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The Art and Science of Medicine: Do We Have Too Much Science and Too Little Art?

by

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*"Dicebat Bernardus Carnotensis nos esse quasi nanos, gigantium humeris insidentes, ut possimus plura eis et remotiora videre non utique proprii visus acumine, aut eminentia corporis, sed quia in altum subvehimur et extollimur magnitudine gigante."*¹

The Hippocratic Oath even today could stand as the basis of medical ethics:

"I will look upon him who shall have taught me this **Art** even as one of my parents. I will share my substance with him, and I will supply his necessities, if he be in need. I will regard his offspring even as my own brethren, and I will teach them this **Art**, if they would learn it, without fee or covenant. I will impart this **Art** by precept, by lecture and by every mode of teaching, not only to my own sons but to the sons of him who has taught me, and to disciples bound by covenant and oath, according to the Law of Medicine.

"The regimen I adopt shall be for the benefit of my patients according to my ability and judgment, and not for their hurt or for any wrong. I will give no deadly drug to any, though it be asked of me, nor will I counsel such, and especially I will not aid a woman to procure abortion. Whatsoever house I enter, there will I go for the benefit of the sick, refraining from all wrongdoing or corruption, and especially from any act of seduction, of male or female, of bond or free. Whatsoever things I see or heard concerning the life of men, in my attendance on the sick or even apart therefrom, which ought not to be noised abroad, I will keep silence thereon, counting such things to be as sacred secrets."²

The oath talks repeatedly about the Art of medicine and very little about the Science. Of course, there was little Science at that time.

Please notice that Hippocrates, a gentile, a "pagan" long before Jesus walked the earth, knew that he had to be kind to his patients and to others, that an unborn fetus is a human being too,³ and that killing is a horrendous act! Clearly, God placed in the souls of every human being the tenets of His Law, His will as a part

of creating Man⁴ in His own image⁵⁻⁷. This law is the Natural Law⁸ which overrides human law in every case.

I think my textbook on lens implantation⁹ translated into German and Japanese and still distributed widely (especially in India), the several chapters¹⁰⁻¹⁴ I have written in many textbooks, and my 156 articles on a wide range of ophthalmic subjects which appeared in peer reviewed journals qualify me to consider myself, at least in part, a scientist. Hence, it is not envy or bitterness that governs my thoughts on this subject.

The year I was a first-grader saw Domak receive his Nobel prize for the discovery of sulfa, the first effective antimicrobial agent, a prize which, by the way, Hitler did not permit him to accept. That year I developed first a severe strep throat (at that time it was called angina), then pleurisy and then pneumonia. I was bedridden for several months and confined to my home for even longer. Dr. Schiller, our pediatrician (destroyed by the same Hitler about ten years later in Auschwitz), came twice a day to order cold compresses, codeine powder in host (the bitter taste of it still is in my mouth), listen to my lungs and heart with his stethoscope, give daily IM injection of Transpulmin (a mixture of camphor oil and many other things) to break up the phlegm, to give instructions to my mother how much and for how long the window should be open, how many drops of wine and iron should be given to me. He also gave considerate, loving care to my family as well as me. He was a great artist. There were no X-rays, no blood count, no cultures taken or ordered. He sat hours beside my bed although he was an extremely busy practitioner and watched me growing sicker and sicker. Then I received my First Communion and Extreme Unction. The next day my fever broke and I recovered within two or three weeks. Yet Dr. Schiller was as modern as possible and practiced as good Science as the 1930's allowed him to do. He was a superb physician, and even my widowed mother could afford the cost. Today the doctor probably would not go to the house. Why should he? He has no equipment there, and everybody has a car anyhow. He would order X-rays, cultures, blood counts, and virtually without checking the patient could make the diagnosis. He then would order the appropriate antibiotics and the patient would be back in full activities within a week or so. The cost, however, might break the finances of the family.

Clearly, the "good old times" were not as good as people on a nostalgia trip like to think. No one but the Clintonites, who grew up worshipping the Chinese, Vietnamese, Cuban barefoot doctors, want to bring back the horse-and-buggy family doctor criss-crossing the countryside, mixing herbs, operating — if he knew how — on kitchen tables. I used the example only to illustrate the possibility of achieving a "cure" through Art alone or, in the second part, through Science alone.

