

## CURRENT THEOLOGY

### THE EUCHARIST: CONTROVERSY ON TRANSUBSTANTIATION

Ten years ago an article in this journal reviewed a debate on transubstantiation and science which had begun about 1928.<sup>1</sup> The controversy pointed to the necessity of paying at least some attention to the problems raised by atomic physics when treating of the Eucharistic conversion. No doubt is possible concerning the multiplicity of substances in the bread and wine; and these are not substances *of* bread and wine. Not only the scientifically educated, but ordinary newspaper readers have a more exact idea of the structure of matter than was possessed by the great thinkers of former ages. Naturally, Catholics desire to know how to square their faith in the Eucharist with the scientific instruction they have received.

Theologians nowadays do not easily succumb to panic when confronted with new advances in the physical sciences. Their calmness is reflected by Michael Schmaus, who, after acknowledging that according to the verified results of contemporary science matter consists of extremely complicated articulations of microscopic subatomic particles, observes that the teaching of the Church on transubstantiation is unaffected. For in our everyday experience we shall always distinguish between bread and wood, between wine and water. However the structure of matter may be scientifically clarified, it is grounded in things themselves, so that we say of one thing that it is stone, of another that it is bread, and we say of one that it is hard, of another that it is soft. In other words, everything has its own essence, a core of being (*Wesenskern*) that may exist in varying states, but does not itself cease with the cessation of such states or conditions. This basic being is what changes in transubstantiation.<sup>2</sup>

Such assurance is comforting. Nevertheless, problems persist, as will appear. However, before following the fortunes of the controversy as it has developed since Fr. Clark's article,<sup>3</sup> we may regard one point at least as settled among the debaters. This concerns the value assigned by the Council of Trent to the terms "substance," "species," and "transubstantiation."

Gone are the days when manuals of theology confidently attributed to

<sup>1</sup> J. T. Clark, S.J., "Physics, Philosophy, Transubstantiation, Theology," *THEOLOGICAL STUDIES* 12 (1951) 24-51.

<sup>2</sup> M. Schmaus, *Katholische Dogmatik 4: Die Lehre von den Sakramenten* (Munich, 1952) 265.

<sup>3</sup> A number of studies, some of them quite interesting, that deal with the Real Presence rather than with transubstantiation, have not been included in the survey that follows. Also omitted are some articles which, though discussing transubstantiation, scarcely surmount the textbook level.

Trent the doctrine that the substance which is changed into Christ's body is the prime matter and substantial form of a particular piece of bread. Theologians who have cultivated a historical sense know that "substance" as employed by Trent does not canonize the hylomorphic conception, and that the term is used in a broader meaning than that of Aristotelian philosophy. Certainly in the profession of faith imposed on Berengarius in 1079<sup>4</sup> the words *substantialiter* and *substantia* do not depend on Aristotelian categories, but convey a more general and less technical idea in which *substantia* designates the true, basic reality of a thing, that which makes it this thing and not something else. Examination of the Acts of the Council of Trent yields no reason for thinking that "substance" was employed in a sense at variance with the usage of centuries. The term raised no problem for the Council, aroused no discussion, and was not insisted on except against those who would concede only a symbolic or figurative presence of Christ in the Eucharist.

The phrase *substantia panis et vini* as it occurs in the decree on the Eucharist at Trent was not designed to sanction any philosophical theory of substance, but indicates the reality which is ordinarily signified by the word "substance," that by which bread is truly bread and wine is truly wine. This substance, which is wholly outside every quantitative and dynamic order, is really converted into the substance of Christ's body and blood.

Furthermore, Trent's dogmatic definition that the whole substance of the bread is converted into Christ's body does not imply any supposition that the substance of the bread is numerically one, but affirms what Christ had in mind when He said, "This is my body." That is, the entire substantial content of what we call bread, whether one substance or many and various substances are involved, is converted into the body of Christ. Consequently, the faith is not menaced by any objections raised by recent scientific developments against the Aristotelian philosophy of nature.

The second canon of the decree teaches that in the Eucharistic conversion the species of bread and wine remain. Although the Fathers of the Council knew about the condemnation of Wyclif at Constance, they resisted a proposal to replace "species" by "accidents," because the former term had been employed by Fourth Lateran and Florence and even went back to patristic times. Theologians of earlier ages regarded the objective nature of the species as a tenet of faith. Today theologians speak more cautiously; they are not convinced that the Council expressly intended to define the physical and objective permanence of the Eucharistic appearances and their

<sup>4</sup> DB 355.

numerical identity before and after the Consecration. Hence, they qualify the doctrine as *proxima fidei*, in close connection with the dogma of transubstantiation. Yet the definitive teaching common to theologians is that the accidents of bread and wine have a true physical and objective reality which remains numerically identical, and therefore are really distinct from the substance.

The neologism "transubstantiation" entered theological vocabulary before it received the Aristotelian imprint it subsequently bore. Once coined, the word rapidly gained currency. So far as is known, it was first used, though not necessarily invented, by Roland Bandinelli (the future Alexander III) before 1153. It was recognized immediately as a convenient term to express the doctrine of the conversion of bread and wine into Christ's body and blood. The weight of Trent's definition<sup>5</sup> is on the change of the whole substance of bread and wine rather than on the term itself; but this change is aptly, fittingly, and properly called transubstantiation. Thus the Council justifies the usage of a new technical term that is neither scriptural nor patristic. Accordingly, the dogma defined at Trent remains independent of any particular philosophical system.

This interpretation of Trent summarizes the common mind of all the authors, to be mentioned below, who refer to the Council.

#### THE MAIN CURRENT OF DEBATE

The immediate occasion of the present controversy is an important article published in 1949.<sup>6</sup> In an endeavor to penetrate into the dogma of the Eucharist, theology inevitably asks some questions. What is the substance that changes? What are the species that do not change? What is transubstantiation itself? These problems required a full examination. The cardinal question is whether the concepts expressed by Trent are to be understood in a "physical" or a "metaphysical" sense. Are substance and species identifiable with physical entities disclosed by science or not? And is transubstantiation a conversion that takes place between physical entities or not?

If we consult physics and chemistry about numerical distinction in what we call the substance of bread, a deeper problem at once emerges. Since the bread is not one simple substance but an aggregate, what is really changed into Christ's body? The composite or the components? And among the components, at what stage are we to call a halt—at molecules, atoms, or elec-

<sup>5</sup> Chap. 4 and can. 2 (*DB* 877, 884).

<sup>6</sup> F. Selvaggi, S.J., "Il concetto di sostanza nel dogma eucaristico in relazione alla fisica moderna," *Gregorianum* 30 (1949) 7-45.

trons? Briefly, since the substance of bread is totally converted into the body of Christ, can we identify this substance with some reality apprehended by modern science, and if so, what is this reality?

This is the question Selvaggi sought to answer, in the most exhaustive study made up to that time. After reporting the data supplied by chemical and physical analysis on the composition of bread, he points out that an examination of the process of making bread exhibits no reason for thinking that the minute particles which in the flour form a multitude of heterogeneous and discontinuous substances unite in the bread to form a single substance. Neither chemically nor philosophically can we speak properly of the substance of bread. Rather we ought to speak of various substances which, combined in a certain manner, yield what is commonly called bread. Also, of course, the wine in the chalice is not a continuous whole, but is a mass of many substances.

What, then, is changed into the body of Christ? Selvaggi, who had previously called attention to the distinction between substances and properties which science itself suggests, replies in detail. In transubstantiation, the protons, neutrons, and electrons that pertain to the mass of the consecrated matter, the atoms, molecules, ions, the molecular compounds, the micro-crystals, in a word, the entire agglomeration of substances constituting the bread and wine, cease to exist and are converted into the body and blood of Christ. On the other hand, the accidents pertaining to all these substances remain: extension, mass, electrical charges, with all the potential and actual magnetic, electrical, and kinetic energies deriving from them, hence all the optical, acoustical, thermodynamic, and electromagnetic effects which those forces are capable of producing. All these together, the sum total of directly perceptible phenomena, constitute the Eucharistic species.

