university, the responding more to government needs than to its own desires. Current journals bring news of the increasing number of universities that cling to government support in return for technical services rendered to cooperate in rushing the large research program. Such alliance is looked upon by many as a lamentable departure from the primary purpose of the university, an abandonment of their cherished autonomy, and a conversion of the university laboratories into national institutes. The obnoxious impact in the teaching force of the university is acknowledged also by President Ker when he says in the same speech: "Under the federal grant, while graduate training blossoms, undergraduate education suffers. Top professors teach less and less, giving

their prime loyalty more and more to some government agency, which becomes the new Alma Mater. Today's "affluent professor" is the scientist who gets more money and faster promotions leaving humanists behind and bitter. The regular faculty is jostled by the un-faculty, – non-tenure researchers who do not belong to the faculty senate, but whose projects profoundly affect university planning and financing. Excessive amounts of expensive equipment have at times been purchased. There have been some scandals. There will be more."

Under these circumstances, there seems to be no other course to take but to find a formula for a peaceful coexistence, so that while the large scale experiments are allowed to follow the inevitable trend, the Small Science be properly taken care of, and the university science teacher be prevented from falling into a mercenary level.

At a first glance, we can see that the policy we are concerned with is too much appreciative of one side of the thing, namely, its dimension. Some minds seem to be dazzled by any thing that is represented in astronomical proportions, while the other side, the side of excellence, is given none or little concern. Why should magnitude be so appealing? Are not the perfection and quality of a thing less worth than its dimensions? A large scale experiment may fall below standard in the sense that it does not accomplish what is expected.

Such worship of dimensions seems to point out that no excellence can be expected from the material at hand, or that no scientific thought can be advanced unless supported by a record breaking contrivance. It suggests a lamentable confusion of size with excellence; and there is as much reason to foster and strive for small scale excellence as for the attainment of large scale spectaculars.

Again, some are particularly critical about the fact that the efforts directed towards the advancement of basic research and Small Science are far inferior to those made to climb up further height in technological applications. It may be true that the outcome of the manpower and the financial investments in the basic experiment is less conspicuous and less commanding in international policies. It may be true that the potentialities of the basic science are not so far reaching in the way of human betterment, nor likely to bring the expected returns as early and as plentiful as the large scale experiments.

There seems to be no much room to doubt about which of the schools of thought will prevail. Big Science will continue its advancing course towards higher and higher money investing experiments. The law of inertia might be called in its support; the mass and the speed involved in the Big Science policy is so great that nothing short of a cataclysm will stop it. Meanwhile Small Science will strive to carry on its mission within the limitations imposed by the circumstances.■