The governing thought behind our every action not only as physicians but also as human beings must be that we are all created in God's image. Hence we all share in God's dignity. Only Man has soul, created, it is true, but from there on eternal. Only Man can create beautiful things, can produce paintings, sculptures, compose music, write poetry and books, explore the depth of mind and find new insights. Only Man can build cities, roads, great ships and airplanes. Only Man can create new chemical compounds and discover the secrets of nature, the laws

of nature. Only Man can think profoundly and enjoy the love of wisdom (philosophy). Only Man can understand (or have the potential to understand) sacred mysteries. Only Man fuses matter and spirit and can subordinate matter to spirit without despising matter and destroying it. Only Man can be receptive even before he can be creative.¹⁵ We were created not only in the image of God the Father, but rather in the image of God as revealed in Jesus Christ. The Father, knowing the future, created Man, the first Adam, in the image of Jesus, the second Adam.¹⁶⁻¹⁷ Only Man can say: "Be unto me according to Thy will."¹⁸

Unfortunately, on the dark side, only Man can destroy the spirit and invent the instruments of hate and destruction which are senselessly employed in wars against matter and against our fellow men.

The Incarnate God showed us the beauty and importance of matter if controlled by the spirit, and freed matter from its corruption to raise it incorruptible. God gave us power over matter and our ability to treat, sometimes even to cure, the diseases inflicted upon the body.

As we minister to the sick, we are naturally and rightly governed by the scientific discoveries of those who could use their God-given and God-like creative talents to understand and unlock the secrets of nature. But as human beings we also must approach our fellow human beings with kindness, tenderness, understanding and love, always seeing in them God's image. This is the Art of medicine. Art and Science have to coexist as spirit and matter and have to be balanced not *against* but *with* each other. Too much Art might mean today inadequate understanding of the matter. Too much Science might mean a grave and painful offense against the spirit.

But can Art be too much? Ever? We know that Science can: Pius XII in his broadcast on Christmas Eve 1953 spoke of the immense scientific and technical progress and "its monstrous masterpiece . . . transforming man into a giant of the physical world at the expense of his spirit, which is reduced to a pygmy in the supernatural and eternal world." Too much Science may result in the useless and unnecessary prolongation of a life where the spirit cannot operate anymore. It can mean the "heroic" but futile interventions where the spirit already begs to be released from the body. It can mean that the medical-human relationship degenerates into "health care providers" vs. "consumers."¹⁹ It can mean a dreadful "Billary"²⁰-Mitchell-Gephardt scam with its enforced support of the murder of the innocent and undefended unborn, and the support of the great lie of our century, the totally secular, totally matter-centered "mental health care" delivered by the high priests of secular religion — the psychologists, who look for matter as cause and cure and totally ignore the spirit, who are pseudo-scientists without the understanding of Art. Too much Science leads to the incredible, unjustifiable, and often unsupportable proliferation of "high tech equipment" and procedures where the human being of God's image is reduced to a figure in a computer, a heap of matter that can be dissected, analyzed, and then spat out from the machine with a false sense of cure, only to discover that he is sicker than ever. Too much Science against Art leads to the senseless cutting of healthy tissues to avoid wearing glasses with no real benefit to the patient who is misled by TV, radio, and newspaper advertisements, which prostitute not only the

advertiser but also the entire medical profession and the patient who is, in effect, ill-served with an expensive procedure, a procedure which is designed more to improve the lifestyle of the doctor than that of the patient. Too much Science experiments without the consent of the subject on human fetus, on inmates of concentration camps, on prisoners of war, denying them their humanity, the dignity due to them as God's images. Too much Science develops and utilizes "fetus farms" (a baby is a fetus that was allowed to be born) to harvest the tissue of innocent lives killed so that experimental therapy could be performed — not on animals, which is condemned by animal rights activists, but on human beings — and papers published.²¹ Too much Science removes a nonexistent pathology because it is safer and faster to do surgery on a problem which does not yet exist. Too much Science may degenerate into commercial medicine where public relations scams are more important than a careful examination and honesty to the patients; where promises are given as if by smooth snake-oil sellers, where Art — the emphasis on the spiritual aspect of our life, our profession — is debased into a mistaken interpretation of the term "bedside manner," which in this case becomes little more than the art of a used-car salesman or a politician. Too much Science allows us to "look" without "seeing." We *look* at graphs, *look* at chemical profiles, *look* at X-rays without *seeing* the *human being* in our patients; but if we understand "bedside manner" as the kindness based on the recognition of our patient's likeness to God ("When you did it to one of the least of my brethren, you did it to me" Mt 25:35-46), the respect for the spirit living in us all, then it is the true Art, motivating our sacred ministry, our profession from the earliest time and fulfilling God's will.