According to Selvaggi, therefore, we can identify the substance with definite physical entities. Is transubstantiation, then, a physical or a metaphysical change? The author distinguishes. So far as it is a real change between two real physical terms, it is a physical change. The material substance, or rather substances, of the bread and wine are really changed into the real body and blood of the living Saviour. But if by physical change we mean, in the language of modern physics, a change brought about by a series of physical operations, evidently transubstantiation is not a physical change. Although the substance of bread is no longer present under the species after the consecration, it is impossible to verify experimentally the change that has occurred, since all experimentation has as immediate object the species or properties, not the substance, which is the object of judgment.

*Carlo Colombo: First Article (1955)*

The earlier controversy closed with Selvaggi's article in 1949. Six years later Don Carlo Colombo resumed the debate with an attack on Selvaggi.<sup>7</sup> He recognizes the existence of a problem for Christians of our time who have been formed to a scientific conception of the constitution of matter. Serious examination of this problem seems to be a task which theology may not ignore.

Since the dogma itself does not state precisely what substance and species are, the theological concept of substance is susceptible of various interpretations. The more common view is the Thomistic one, which, utilizing Aristotelian philosophy, takes the theological concepts of substance and appearances in the metaphysical sense of substance and accidents. Further, the substance is composed of prime matter and substantial form, and transubstantiation differs from all other conversions as implying, not a change of accidents or even of form alone, but of both metaphysical principles, matter and form. This is not a dogma of faith; hence, other attempts are made to explain the substance of bread and its appearances, as well as the nature of total conversion. Such attempts in the past exploited the physics of their time; thus, we have the interpretations of Descartes, Tongiorgi, Palmieri, and Unterkircher. They were doomed to failure with the abandonment of the physics that inspired them. The recurrence of such endeavors manifests a desire of confronting the dogma with the progress of scientific knowledge. Bread and wine are material realities; can theology be disinterested in progressive insights into material reality?

Among authors who reply in the negative is Selvaggi, who proposed an explanation which he declared was faithful both to the dogma and to the certain discoveries of science. Colombo acknowledges that the proposal is capable of conciliation with dogmatic data, because it affirms a total ontological change, with only the species remaining. Yet he has grave misgivings about its theological soundness.

To pave the way for his own solution, Colombo studies the meaning of "substance" as employed in Eucharistic teaching throughout the centuries.<sup>8</sup> The problem is primarily theological, not scientific or philosophical; tradition must be our guide. Is the traditional formulation capable of a "physical" interpretation, or is the dogma independent of physics, whether of the past, the present, or the future, so that we should avoid all identification with the physical entities studied by science? Only theology can give the answer.

<sup>7</sup> C. Colombo, "Teologia, filosofia e fisica nella dottrina della transustanziazione," *Scuola cattolica* 83 (1955) 89-124.

<sup>8</sup> *Ibid.*, pp. 109-18.

To understand the theological sense of "substance," we must go to the Acts of the Council of Trent and to the whole history of the dogma which little by little made precise the meaning the Council subsequently made its own. At Trent the Fathers and theologians who prepared the decree on the Eucharist had recourse, not to the thirteenth century, but to the traditional teaching. "Substance" is what Florence, Constance, Fourth Lateran, Innocent III, and the synods and theologians opposed to Berengarius understood. During the ninth to the eleventh centuries the meaning did not change; the substance of bread and wine meant the same for Paschasius Radbertus as for the anti-Berengarians of the eleventh century. The same is true of the fifth and sixth centuries, as exemplified in the famous sermon *Magnitudo* generally attributed to an author who depends on Faustus of Riez.<sup>9</sup> The situation never varies; the substance is the nature, the intimate reality of the bread and wine. In all these authors and councils, no element derived from the science or philosophy of their age enters into their Eucharistic teaching. The only empirical concepts used by them are those that belong to universal human experience: a reality which is wheat bread and a reality which is the human body of Christ. The reality of the bread is changed into the reality of Christ's body, while the qualities or characteristics that manifest them to us remain unchanged.

Is this conversion physical or metaphysical, that is, between realities viewed as physical entities in the scientific sense, or metaphysical realities in the Scholastic sense? Colombo is convinced that for all the Fathers and authors who contributed to the explanation and formulation of the doctrine, the change does not take place between experimental realities. The realities that are changed are "transphysical." In the development of this doctrine there was never any tendency to conceive the conversion as a change between realities identifiable with physical realities.

Theologically, Colombo believes, it would be an error to propose today a new identification with entities of a physical order, such as electrons, protons, atoms, crystals. Such an attempt deviates from the line followed by the development from the fourth to the sixteenth century. During all this time the terms progressively assumed a metaphysical meaning—not that of Aristotelian philosophy, but a more general metaphysical sense, such as could have been in the mind of Ambrose, Innocent III, and others, when they compared transubstantiation with creation, an action touching the nature of material realities. To be sure, this long period has not exhausted the knowability of the revealed truth. But further advance must proceed *in eadem linea*. The "physical" attempts turned out badly in the past; they

<sup>9</sup> Cf. *PL* 67, 1052–56.

were not "in the same line." They had the ambition of bringing theology up to date, with inspiration drawn from the physics of their epoch. But they were ephemeral and were soon abandoned; their life was no longer than that of a scientific conception. It would be a mistake to return to them.

Having thus prepared the way, Colombo puts forward his own solution.<sup>10</sup> Its motif: away with Eucharistic "physicism." Scholasticism had regarded every material thing numerically distinct, such as *one* piece of bread, as a single whole composed of prime matter and a substantial form (some held a *forma panis*). Two consequences were drawn: Christ's body becomes present only once for each host, and the conversion is a change of the entire complex of matter and form. But physics and chemistry have accustomed us to see in the bread an ensemble of elementary chemical compounds, resulting in turn from more profound particles and energies which preserve their individuality. What, then, is the substance of bread? And how often does the body of Christ become present? What changes and what remains intact?

To answer these questions, we must distinguish three aspects under which bread may be viewed. In its ordinary aspect, bread is a food, different from other substances. In its scientific aspect, bread is a material reality resulting from a definite structure of elementary particles and forces which science makes known to us. Finally, from a philosophical standpoint, bread may be explained by the metaphysics of matter and form, substance and accidents, etc.; or possibly by some other metaphysics capable of accounting for the facts manifested by experience. No doubt Jesus took bread in the prescientific and prephilosophical sense; under this familiar aspect He chose it to be the subject of the conversion in order to realize and express His sacramental presence. Hence, the substance of bread is changed into Christ's body as often as it is able to signify it; no reason is apparent for multiplying the Real Presence according to the number of physicochemical elements that compose the aggregate.

Is this "physical" reality, object of science, touched by transubstantiation? Not at all, Colombo replies. To be convinced of this, we need but reflect that when the doctrine was defined at Trent, the physical reality was not known as we know it today. Hence, the change takes place between realities that are beyond scientific investigation, that is, metaphysical realities. The dogma requires only a real composition between substance, a reality physically unattainable which is totally changed, and realities experimentally attainable, which are in no way changed. To uphold the

<sup>10</sup> *Art. cit.* (supra n. 7) pp. 118-22.

dogma, theology does not need a particular scientific identification or a particular philosophical interpretation.

*Roberto Masi: First Article (1955)*

Partial agreement with Colombo's views is manifested by Msgr. Masi in his initial contribution to the discussion.<sup>11</sup> Yet seeds of future discord which would align Masi with Selvaggi are discernible. Indeed, at the very outset he declares that experimental sciences have vital relations with Christian dogma. The theology of the Eucharist is by no means independent of physical and philosophical teachings about the nature of matter; hence, it is to be expected that diverse theories about matter should leave traces in diverse explanations of the Eucharist. Thus, theories in favor during the past century, such as atomism, mechanism, and dynamism, were applied, though not very successfully, in efforts to elaborate the dogma of the Eucharist.

Modern physics, succeeding the discarded mechanism and dynamism, has made great progress in the study of the constitution of matter. Have these discoveries anything to contribute to the theology of the Eucharist? Or do they release new difficulties? Before answering these questions, we must ask whether physics can have anything to say about a problem that revolves on a metaphysical plane. And here we must distinguish two types or, perhaps better, two functions of physics.<sup>12</sup>

Understood in one sense, physics undertakes to experiment, measure, catalogue, and synthesize. It measures the accidents of bodies, without concern for their metaphysical reality. As for substance in the metaphysical sense, physics knows nothing, precisely because substance is nonsensible. With regard to the Eucharist, then, if substance, conversion of substance into substance, and the reality of the accidents are on a metaphysical plane, can physics in any way intervene so long as its function is restricted to the phenomenal sphere? The answer is at hand. Physics has nothing to do directly with any metaphysical question; the two areas cannot intercommunicate. Eucharistic theology moves on a metaphysical level; physics moves on an experimental level. Physics cannot discuss substance and change of substances when it completely ignores substance.<sup>13</sup>

This solution, however, attributes to physics a phenomenological significance, whereas it may also have a philosophical significance. Although

<sup>11</sup> R. Masi, "Teologia eucaristica e fisica contemporanea," *Doctor communis* 8 (1955) 31-51.

<sup>12</sup> Failure to attend to this distinction later led Colombo to claim Masi for his side, and thus, as we shall see, provided Masi with an opportunity to state more clearly his opposition to Colombo and agreement with Selvaggi.

<sup>13</sup> Masi, *art. cit.*, pp. 43 ff.



physics in its technical formulation considers only measurements, it can have contact with metaphysics. An experiment may be considered in its phenomenological significance of pure measurement, and then it is the affair of physics; or it may be considered in its ontological reality, and then it is open to metaphysics. Contact between physics and philosophy is achieved in experimentation, which, being a real fact, has an ontological content. So, leaving the technical, methodological sense of physics, Masi turns to its realistic sense.

As has been experimentally demonstrated, matter is composed of molecules, while molecules are composed of atoms, and atoms of elementary particles and fields of energy. Can we employ such scientific data to help the theology of the Eucharist? For example, can we say that the particles and the energy fields of bread are converted into the particles and energy fields of Christ's body?

First of all, Masi notes that the color, taste, figure, elasticity, fluidity, etc., of the species of bread and wine depend on the molecular and atomic structure, and the atomic structure depends on the structure of the nucleus, which in turn depends on the nature of the elementary particles, especially protons and neutrons. Since the species are the same before and after transubstantiation, also the molecular, atomic, and nuclear structures must remain the same. As regards the substance, however, physical experimentation can offer nothing. Therefore, no experiment can ever apprise us of transubstantiation, which is change of substance into substance. Likewise, no physical experiment will be able to distinguish the accidents from the substance.

But if science cannot demonstrate, may it not perhaps destroy, the distinction between substance and accidents? A body's mass is not constant but can be transformed into energy. Hence, an objection arises: If mass becomes energy, does not matter, that is, substance, become energy, which is an accident? Are we not thus led to deny the distinction between material substance and its accidents? The response is simple. Mass is not matter but is a property of matter; it can augment or diminish while the material substance stays the same, as when calorific energy increases and decreases in the same body. This is not opposed to the distinction between substance and accidents.

The difficulty may be urged, on the basis of the physics of elementary particles.<sup>14</sup> As has been demonstrated, the electron-positron pair can be converted into radiation. Perhaps other particles as well, even all of them,

<sup>14</sup> For a fascinating account of the subatomic world, written by an expert for non-scientists, see Donald J. Hughes, "The Elusive Neutron," *Saturday Evening Post*, Feb. 4, 1961.

can be similarly changed into energy. Consequently, all matter, which is constituted of these particles, could be transformed into energy without residue. Thus, substance would become accident, and the distinction between substance and accidents evaporates. This difficulty does not daunt Masi. He observes, first, that the change of all matter into energy without residue has not been demonstrated. If the demonstration were to be forthcoming, we should have to conclude that matter and energy are realities of the same type; but matter in this sense is not material substance. Matter and energy would be two manifestations of the same material substance: matter the corpuscular manifestation, energy the energetic manifestation. Material substance, in the metaphysical sense, would be untouched.<sup>15</sup>

In transubstantiation the physicochemical structure of bread and wine remains the same: the same protons, neutrons, electrons, positrons, mesons, molecules, and crystals, the same electric, magnetic, and nuclear fields, the same physical laws. This structure and all that science may in the future define more accurately is accidental reality, constituting the sacramental species, extension, color, taste, weight, elasticity, fluidity, and so on. The change is one of substance, underneath the appearances, and is metaphysical change.

It is true that Jesus selected bread and wine in the everyday sense. But bread and wine have a definite physical structure. Transubstantiation takes place within and under this structure, since this structure is the principle of the appearances or accidents.<sup>16</sup>

Masi closes with the observation that contemporary science does not compel us to modify the metaphysical conceptions of substance and accidents, and hence is not opposed to the classical theology of the Eucharist. Indeed, he believes that something more must be said. Contemporary physics has rejected mechanism and can receive a metaphysical interpretation recalling the Aristotelian theory of matter and form. This does not mean that physics has demonstrated hylomorphism; but the description of the structure of matter presented today by physics, resulting from experiments interpreted by quantum mechanics, can be understood in the sense of the Scholastic theory of hylomorphism, according to which corporeal substance is composed of two physical realities, a substantial principle of indetermination, called prime matter, and a substantial principle of determination, called substantial form. Hylomorphism is today the best metaphysical theory of the material world; it respects the requirements of philosophy and at the same time those of theoretical and experimental physics.

<sup>15</sup> Masi, *art. cit.*, pp. 47 f.

<sup>16</sup> *Ibid.*, p. 49.

*Filippo Selvaggi, S.J.: First Reply to Colombo (1956)*

In his response to Colombo, Selvaggi<sup>17</sup> starts out with the conjecture that their differences may be more verbal than real. At any rate, he agrees with his critic on the *terminus ad quem*, the body of Christ. Jesus used bread, as matter of the Eucharist, in its ordinary aspect of common food. For the practical sense of men, the host is a single thing; hence, there is no reason to multiply transubstantiations and presences, even if in fact this thing is an aggregate that has only an accidental and not a substantial unity.

Disagreement is mostly about the substance of bread and wine, the *terminus a quo*. This is the central point. Is the substance of bread a physical reality, experimentally attainable, or a properly metaphysical reality that is quite different from anything chemistry and physics can make known? If by "physical" we mean purely subjective phenomena, that which our senses perceive in the material thing, evidently the substance is not physical, and also transubstantiation is not physical, since neither the senses nor scientific instruments will ever discern any change. However, Selvaggi thinks that this sense of "physical" is inept, for it is an error to think that the object of experimental science is restricted to purely sensorial data. So we ought to distinguish between "sensible" and "experimental." Sensible refers to the formal object of sense; experimental refers to the object which the intellect knows immediately through the senses. There is another good meaning of "sensible," with reference to that which, although it does not directly affect the senses, is connected with the sensible and is perceived by the one who senses (this is *sensible per accidens*). Only in this meaning can we say that the experimental sciences are the sciences of the sensible: not of the purely sensible, but of the sensible *per accidens*.

With still greater reason we ought to say that the term "reality" properly designates, not the mere appearances, but the thing as it exists in itself, the object known by the mind through the senses. If, as is correct, by "physical reality" we mean the very ontological reality of the bread, it is erroneous to affirm that that reality is not touched by transubstantiation. Bread is a thing that can be viewed on different horizons of knowledge: ordinary, physical, and metaphysical. The reality which is the bread, considered metaphysically in an abstract way, is the same reality that is considered by physics. This reality which is the bread is wholly converted into Christ's body; only the accidents remain, that is, the extension, mass, the energies, and all the actions and effects by which the physical reality reaches the senses.<sup>18</sup>

<sup>17</sup> "Realità fisica e sostanza sensibile nella dottrina eucaristica," *Gregorianum* 37 (1956) 16-33.

<sup>18</sup> *Ibid.*, pp. 20-23.

When Colombo asserts that the "physical reality" of the bread remains, he refers to the species alone. The Fathers and theologians never speak in this way, but regard the substance of bread as an entity that is physically composed of wheat flour kneaded into dough with water and baked at a fire. A brief investigation of patristic evidence leads Selvaggi to the conclusion that the Fathers know nothing of a distinction between a metaphysical reality which changes and physical realities which are untouched; what they know is a physical reality of bread which is converted into Christ's body, and appearances which remain.<sup>19</sup>

Later the Schoolmen introduced the distinction between substance and accidents, and identified the Eucharistic species with the accidents. For Scholasticism, material substance can be conceived metaphysically, in the abstract, as a composite of matter and form; but in the concrete, the material substance is the physical thing that is attainable experimentally.