Could we link Art to faith? St. Thomas Aquinas teaches that in scientific knowledge, assent is caused by the intellect which sees only existing things. But the assent in faith is caused by the will and the affections which, with their foundation on grace, command the assent of the intellect.²²⁻²³ As Cardinal Ratzinger pointed out, in the domains of scientific knowledge the movement of thought ends with the act of assent, whereas in faith there is ample room for the continued movement of thought, a "pilgrimage of thought" as it were.²⁴ In other words, scientific knowledge is limited, but faith — as Art — knows no bounds. As Archbishop Stafford says, "Today we are mesmerized by measurable quantities and material objects. Humanity reductively becomes a collection of statistical studies." Our secularized language becomes sterile.²⁵ Imagination dies. "Art" dies. Spiritual power dies. The "Image of God" becomes a number in statistics, or a heap of cells and chemicals.

Wars are curses that God permits from time to time to show His power and also His mercy. Even from the most destructive war many good things derive: radio and other ways of communications, aviation, space research, poetry, music (usually a reaction to the horrors of war), the peaceful use of atomic energy, an increased awareness of Man's own destructive power, etc. Among the good that came from war was the advance of surgery (Parre, Billroth, Imre, etc.), the explosive progress the Second World War brought to us in antibiotics, fluid therapy, blood transfusion, evacuation techniques, anesthesia, triage, etc.

Of course, I am not against medicine, "high tech" tools and procedures.

Neither was Pius XII²⁶ when he correctly recognized the moral and ethical implications of this incredibly rapid and comprehensive progress, and in a series of teachings laid down the fundamentals of medical ethics, which expanded and explicated the ancient secular law: *primum non nocere* (first do no harm).²⁷ Pius, one of the greatest of all popes, taught that although we must do everything we can to treat our patient and keep him comfortable and free of pain, to keep him from being hungry and thirsty, we are not obliged to use "heroic measures" to prolong a life which cannot be lived with dignity.²⁸⁻²⁹ While treating a patient, however, we must respect his humanness, the dignity as likeness, image (*imago*) of God. There is no dignity in a man beloved by friends and family whose life is artificially prolonged by having tubes going in and out of all his natural openings, and tubes and wires inserted even into places where no natural openings are present, tubes and wires attached to countless instruments and bottles. If the purpose of this "heroic" high tech treatment is to restore the capacity of the individual to function in a dignified life condition, such therapy is justified, but if the purpose is to prolong a life in a vegetative state, we are not obliged to administer it, especially when we also consider the added burden of expenses which such a regimen generates and can be an enormous strain upon the family and to the community.

Once we embark on a therapeutic regimen, however, we cannot discontinue it if the purpose of the discontinuation is to terminate the patient's life; and most especially we must not administer treatment the purpose of which is to kill the patient. We are duty bound to control pain in an adequate and timely fashion. We must not worry whether a terminal cancer patient might become a morphine addict for the short lifespan he has left: if the dose and the frequency of administration needed for adequate control exceeds the dose and frequency commonly used and recommended and considered safe, we are justified in giving it. If, however, we knowingly and deliberately administer a dose that will surely kill a patient, our *positive act* is immoral; it is a sin. Likewise, to give IV fluids which will keep the patient from the suffering of thirst, and if we give — when possible — enough food to keep him from hunger, we are fulfilling our obligation even if we add two or three days to the life of the patient. However, we are not obliged to administer antibiotics or even electrolytes, which may prolong life by weeks without any hope of recovery. The discontinuation of the fluids for the purpose of shortening the life, on the other hand, becomes a positive act which is a sin.³⁰

Opposite to the unnecessary and unjustified prolongation of life, which may be called "life" only in the biological sense, through "heroic measures," stands euthanasia. Once God and His commandments are removed from our life as reference points, as fulcrums, once morality is determined by Gallup polls, once respect for life at its inception is lost, there is no reason why the life of the old, the chronically ill, the disabled, the patient in pain, the "useless" should not be terminated. The path of freedom of choice to abort at any time, for whatever reason, to Dr. Kervorkian, to euthanasia is logical and as straight as an arrow.