Foreign to the genuine Scholastic conception is the notion of substance as an inner kernel, invisible and impalpable, lurking mysteriously under the accidents, as though under a shell that exists independently of the kernel. Colombo's terminology seems to favor such an idea, involved in his distinction between physical reality which is known by sense perception, and metaphysical substance, a sort of unknown  $x$ , about which science has nothing to say, since dominion over it is reserved to privileged philosophers.<sup>20</sup>

Conformably with traditional terminology, Selvaggi continues, we should speak of a single reality or substance of bread that is knowable on different levels, ordinary, scientific, and philosophical, and affirm that this single reality, empirical, physical, and metaphysical, is totally converted into the body of Christ. Accordingly, if a scientist should ask what becomes of the molecules of starch and the atoms of carbon, etc., we can either reply, if such is our cast of mind, that the theologian simply ignores modern science and is content to repeat unchanged the formulas of bygone days; or else we can say that if the substance of bread, as physics teaches, is composed of molecules and atoms, all this is converted into Christ's body, although the appearances which sense can perceive or instrument may register continue to be unchanged.

Selvaggi decisively repels Colombo's veiled charge of concordism.<sup>21</sup> There is no question of making the dogma conform to scientific advance, but of utilizing such advance for better and deeper interpretation of dogmatic truth. The traditional teaching must be preserved in integrity; at the same time we should try to explain its content in language intelligible to our contemporaries.

<sup>19</sup> *Ibid.*, pp. 23-29.

<sup>20</sup> *Ibid.*, pp. 30 f.

<sup>21</sup> *Ibid.*, pp. 32 f.

*Carlo Colombo: Second Article (1956)*

As a discussion develops, confirmation of one's own views by another thinker is a heartening experience. In his second contribution Colombo<sup>22</sup> is happy to note that Masi is substantially in agreement with him. As interpreted by Colombo, Masi holds that all modern physics is enclosed within the order of phenomena, the sphere of accidents in the metaphysical sense. Not only color, taste, and other qualities, but protons, electrons, etc., are accidental realities; hence, they are not converted. As for substance in the philosophical sense, physical experiment can say nothing. For this reason modern physics has no interest in the doctrine of transubstantiation. Colombo states that he is fully in accord with these conclusions.<sup>23</sup> Later, as we shall see, Masi emphatically rejected this interpretation of his thought.

At any rate, disagreement between Colombo and Selvaggi persists. According to the latter, there is no real distinction between substance which is the object of physical research and substance which metaphysics considers; these are only different aspects of one and the same reality. In responding, Colombo distinguishes three different problems. These he calls a "theological problem" (as conceived by theology, is substance physical or metaphysical?), a "philosophical problem" (what is "physical reality" in modern science?), and a "theologicophilosophical problem" (can transubstantiation be stated in terms of modern physics?).

Regarding the theological problem, Colombo observes that theologians up to our own day have held that there was continuity between patristic thought and medieval theology which gives a metaphysical interpretation to substance. Although the Fathers were not Aristotelians, they understood nature, substance, conversion, etc., in the metaphysical sense which these concepts have in common language. Development of the dogma requires such continuity between spontaneous and scientific metaphysics.

But to save doctrinal continuity in Selvaggi's interpretation, we must suppose that the Fathers and the magisterium understood substance in the physical sense of the science of their time, which we of today must abandon in favor of the science of our time, ready to give it up and adopt whatever the physics of tomorrow may suggest. This is hardly the way to uphold the dogma of transubstantiation. Hence, Colombo is convinced that the doctrine must be understood in a metaphysical sense.<sup>24</sup>

The purely philosophical problem, on the nature of the physical reality that is the object of physics, is of interest only because it gives rise to differ-

<sup>22</sup> "Ancora sulla dottrina della transustanziazione e la fisica moderna," *Scuola cattolica* 84 (1956) 263-88.

<sup>23</sup> *Ibid.*, pp. 263-66.

<sup>24</sup> *Ibid.*, pp. 272-76.

ent notions of transubstantiation. Thus, for Selvaggi, corporeal reality consists of atoms, protons, electrons, and electrical, magnetic, and kinetic energies. Metaphysical substance and physical reality coincide; therefore, whoever denies the conversion of the physical reality denies transubstantiation. Colombo thinks that such identification is incompatible with Thomist metaphysics and is inspired by a Cartesian type of metaphysics. He insists that physical and metaphysical realities are irreducible. Physical science develops elementary physical observations; in like manner, metaphysics makes explicit, develops, and systematizes common metaphysical concepts. The two sciences move on different planes. And the theology of the Eucharist is situated on the metaphysical plane.<sup>25</sup>

Solution of the theologophilosophical problem presents no difficulty for Colombo: the doctrine of transubstantiation cannot be interpreted and exposed in terms of modern physics. He regards Selvaggi's proposal as a theological error. Any attempt to assign a physical sense to theological concepts compromises the possibility of homogeneous development of doctrine, for such concepts are subject to the variability of physical theories. The ontological reality that is totally converted is quite distinct from the object of physics, which does, indeed, deal with ontological realities, but solely accidental ones, whose phenomenological manifestations (both the constant elements, such as protons and electrons, and the variable elements, such as mass, extension, and electrical charges) are unaffected by the Eucharistic conversion. Consequently, Catholic teaching on transubstantiation and the species which remain uses concepts of substance and accidents in the metaphysical, not the physical, sense.<sup>26</sup>

*Manuel Cuervo, O.P. (1957)*

Colombo's attitude is, to some extent, shared by Manuel Cuervo.<sup>27</sup> On the question, whether science can positively serve theology in its task of explaining the dogma of transubstantiation, he answers with a flat negative. Transubstantiation pertains to the substantial order, whereas science moves entirely within the area of sense experience, and so is unable to penetrate into the depths of things.<sup>28</sup>

But another question has to be faced. Can science contradict the conclusions developed by theology in its effort to explain the mystery? Science assuredly cannot directly contradict transubstantiation, because it is

<sup>25</sup> *Ibid.*, pp. 276 ff.

<sup>26</sup> *Ibid.*, pp. 280 ff.

<sup>27</sup> "La transubstanciación según Santo Tomás y las nuevas teorías físicas," *Ciencia tomista* 84 (1957) 283-344.

<sup>28</sup> *Ibid.*, pp. 331 f.

unable to transcend the sphere of sense. Indirectly, however, opposition could come from different quarters, by denial of the hylomorphic theory, by denial of specific distinctions among bodies, and by denial of natural substantial changes. Cuervo proceeds to examine these three denials.

Men of science, not finding prime matter and substantial form with their instruments, tend to discard and even to despise the hylomorphic theory. If the doctrine of transubstantiation is solidary with this theory, it too is imperiled. However, there is no cause for alarm. To date, the falsity of hylomorphism has not been demonstrated, and no other theory has appeared to take its place. Science certainly will never be able to proffer a demonstration, because substance transcends the sense order and cannot be the object of experience. In any case, the theology of transubstantiation does not stand or fall with hylomorphism. Theology uses philosophy in explaining the truths of faith, but does not depend on it. Philosophy is an instrument of theology, not a principle or coprinciple.<sup>29</sup>

A second denial involves the specific distinction of bodies. Cuervo does not undertake a complete refutation, for, as he points out, science is aware that this denial cannot reach the living, organic kingdom. Furthermore, at the institution of the Eucharist bread and wine were chosen, not as specifically distinct, but simply as food and drink in the way we understand them in daily life. All the substantial reality of what we commonly call bread and wine is converted into the substantial reality of Christ's body and blood.<sup>30</sup>

According to the third denial, no substantial changes take place in nature. Cuervo does not admit this. But even if there were no such substantial changes, the dogma would stand; only the use of natural changes for illustrating the concept of transubstantiation would be greatly curtailed. Transubstantiation does not pertain to the natural order, but is wholly supernatural and is brought about by God's omnipotence.

Since bread and wine are agglomerations of many substances, numerically and specifically distinct, transubstantiation is not the change of one substance, that of bread or wine, into the body and blood of Christ, but a change of various substances into one. But nothing follows from this against transubstantiation. Our Saviour, in pronouncing the words of consecration, and the Church, in defining their meaning, do not presuppose or decide whether the bread is one or many substances. Such determination is the task of science. Christ and the Church take bread and wine in their ordinary sense as used by people generally.

In Cuervo's view, subatomic particles such as protons and neutrons are

<sup>29</sup> *Ibid.*, pp. 333-37.

<sup>30</sup> *Ibid.*, pp. 337 f.

not the corporeal substance, but are integral substantial parts, like a man's heart or brain. At the time of transubstantiation they lose all their substantiality, while their entire accidentality, quantitative and qualitative, remains.<sup>21</sup>

Thus, the three denials really deny nothing so far as transubstantiation is concerned. Faith in the Eucharist encounters no obstacles on the part of science and reason.

*Roberto Masi: Second Article (1957)*

In the Eucharistic rite Jesus chose bread in its ordinary sense. Yet, Masi holds,<sup>22</sup> the scientific and philosophical senses are not thereby excluded. This bread has a well-defined chemical and physical constitution, known by science. Can knowledge of the chemical and physical structure of bodies be of use for the study of transubstantiation? Masi contends that this is not a false problem; there is question of studying a real fact, transubstantiation, from a scientific point of view that is pertinent to the bread.

One school of thought, of which Colombo is a representative, argues that such an inquiry is impertinent, since physics is situated on a plane different from that on which the dogma moves. Masi disagrees; if physics is regarded in what he calls its "realistic" sense, it deals with material substance, and hence can contribute toward an understanding of the dogma. By experimental knowledge we become aware of the bread as something really existing; and while the senses attain the qualities, the mind reaches to the very reality of the bread as something existing in itself, that is, the substance by which it is bread and not something else. Thus, by physical experience we know the substance in a general and indistinct way, as a definite thing existing in itself. Exact knowledge of the substance of bread can lead to some precisions about transubstantiation itself. Not all the real properties of bodies can be known from common experience; to know them, we must have recourse to scientific procedures. Therefore, experimental science can aid us in studying the dogma of the Eucharist.

The validity of such study is guaranteed by the continuity of ordinary knowledge with scientific knowledge and with metaphysics; the latter two are not excluded by the first but rather perfect it. This is true not only on the natural but also on the supernatural plane, so far as the object of examination permits.<sup>23</sup> Here Masi parts company with Colombo, who admits

<sup>21</sup> *Ibid.*, pp. 339-43.

<sup>22</sup> "L'eucaristia e le scienze," in A. Piolanti (ed.), *Eucaristia: Il mistero dell'altare nel pensiero e nella vita della Chiesa* (Rome-Paris-Tournai-New York, 1957) pp. 743-77.

<sup>23</sup> *Ibid.*, pp. 764 f.



continuity between nonscientific observation and scientific experimentation on the one hand, and between elementary metaphysical reflection and philosophical metaphysics on the other, but refuses to acknowledge continuity between science and metaphysics.

In agreement with what he takes to be Selvaggi's true position, Masi maintains that in transubstantiation there remain all the physical and chemical data, hence all the particles and forms of energy to their last detail, for all this is in the order of species or appearances. But the substance which sustains them is changed.

If the bread and wine are physical realities, they must have a definite physical and chemical structure, and transubstantiation must take place under this structure. Therefore, transubstantiation is a change of metaphysical realities which correspond to physical elements that are subject to experimentation. What are these physical elements? According to quantum mechanics, the atom is not a mere mechanical complex of particles, but is a unitary system in which the particles have lost their individuality. The same situation may be extended to molecules. Hence, we are justified in maintaining from the physical as well as from the philosophical point of view that every molecule is a substance.

Of course, the entire host and all the wine in the chalice are not substantial unities. We know the various substances that make up flour. The process of kneading does not modify the chemical species of these substances. In fermentation and baking, only a small part of the molecules are affected; the other substances remain unchanged. Accordingly, the bread is not a single chemical substance but is a complex of substances. The same is even more evident in the wine; all the substances composing the wine are simply in solution and do not change their species by being gathered together in a single container.

Application to transubstantiation presents no problem. In this conversion the *terminus ad quem* is one, whereas the *terminus a quo* is multiple. If it is true that the converse action affects only the bread and is multiplied with the multiplication of the substances composing the bread, the consecration of a single host involves many transubstantiations, just as in the consecration of a ciborium containing many hosts. Therefore, the consecration of a single host produces many presences of Christ, as many as there were substances in the bread.<sup>24</sup>

Some theologians, among them Colombo and even Selvaggi, object to these conclusions. They argue that, since the bread used in the Eucharistic rite is regarded in its ordinary prescientific and prephilosophical sense, it

<sup>24</sup> *Ibid.*, pp. 770-73.

signifies Christ's presence only once, and that consequently He is present only once.<sup>35</sup> Masi replies that the bread becomes the body of Christ not only symbolically but also really. If the change were only symbolical, there would be only one presence, because the symbol is one. But the change is real, and since in reality the bread is composed of many substances, there must be correspondingly many transubstantiations and real presences.<sup>36</sup>

However, to gain some understanding of the Eucharist, we may not stop with the substances; the appearances of the bread and wine must also be considered. For example, consecration of dough is invalid, because it is not commonly regarded as bread, even though in the raising and baking the chemical substances remain practically the same. Again, the consecration of grape juice is valid, although it is in part chemically different from wine after fermentation. On the other hand, consecration of the juice still in the grapes is invalid, even though it has the same chemical composition, because while still in the grapes it does not have the aspect of beverage. Likewise, the alcohol that in some cases may be added to fortify the wine, or the few drops of water to be poured into the chalice at the Offertory, cannot be consecrated separately, although these substances, once placed in the wine, become part of it without changing its appearance, and along with it are changed into the Lord's blood. The difference is that these things, taken by themselves, are not wine.

These reflections ought not to disturb anyone; for the consecration depends on the will and action of God, who as principal cause transubstantiates only those substances which, universally regarded as bread and wine, signify the body and blood of Christ.<sup>37</sup>

*Roberto Masi: Third Article (1957)*

Misunderstanding of his position by Colombo provided Msgr. Masi with an opportunity to clarify his thought and to make one of the best statements on the contribution which science can offer for promoting insights into transubstantiation.<sup>38</sup> Masi is quite aware that scientific data cannot and

<sup>35</sup> This attitude is shared by G. Philips, who reviewed the book in *Ephemerides theologicae Lovanienses* 35 (1959) 87 f. He observes that the chemical analysis and micro-structure of the bread leading to the proposal of multiple transubstantiations ill accords with the notion of substance as conceived by the ancients. For them, the term evoked the basic reality as opposed to the phenomenal aggregate called "accidents" or "species." He prefers to abide with these data of common sense; the sacramental sign, perceptible to the eyes of the simple, demands no more than this.

<sup>36</sup> Masi, *art. cit.* (supra n. 32) p. 773.

<sup>37</sup> *Ibid.*, p. 775.

<sup>38</sup> R. Masi, "La sostanza materiale ed i suoi accidenti.—La conversione eucaristica," *Studia Patavina* 4 (1957) 125-42.

do not pretend to clear up the mystery; yet he is persuaded that they can develop several elements in the theology of the Eucharist.

To find out whether physics can be of service in studying the mystery, we must first see if the bread and wine essential to the dogma can also be the object of scientific examination. Obviously, if physics and dogma do not speak of the same bread and wine, they cannot even begin a discussion. The Eucharist deals with things on the real, ontological level; on what level does physics move? Physics investigates the concrete realities which are bread and wine under the aspect of their extensive and energetic modifications or accidents. Thus, physics considers the same bread as that with which the dogma is concerned, also the same wine and the same accidents in their ontological reality. Hence physics, like philosophy, refers to the same object as the dogma and can take part in a colloquy on the mystery of the Eucharist.<sup>39</sup>

According to recent epistemological theories, physics functions on two levels: the experimental, classificative level, and the ontological level. Colombo had endeavored to draw Masi to his side by interpreting the latter as viewing physics in its phenomenological, classificative function.<sup>40</sup> But Masi, after exposing this method of modern physics, added that it would not promote understanding of the theological question. Therefore, he wrote that in the discussion he would consider physics in its real, ontological function.<sup>41</sup> Consequently, he rejects the views assigned to him by Colombo, and in particular he insists that he never intended to assert that modern physics has no interest in the doctrine of transubstantiation and so has nothing to contribute. On the contrary, since the dogma and physics treat of the same bread and wine, it is both possible and useful in the theology of the Eucharist to take the discoveries of science into account.<sup>42</sup>

In the present study Masi wishes to explain his stand more fully. He holds that physical experimentation, in its integral sense, attains not only accidents but also substance, although in a confused and general way. Nevertheless, direct experimentation does not distinguish substance from accidents. Hence, no experiment can ever see the substance as distinct from the accidents; experiment attains the substance through the accidents.