It might be scientifically sound and correct to place the dying patient in the intensive care unit, surrounded by high tech tools and technicians who know how

to operate them. The humanity of the moribund, already stripped from his human dignity, is lost to Science. The family and maybe friends might visit for fifteen minutes every hour, but they are excluded from the supreme act of dying. They are forcibly separated from the patient, even when the patient is conscious. Even so, when the patient is seemingly already on his way to the other world, can the scientists read his mind? Do they know his longing for the company of those he loves? Or do they only see the tracings on the screen, a change in the blood chemistry? If we approach death armed with the tools of Art, the dying would die with his loved ones at bedside saying goodbye, whispering loving nonsense as we do when making love. Is death not the final satisfaction, the final climax?

There are two beautiful scenes in Mario Puzo's *The Godfather*. In the first, Genco Abbando, the consigliere, is dying of cancer on Don Corleone's daughter's wedding day. The wife is overwhelmed, "Oh, what a saint you are, to come here on your daughter's wedding day." Don Corleone brushed these thanks aside. "Don't I owe respect to such a friend, a friend who has been my right arm for twenty years?" . . . Then the daughters of the dying man came. One of the daughters asked timidly, "Dr. Kennedy, can we go to see him now?" Dr. Kennedy looked over the large group with exasperation. Didn't these people realize that the man inside was dying and dying in torturous pain? It would be much better if everyone let him die in peace. "I think just the immediate family," . . . "My dear doctor," said Don Corleone, "is it true he is dying?" "Yes," said Dr. Kennedy. "Then there is nothing more for you to do," said Don Corleone. "We will take up the burden. We will comfort him. We will close his eyes. We will bury him and weep at his funeral and afterwards we will watch over his wife and daughters." . . . Dr. Kennedy shrugged. It was impossible to explain to these peasants. At the same time he recognized the crude justice in the man's remarks. . . The nurse came back into the room and started shooing them out in a very matter-of-fact way. The Don got up but Abbando put out his hand. "Godfather," he said, "stay here with me and help me meet death. Perhaps if He sees you near me He will be frightened and leave me in peace. . . Stay with me, let me hold your hand. . ." The Don motioned the other people out of the room. They left. He took the withered claw of Genco Abbando in his own two broad hands. Softly, reassuringly, he comforted his friend, as they waited for death together. As if the Don could truly snatch the life of Genco Abbando back from that most foul and criminal traitor to man."³¹

The other is about the Don's own dying of a massive heart attack. "Michael knelt beside his father, holding his hand, while the other men called for an ambulance and doctor. With a great effort the Don opened his eyes to see his son once more. The massive heart attack had turned his ruddy face almost blue. He was *in extremis*. He smelled the garden, the yellow shield of light smote his eyes, and he whispered, 'Life is so beautiful.' He was spared the sight of his women's tears, dying before they came back from church, dying before the ambulance arrived, or the doctor. He died surrounded by men, holding the hand of the son he had most loved."³²

Here is death with dignity. Surrounded by one's family, by one's friends.

Often the problems are more complex, the answers more difficult, the Art is

harder to understand, to practice and to balance with Science.

Let me illustrate this with a specific case which allows us to select upon the truth and the wisdom of the Church's teaching. This is an outline which might deviate from the actual case in some non-essential points of sequence and action, but the essence is the same.

The patient was a middle-aged, very bright man in excellent physical condition, fulfilling a very important job requiring great mathematical understanding and organizational talent. He was involved in an accident in which he sustained broken bones, but also a closed head injury. He was accidentally found by a relative who unexpectedly had returned to his house. Had he not been found, he would have died within a very short time.