When we say that after transubstantiation the whole physical structure of the bread and wine remains, including all the particles, protons, neutrons, molecules, etc., so far as they are accidental realities, we must understand

<sup>39</sup> *Ibid.*, p. 137.

<sup>40</sup> See above, p. 402.

<sup>41</sup> See above, p. 399.

<sup>42</sup> *Art. cit.* (supra n. 38) p. 140.

the assertion accurately. For example, when we speak of a proton, a molecule, or any particle in the concrete, we mean a definite individual thing in its entire reality, all its substance and accidents. Thus, regarding the particles constituting the bread and wine, the protons, neutrons, and so on, we must say that after transubstantiation they no longer exist, because their substance is really changed into Christ's body and blood; only their accidental aspects remain, their quality and quantity. In this sense, then, that is, in their substance, the protons, neutrons, molecules, etc., which constitute the bread and wine are changed into the body and blood. To maintain that these particles in their concrete individuality remain after the conversion, that is, that the substances of bread and wine remain, would be a heresy denying transubstantiation.

Therefore, the particles of bread and wine do not remain in their concrete individuality; only their quantitative and qualitative aspects, in a word, the accidents, are unchanged. The particles and the physical structure of the bread and wine remain solely in their accidental aspects. Hence, if it were possible with the aid of scientific instruments to experience directly the atomic and subatomic particles, we should see after the Consecration the same particle forms, the same physical phenomena, as before.

In a single particle we distinguish the substance from the accidents, such as extension, shape, weight, forces, etc. When the substance of this particle is changed into the substance of Christ's body, all the accidental forms remain. Repeating this reasoning for the whole of the bread and wine, we must conclude that after transubstantiation there remain the same quantitative and energetic aspects of their physicochemical structure, whereas the substance has been changed.

As the documents of revelation teach, Christ is present in the Eucharist whole and entire, with the quantity and all the other accidents, with the physical, chemical, and biological organization of His glorified body in heaven. Present are all the parts, members, and tissues constituting His risen body in its perfection. According to the best theological explanation, the quantity of Christ's body is present by concomitance with the substance, and so acquires the manner of existing proper to substance. Therefore, it will never be possible by any experimentation, however cleverly devised it may be, to discover the presence of the Lord in the Eucharistic species; for that presence is not natural or quantitative, as would be required for experimentation, but is wholly supernatural, and thus transcends every created intellect that is confined to its natural powers of knowing.<sup>43</sup>

<sup>43</sup> *Ibid.*, pp. 140 ff.

*Filippo Selvaggi: Second Reply to Colombo (1957)*

With admirable adherence to his scholarly calm, Selvaggi notes that Colombo's second attack repeats the contention that material substance, as conceived by Scholastic theology, must be understood as a "metaphysical reality," whereas identification of such substance with any physical reality would be incompatible with Thomist metaphysics and would be inspired rather by a Cartesian type of metaphysics.<sup>44</sup> This interpretation found seeming acceptance in Masi's first article, although later Masi explained his position more clearly and turned out to be in accord with Selvaggi.<sup>45</sup> Thus hailed into court by Colombo, Selvaggi proposes to set forth briefly the genuine Thomist doctrine on material substance.<sup>46</sup> He had previously supposed that this teaching was sufficiently known.

Instead of following Selvaggi as he patiently works out his case with abundant evidence, we too may suppose that the position of St. Thomas is sufficiently known. Though not directly perceived by the senses, material substance is a *sensibile per accidens*, which can have several meanings. The chief meaning in the present context is this: material substance is definable only in terms of a thing's sensible properties. St. Thomas frequently repeats that essential differences among corporeal substances are not perceived by us as they are in themselves, but are manifested to us through accidental differences.<sup>47</sup> Hence, the mediation of the proper accidents is always necessary for distinct knowledge of material substance; they can apprise us of essential differences, because they are effects of substantial forms. Accordingly, Colombo is mistaken when he says that in Thomist metaphysics corporeal substance is not experimentally knowable; on the contrary, it is knowable only experimentally, through sense knowledge of accidental properties.<sup>48</sup>

The genuine notion of substance in Thomist doctrine has undergone various deformations in the course of centuries. In one of these facile and hence dangerous misrepresentations, the substance of a thing is not the existent which is manifested by sensible properties, but is something concealed under another reality and is unattainable directly by human knowledge, like the pit under the pulp of a fruit, with the aggravating difficulty

<sup>44</sup> See above, p. 404.

<sup>45</sup> See above, pp. 398 f.; 408 f.

<sup>46</sup> F. Selvaggi, "Ancora intorno ai concetti di 'sostanza sensibile' e 'realità fisica,'" *Gregorianum* 38 (1957) 503-14.

<sup>47</sup> Thus, for example: "Proper accidents are effects of substantial forms and make them known to us" (*Sum. theol.* 1, q. 29, a. 1 ad 3m); "Substantial forms, which in themselves are unknown to us, are known through their accidents" (*ibid.*, q. 77, a. 1, ad 7m.).

<sup>48</sup> Selvaggi, *art. cit.*, pp. 505 ff.

that we can never strip away the pulp so as to lay bare the pit. The substance itself is conceived as a quite indeterminate subject, bereft of all property except to serve as the metaphysical foundation sustaining the phenomena. The accidents alone are the whole "physical reality," the substance is a pure "metaphysical reality."<sup>49</sup>

Selvaggi can now reply to Colombo's question, whether material substance is a "physical reality" or a "metaphysical reality." If we define physics as the science of the sensible, we must understand that it is not mere sense knowledge but a properly intellectual knowledge, expressed to a great extent in mathematical formulas, and has for object all that the intellect can know directly or indirectly through observation and controlled experimentation. The proper object of physics, even in its technical meaning, is material reality in its totality of substance and accidents, and modern physics can come to a generic and specific knowledge of the proper accidents by which the reality acts both on the senses and on scientific instruments.

Consequently, in all the beings investigated by physics, we ought to recognize substance and accidents, and to speak of the substance of the protons, neutrons, electrons, atoms, molecules, etc. Such substance is really distinct from its proper accidents, extension, mass, electrical charges, and various kinds of energies; it is operationally definable by the transcendental relation that orders it to its accidents, as potency to its proper act. When we apply all this to the dogma of the Eucharist, we should say that in transubstantiation there is converted into Christ's body and blood the entire aggregate of substances which physics identifies as protons, electrons, atoms, molecules, and so on, and which actually constitute what common sense and scientific analysis alike define as wheat bread and grape wine. At the same time the accidents remain unaltered, and therefore present the same appearances to the senses as well as to scientific apparatus.<sup>50</sup>

The position upheld by Selvaggi receives support from a Spanish colleague.<sup>51</sup> Fr. Dúe sagely remarks that nuclear physics cannot be expected to settle metaphysical questions. Yet philosophers and theologians must attend to proven facts and reasonable theories of physics that may contribute to solutions of their own problems. Neither particles nor waves are hypothetical; the former are seen, measured, and weighed; the latter are manifested in a multitude of indisputable facts, and their frequency, length, and other characters are measured.

In the present controversy about transubstantiation, Colombo, Masi,

<sup>49</sup> *Ibid.*, pp. 508 f.

<sup>50</sup> *Ibid.*, p. 513.

<sup>51</sup> Antonio Dúe, "Las especies eucarísticas y las teorías modernas," *Pensamiento* 13 (1957) 347-52.