The paramedics summoned started airway and fluid and transported him to a local hospital where he was correctly diagnosed as "debrained." He was sent to a tertiary emergency center. He remained in deep coma for several weeks. His intracranial pressure rose, necessitating repeated tapings and the insertion of drainage into the ventricles. At one point, all but one of his evoked potential tracings were flattened, and even the one that functioned was extremely low. Repeatedly his fever rose, against which antibiotics were given. With the exception of the only occasion when his tracings flattened, no serious consideration was given *not* to administer heroic measures, *not* to give antibiotics, although clearly the condition did not suggest that he ever would be able to resume life with human dignity. His broken bones were set and slowly healed, a feeding tube was inserted, massive doses of steroids, insulin and other medications were given. The patient was hooked up to innumerable machines with an estimated daily cost of several thousand dollars in the intensive care unit. He then began to emerge from the coma and was transported to a very expensive brain stem stimulation center where huge daily expenses are accumulated. The last report I heard was that his favorite song which they play is "Mary Had a Little Lamb" and the last visitor who talked to him found him on the floor chewing on his toenails.

Maximal hope attached to the case was roughly 25% chance of him recovering sufficiently to be able to communicate with the family his basic needs and desires, and perhaps be able to take care of his own basic needs, such as washing himself, feeding himself, etc.

There were several occasions in the course of this treatment to allow nature to take its course and not to interfere with "heroic measures." One by one, these opportunities were lost and replaced with high tech therapy, with the predictable end result of his being alive but with a total lack of human dignity. A person who formerly was gentle now has violent temper fits, is unmanageable, and will be confined to an institution for the rest of his life, which can drag on for many years.

Sapient sat (it is enough for the wise).

Even the financial aspects of this case are staggering. Not only was the patient in intensive care for weeks, he was also transferred to an extremely expensive brain stem stimulation program. Although the patient was reasonably well-to-do and carried good insurance, most of the financial assets of the family are now exhausted and they are seeking public assistance in the form of veterans' hospital

chronic care.

Of course, financial considerations should never determine who should live and who shouldn't, who should be given therapy and who shouldn't. Yet one must question whether this patient's quality of life justifies the enormous expenses.

Are we then practicing too much Science today and too little Art? Is it possible that our impersonality, which our scientific attitude certainly permits us to develop, is behind so many of the lawsuits?

I believe that many — but of course not all — of our malpractice litigation cases, in addition to the greed of the patient and that of the lawyers, the farce of our legal system, is because many of us practice only Science and hardly any Art. The patient senses that he has been shortchanged, that instead of as a human being he was treated as a number, that instead of proven, effective but low-cost therapy, he was given "statistically significant" treatment at very high cost, and he seeks redress.

People turn more and more to nature, to natural remedies, to witch doctors, shamans, nature therapists. Is it true that only those who have no disease, whose problem "is all in their head" (a dreadful, humiliating, lawsuit-inviting, dehumanizing expression loved by arrogant physicians who feel superior to everyone else in their "scientific approach") can be "cured" by such people? If it is, are they worse than we are with our TV advertised "preventive procedures," which suggest illness and call for treatment where no illness is present and no treatment is needed. Or is it true that some — maybe many — organic problems are really the result of spiritual imbalance? Was Mary Baker Eddy totally wrong or only partially? Clearly, Latrite did not cure any cancer, but how many cancers do we cure? Don't we all see examples where the patient's faith in a treatment we tend to ridicule brought relief, and the treatment we take seriously failed? I had a patient with essential blepharospasm who did poorly on all therapy — including Botulin toxin injection (a not entirely non-dangerous procedure) — but was made very comfortable by the application of acupuncture to the trigger point. I had a friend, a very intelligent, professional woman who suffered from incurable cancer and who was on maximum anti-pain therapy, bedridden, a burden to herself and to her family. She was taken to Lourdes. She came back free of pain, happy, active, a joy to all. She died six months later of her cancer, but she died a happy and loving death.

I have seen a great decrease and a rapid clearing of cystoid macular edema from the application of topical indomethacin and topical steroid combination. I published the data and received confirmation from other investigators.³³⁻⁴⁰ But the FDA wants 120,000 randomly selected patients in a double-blind study to prove "statistical significance." Diabetic retinopathy worsens after cataract extraction.⁴¹⁻⁴² Yet I have seen and reported stabilization of the retinopathy if a) the retina was pretreated whenever possible, b) the posterior capsule was kept intact for at least nine months after surgery, and c) if topical indomethacin drugs (a drug not available in the United States market, but available in Canada and the rest of the world) were applied indefinitely. But since I do not own a cataract factory that can be advertised on TV, my numbers are less than the several

hundred the FDA requires for "statistical significance." I am sure we all know of therapy which helps the patient but is not the latest fad in scientific circles and is not advertised on television as the "latest article from the New England Journal of Medicine." Is it possible that in these, and in many other cases, Science got hold of Art to the detriment of our patients?

One of the well-known neurosurgeons used to tell the patient's family: "If your relative wakes up in two weeks, it is okay; if not, he will be a vegetable, and that's the soup." One may say he didn't have bedside manners. I would say he practiced Science because he was correct every time, and his decision was based on the latest scientific discoveries and knowledge, but he practiced no Art. Where was the patient's human dignity? Or the dignity of the family?

Science is to present the medical facts and a prognosis based on the latest publications and statistics to the patient and to the family. Art is to introduce the patient and the family to the understanding that although what is going to happen is the final act of the individual, it is not evil, it is not necessarily bad, and it is according to God's plan and God's will. Art is to guide the person toward understanding death, give him time to prepare himself spiritually as well as somatically for the journey into eternity.

At one of the first lectures I attended at the Johns Hopkins University neuro-ophthalmological seminars, a brain was presented which was missing more than 1/3 of the front. The presenter, a world famous neuropathologist, said that the brain belonged to a young man whose frontal tumor was removed previously. He lived happily ever after and died presently in an automobile accident. He said, and I quote, "The patient had only minor personality changes. He was a Catholic priest and from time to time during the Mass he turned around and urinated on the altar." He didn't mean to be funny. He was a great — indeed superb — scientist, but totally lacked Art. To him, the patient was a case, a very interesting one for sure, but not a human being.

Inclusion (mainstreaming) is another ethical issue that demonstrates the dichotomy between Art and Science where "science" (in this case pseudoscience) is emphasized against Art, Art that takes the dignity of human beings as its guiding light. The psychologists and educators came up with the idea that *all* handicapped children do better if educated in a non-handicapped environment. For some, it works well. For most — and for their parents and teachers — it is a frustrating, humiliating experience where the handicapped is stripped of his or her dignity, where his or her uniqueness is swallowed up in conformity, love is replaced by educational therapy and state mandate. A truly Clintonesque horror aided by the publications of pseudoscientific educationists and sociologists. (Interestingly, virtually the same people who advocate "rock rights," "plant rights," "animal rights," and fight cruelty against those species, and promote, indeed often order, educational and other experimentation on our children, farm and harvest fetal tissues for human experiments, and ignore the rights of the unborn, destroying them in the most cruel and painful way.)⁴³

There is one more example where the overapplication of Science vs. Art is causing much pain to the patient. Here the sciences are pseudosciences: Educational and Political sciences. In our own community, for years doctors and

physiotherapists volunteered their services — supported by community effort — to diagnose and treat medical disabilities in children. The Children's Rehabilitation Center provided care, looking at the children as human beings, trying to solve their problems *for life*. Politicians, educators and educational politicians decided that they — in their own scientific light — know better what to do. Their goal was — and is — to put the child through school. The rest of the child's life is of no concern. For instance, a tendon lengthening operation would solve much of the problems for life. A wheelchair allows the child to go to school and graduate. It is cheaper. Educational science chooses the latter; medical Art requires the former.

Is "Art" in its classical Hippocratic meaning an "enemy" of Science? Are Art and Science contradictory terms? Is "Art" nothing but bedside manner? If so, are TV commercials, testimonials without any scientific value by promoters of new, primarily money-making procedures present-day forms of "Science"? Or is "Art" the spirit and Science the "matter." If so — and I think it is so — "Art" should be the governing force that oversees, influences, controls Science as in a divinely ordered universe spirit controls matter.

Let us examine and carry out our actions with a respect for Science, but an admiration and acceptance of Art and a humble realization that Science can fail us, that the half-life of a scientific discovery is five years at the most, that our text books based on Science are at least two years behind the times when they are published (my own text book was eight months behind, a huge time in cataract and intraocular lens technology, and I fared this well only because my publisher-editor allowed me to add two new chapters after the book was set!), but the word of God, upon which our Art is based, the spirit that rules matter yet is equal with it, is timeless, perpetual, and eternal . . .⁴⁴

May God bless us all and help us to find the proper balance between Art and Science. And may the Holy Spirit guide us in our lives.

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References

1. "Bernard of Chartres said we are dwarfs perched on the shoulders of giants, wither for see more and farther than they, not because we have keener vision or greater light, but because we are lifted up and born aloft on the gigantic statue."