Selvaggi, and others have discussed the possibility of prescind-ing or not prescind-ing from what the physics of our day perceives and measures in the material substances of bread and wine. Should we adopt the attitude that the teaching of physics about particles and waves concerns a world foreign to the reality which the dogma involves? Dúe's answer is uncompromising. We may not take the position that the dogma, in its empirical aspect, has nothing to do with the verified data of science. The facts are there, and they attest the existence, apart from varying physical theories, of real corpuscles in which we discern the characteristics of substances. Further, as has been proved, these substances possess properties that are identifiable with metaphysical accidents. Such facts may not be ignored, and on them the theologian must base the permanence of the species of the Eucharist. To prescind from them, or to concede the permanence of *all* that physics perceives, on the plea that the object of physics is foreign to metaphysical reality, is dangerous for an adequate explanation of the dogma.<sup>62</sup>

*Jaime Colomina Torner: A New Solution (1958)*

A review of the polemic up to 1958 and rejection of the Scholastic cosmology common to all the disputants lead Torner to a proposal of his own opinion, which may appear somewhat startling in its originality.<sup>63</sup>

Torner reminds us that the bread is not a single substance, but a multitude of substances specifically and numerically distinct. To verify the Eucharistic change, we may not stop with the external structure of the elements integrating the bread, that is, molecules and atoms, but we must probe deeper, for the conversion takes place within these elements. In line with Selvaggi's thought, Torner admits that the molecules and atoms integrating the bread are touched by the Consecration. But what really occurs in them?<sup>64</sup>

To answer this question we must first ask another. What is quantity? According to the Scholastics, quantity is an absolute accident that is really distinct from its substance and can miraculously exist separate from the substance. Not many venture to demonstrate positively such distinction and separability. The general line of reasoning is negative. The objectivity of the Eucharistic species cannot be explained if we deny the real distinction and separability between substance and quantity. On the other hand, no

<sup>62</sup> *Ibid.*, pp. 351 f.

<sup>63</sup> "Puede la filosofía de la naturaleza escolástica explicar la transubstanciación eucarística?" *Revista española de teología* 18 (1958) 167-86.

<sup>64</sup> *Ibid.*, pp. 173 ff.

one has demonstrated the repugnance of such distinction and separability. Therefore, we must admit it. What is to be thought of this position?

Let us take some substance among the many in the bread. A good example is hydrogen. In scientific cosmology, only atoms are true substances and preserve their individuality in compounds. However, those who hold that atoms, in constituting a molecule, lose their existence in act and are present only virtually, so that the molecule alone is a true substance (*ens per se et in se*), may transfer to the molecule the reasoning to be made about the atom.

We may now face the problem whether the extension of the hydrogen atom is really distinct from the substance of the atom, and hence accidental, or whether it is something constitutive of the substance. Torner does not imply that extension is the sole essential constitutive of the atom; bodies are more than pure extension. He goes on: an element is essentially constitutive of a being, and not merely accidental, if its absence involves the disappearance of that being and if its modification entails an essential change in the being.

So the question arises: Is not extension, that is, the intra-atomic space, a constitutive element essential to the substance hydrogen? The atom is a system remotely resembling the solar system. Besides its matter and form, it has another essential element: the intra-atomic space, its extension. The atomic system, like the solar system, would simply cease to exist, would be something entirely different, if the subelements ceased to be distant from one another and from the nucleus. Whatever may be its internal structure, the atom is not a solid corpuscle; there are in it various levels of energy, charges in equilibrium, spaces, extension. No physicist could admit that the atom lacks these intra-atomic spaces. There is no basis for regarding intra-atomic space or extension as accidental to the atom.

As is clear, Torner is in sympathy with Selvaggi, to the extent that both hold that the problem ought to be stated in physical terms. Yet he cannot accept Selvaggi's solution, which involves acceptance of Scholastic cosmology.<sup>65</sup> In Torner's judgment, the Scholastic philosophy of nature cannot explain transubstantiation; the traditional cosmology of the School cannot provide an account capable of satisfying the modern mind. He does not claim that he himself has fully worked out a theory to replace the traditional one; yet he suggests some ideas which he thinks may not be overlooked in correctly stating the problem and attempting a solution.

In the first place, he believes that it is useful to distinguish between properties that appear in the macroscopic order and those of the micro-

<sup>65</sup> *Ibid.*, pp. 177-82.



scopic or microphysical order. Many so-called "accidents" of bread consist in mere movements of molecules, atoms, or subatoms; thus, temperature, sound, color. As movement, they are modal accidents which cannot exist without a moving subject. Furthermore, accidental forces, such as cohesion, affinity, adhesion, and certain chemical, magnetic, and electrical activities, cannot exist without some substratum or material cause.

But most of these properties are absent in the atomic microcosm; for example, we cannot speak of the temperature, sound, color, cohesion, etc., of one electron. We can do no more than report its mass, charge, and magnetic field. If we affirm that in transubstantiation all these properties remain, we are actually accepting the permanence of the substance electron, for they are inseparable from it; if we admit that they disappear, we destroy the ontological foundation of the macroscopic properties.

Therefore, perhaps, we should direct our thoughts along another channel. What would happen if we denied a formally ontological existence to a body's extension, admitting only its virtual reality and reducing it to a secondary quality? In this hypothesis the subatom would be a composite of distinct energy units, true *entia in se*, of which some would be essential and others would be accidental to the element, though all would be substances in the philosophical sense—somewhat, to use a crude illustration, as the matter of a man's body (substance) is essential to him, whereas the matter of his clothing (likewise substance) is accidental to him.

At the Consecration these essential energy units would disappear, while the accidental ones would remain, and they would continue to be related among themselves, constituting in appearance the same subatoms along with the same atomic systems, molecular edifices, and so on. The substances essential to such subatoms, atoms, and molecules would cease to exist really, but those that were accidental to them would persevere, though in themselves they too are real substances. In this supposition, when we see or touch bread, we see or touch, not formal extension, but a swarm of mutually related substance-forces. After the Consecration these substance-forces would continue to affect our senses, though not all of them would, since the ones essential to each element would have disappeared. And God would preternaturally supply the sensorial impact which these would have produced in us, and so it would be impossible to discern the physical effect of transubstantiation.

Thus, transubstantiation would be safeguarded, since all the substances essential to the various elements in the bread would be converted into Christ's body. Also, the objectivity and numerical identity of some prop-

erties would be saved, and that is enough for the sacramentality of the Eucharist: the appearances of bread and wine would remain.<sup>56</sup>

Torner remarks that the hypothesis he has sketched is in the dynamist line of Palmieri, although it differs from the latter's Eucharistic theory. We may conjecture that it will have a similar fate. Contemporary theologians, a realistic lot, are not likely to build up enthusiasm for any preternatural divine influence calculated to supply the sensorial impact which vanished units of energy are unable to produce.

*J. de Baciocchi, S.M. (1959)*

Although not directly a contender in the debate, J. de Baciocchi, in a conference originally delivered to a mixed group of Catholics and Protestants, has several points to make which show that his position is not in the Colombo sector.<sup>57</sup> The main question he raises is not whether and how Christ's glorified body can be localized simultaneously in many places<sup>58</sup> or can be compressed into a minimal space, but whether bread and wine, in signifying Christ's body and blood, remain bread and wine or truly become His body and blood.

De Baciocchi sees no need to delay on the permanence of the empirical realities, which is imposed by sense experience as well as by the faith. Volume, weight, resistance to pressure, color, taste, physical and chemical properties—none of all this is changed. Our senses are not deceived; on the level on which they attain reality, nothing is altered in the bread and wine. But on the level on which the believing intellect grasps reality, the bread and wine, once Christ's astounding words are pronounced, actually become the Saviour's body and blood, without changing their empirical properties.<sup>59</sup>

A good way to approach an understanding of what the Church affirms by transubstantiation is to see what it denies; for the dogma intends to

<sup>56</sup> *Ibid.*, pp. 184 ff.

<sup>57</sup> J. de Baciocchi, S.M., "Présence eucharistique et transsubstantiation," *Irenikon* 32 (1959) 139-64.

<sup>58</sup> This may possibly be an allusion to a curious article by J. M. Alonso, C.M.F., "Ecce ego vobiscum sum." Presencia metafísica y presencia eucarística," *Revista española de teología* 14 (1954) 583-88. Dissatisfied with both the Scholastic and Cartesian theories, Alonso undertakes to explain the "multipresence" of Christ's body in the Eucharist. For his "solution" he appeals to the glorification of Christ's body, which has been "spiritualized." To this body God can communicate His own divine attribute of omnipresence; and so all difficulties about the body of Christ being simultaneously present in hundreds of thousands of places in various quarters of the globe simply disappear.