"John of Scisbury, *Metalogicon*, III, 4 (*Patrologia Latina*, CXCIX, Col. 900; McGarry, ed., p. 167) . . . For this dictum of Bernard of Chartres, one of the most frequently discussed *loci* in medieval literature, see R. Klibansky, 'Standing on the Sholders of Giants', *Isis*, XXVI, 1936,

p. 147f., and Curtius, E., *Europäische Literatur und lateinisches Mittelalter*, Bern, 1948, p. 127. To what extent it may have suggested to articles the idea of representing the Apostles perched on the shoulders of the prophets is a moot question. The main argument in favor of this assumption — the fact that the motif in question occurs, in the north transept windows of the Cathedral, at Chartres itself before its appearance on the Bamberg 'Fürstenportal' and in the windows of the west choir of Naumburg Cathedral — is vitiated by two occurrences unquestionably preceding the Chartres windows, viz., the baptismal font in Merseburg Cathedral (H. Beenken, *Romanische Skulptur in Deutschland*, Leipzig, 1924, p. 86ff., Figs. 43, 44) and, probably, a capital in the church of Payerne about halfway between Berne and Lausanne (J. Gantner, *Kunstgeschichte der Schweiz*, I, Frauenfeld, 1936, p. 226ff., Fig. 167). On the other hand, it remains true that, barring the very doubtful reconstruction of a mural in San Sebastiano al Palatino in Rome (J. Wilpert, *Die römischen Mosaiken und Malereien der kirchlichen Bauten . . .*, Freiburg, i. B., 1916, II, Figs. 513-515, IV, Plate 225, No. I), all the above-mentioned examples postdate not only the lifetime of Bernard of Chartres but also the date of John of Salisbury's *Metaphysicon* (largely completed in 1159); and certain it is that, occasional statements to the contrary notwithstanding, the motif is foreign to Byzantine art. Thus an influence of Bernard's simile on the visual arts — conceivably through the intermediary of illustrated manuscripts — still remains within the realm of possibility. De Francovich, G., *Benedetto Antelami, architetto e scultore, e l'arte del suo tempo*, Milan and Florence, 1952, I, p. 194f., enumerates the examples of Apostles placed on the shoulders of prophets in connection with prophets holding medallions that enclose the portraits of Apostles (Parma Baptistry) but does not discuss the problem posed by the *aperçu* of Bernard of Chartres." Panofsky, Erwin, *Renaissance and Renascences in Western Art* (New York: Harper & Row, 1972), p. 100.

Actually, in Buddhist art there are representations where bodhisattvas are on the shoulders of the dhyānibuddhas.

Most of the following notes are referring to concepts more than actual quotes.

2. *Encyclopedia Britannica* (Chicago: 1964), Vol. 15, p. 199.
3. Paul VI: *Humanae Vitae*, 1968.
4. In this essay "Man" is used in the classical generic sense, which includes both man and woman, as *Homo Sapiens* includes both *vir* and *mulier* (*vir*=male, *mulier*=female). Such usage allows for a smoother flow of the text, than the constant application of he-she, man-woman, his-her, etc.
5. John XXIII: *Mater et Magistra*, 1961. "Man's dignity as a creature of God endowed with a soul in the image and likeness of God."
6. Gen 1:27.
7. *Gaudium et Spes*, 1965, Ch. I, 12 (Vatican II).
8. Pius XI. *Casti Connubii*, 1930.
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18. Lk 1:38.
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26. Pius XII, *Mystici Corporis*, 1943.
27. See Ex 23, 27.
28. Pius XII. *Allocution to an International Congress of Anesthesiologists*, November 24, 1957. *Allocutio conventui unionis Italicae inter obstetrices*, October 29, 1951.
29. *Declaration on Euthanasia*, Sacred Congregation for the Doctrine of the Faith, June 26, 1980.
30. These questions are discussed in great detail in the following publications of the Pope John Center in St. Louis, Missouri. *The New Technologies of Birth and Death*, 1980; McCarthy, D. and Moraczensky, A.S. (eds.), *Moral Responsibility in Prolonging Life Decisions*, 1981; McCarthy, D. and Bayer, E. (eds.), *Handbook on Critical Life Issues*, 1982.
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