<sup>59</sup> De Baciocchi, *art. cit.*, pp. 149 ff.

discard several notions of change which are inadequate in the case of the Eucharist.<sup>60</sup> At one extreme is the idea of complete transmutation in the area of chemical reactions. The Eucharistic conversion is not of this type, for nothing is changed on the plane of experience. At the opposite extreme is the notion of extrinsic or purely relative change, as when a saucer "becomes" an ash tray. The thing itself is not modified, but a different use is made of it; a pre-existing capability is newly exploited, without suppressing the aptitude of the "ash tray" to hold cups. The Eucharistic change is not of this type either. What was bread is no longer bread (except empirically) but is now the body of Christ; given as such, it has literally become such.

The doctrine of transubstantiation avoids both extremes, total transmutation and purely extrinsic modification. It also avoids a compromising alternative which admits that the Eucharistic bread remains bread and becomes besides the body of Christ. Such a duality is simply unintelligible. Either the bread remains bread or it becomes the body of Christ. To affirm consubstantiation is to affirm that bread is Christ's body. In good logic, such a proposition, with two singular terms, is convertible; if the proposition is true, then it is also true that Christ's body is the bread, and if it is this bread, it is of bread. The absurdity of the consequent obliges us to discard the antecedent. A saucer can be an ash tray because the two functions are compatible. But when there is question of the very being of things, it is as difficult to admit consubstantiation as to conceive a lion that is also a fir tree.<sup>61</sup>

A fourth theory, which the Church has never ratified nor condemned, can well be dismissed. It imagines the bread as consisting of a sort of outer membrane, made up of the various sensible properties, and a mysterious kernel unknowable in itself, called "substance." If you cut the bread to get at the kernel, you are thwarted, because instantaneously the film closes

<sup>60</sup> De Baciocchi's exposition has nothing in common with that of F. J. Leenhardt, "La présence eucharistique," *Irenikon* 33 (1960) 165 f. The Protestant theologian doubts that the word "conversion" has a precise sense capable of furnishing an explanation of what takes place. His opinion is that the term avoids error rather than defines truth. He argues that St. Thomas came to the idea of conversion by a process of elimination: since there can be no question of a local displacement of Christ's heavenly body (because it remains in heaven) or of creation (because it is already in existence), nothing is left except conversion. Thus the term is imposed less for what it says than for what it rejects. To tell the truth, however, St. Thomas did not "come to the idea of conversion" by any process of elimination; the knowledge was part of his ancient Catholic patrimony, and he came into his inheritance long before he engaged in theology. His procedure is purely didactic and even scientific, with the aim of showing that nothing else accords with the revealed data.

<sup>61</sup> De Baciocchi, *art. cit.*, pp. 155 ff.

over each half. This occult reality is decorated with the epithet "metaphysical," and then its strange peculiarities cease to be troublesome. In the Eucharistic conversion the outer film remains in place, but God miraculously expels the metaphysical kernel (which straightway founders into nothingness) and substitutes for it the kernel of Christ's body and blood. Thus, Christ supports the accidents of the bread and wine and so prevents the skin from collapsing.

But now we have passed surreptitiously from faith to legerdemain. After all these pseudo solutions have been rejected, transubstantiation remains. What is its positive content? Simply this: what was bread or wine and remains such in the empirical order becomes truly and objectively something else, the body and blood of Jesus Christ. The dogma of transubstantiation adds nothing really new to Christ's words at the Supper. It formulates the only possible way of establishing complete accord between the Eucharistic gift and the testimony of the senses on the one hand, and the principle of identity on the other.<sup>63</sup>

#### G. Ghysens (1959)

The controversy is but lightly grazed in an article by G. Ghysens<sup>63</sup> that is devoted largely to a discussion of the formulas used at Trent. Toward the end, the author observes that the early Christians, in common with the Church throughout all tradition, took the Saviour's Eucharistic words literally. The whole empirical reality of bread and wine, though preserving all appearances, becomes truly and substantially the body and blood of the Lord. Consequently, Jesus affirmed and caused a radical, ontological change that attained the being itself. In the judgment of Ghysens, Colombo has shown that Catholic doctrine requires a change in an order not physical but metaphysical, in the etymological sense of transphysical. The reason is that the dogma transcends the physical domain, since it bears on non-experimental realities. Only God's creative power can work this metempirical change, and only the faith can recognize it.<sup>64</sup>

On the other hand, Ghysens defends de Baciocchi's orthodoxy against criticisms lodged by C. Journet in *Nova et vetera* 34 (1959) 257. Journet cites some phrases which, removed from their global context and formulated as theses, could sound badly; but other phrases should have reassured him. Although de Baciocchi prefers to avoid the categories of substance and essence, as conveying little meaning to contemporary non-Catholics, and

<sup>63</sup> *Ibid.*, pp. 157 ff.

<sup>63</sup> "Présence réelle eucharistique et transsubstantiation," *Irvénikon* 32 (1959) 420-35.

<sup>64</sup> *Ibid.*, pp. 433 f.

tries to utilize existential schemes in an effort to make the riches and depth of the dogma more intelligible, he stresses what is really an ontological and substantial change, so much so that the Word's creative power is needed to touch the roots of the beings that are converted. Is it not desirable that an irenic and constructive dialogue should be fostered between traditional theology and new researches?<sup>65</sup>

*Carlo Colombo: Third Article (1960)*

Debate on any subject, and certainly in theology, must bog down if the participants pay no attention to points made by their adversaries or to clarifications of positions previously expressed, perhaps, in somewhat equivocal terms. Colombo seems to be not entirely innocent of such practices. His third article<sup>66</sup> restates the question. Are we to rest content with the repetition of ancient formulas, or should we try to expose the dogma by applying to it scientific knowledge of material reality, without of course tampering with the revealed truth? Most of the writers taking part in the altercation recognize the correctness of the question. Colombo adds that the problem and discussion are less affairs of terminology than of the real nature of Eucharistic conversion.<sup>67</sup>

In Colombo's verdict, Selvaggi's reasoning and conclusions are theologically unacceptable. They introduce into the dogma a nonhomogeneous element, that is, the modern scientific explanation of the reality of bread and wine. This cannot be assumed to interpret the mind of Trent. Colombo has no quarrel with science; but he does not think that the way of modern physical science can be used for penetrating into the theological concept of the substance of bread and wine. His reasoning follows. The concept of substance at Trent is a theological concept, whose dogmatic meaning is to be determined by the signification attributed to it by constant theological tradition. This tradition began in the patristic period and was deepened in the Scholastic period. In the patristic period the term had an elementary metaphysical significance:<sup>68</sup> the substance of bread and wine is the proper reality which the mind intuits when it distinguishes them from other substances. Likewise, medieval and particularly Thomistic thought interpreted the theological concepts of substance and species in a clearly metaphysical sense.<sup>69</sup>

<sup>65</sup> *Ibid.*, p. 433, n. 1.

<sup>66</sup> "Bilancio provvisorio di una discussione eucaristica," *Scuola cattolica* 88 (1960) 23-55.

<sup>67</sup> *Ibid.*, pp. 24 f.

<sup>68</sup> This is precisely what Selvaggi denies. See above, p. 402, and the evidence he adduces in the pages of his own article there cited.

<sup>69</sup> Here again Colombo overlooks points made by Selvaggi; see above, pp. 402 and 412.

To substitute for the metaphysical meaning of the theological concept of substance a modern physical meaning appears to Colombo to be theologically an error and a danger. It is an error because it breaks the line of homogeneous development of Christian reflection on the revealed datum, making it pass from a metaphysical to a physical type of knowledge. It is a danger because it exposes our understanding of the dogma to fluctuations in scientific theories concerning the constitution of bodies. The substance or essence of bread and wine in the metaphysical sense is not knowable either by common experience or by physical science with its instruments and procedures. But for Selvaggi, the protons, neutrons, positrons, etc., which constitute the substance or essence of bread are knowable *secundum se*, with the same method as is employed for knowing their physical effects, the accidents.<sup>70</sup>

When he comes to consider the reception of the two positions by other writers,<sup>71</sup> Colombo gives qualified approval to Masi (who, however, as we have seen, rather sides with Selvaggi). He outlines and discards Torner's solution. He remarks, quite rightly, that de Baciocchi's attempt to explain transubstantiation in language alien to that of the Scholastics is hard to follow, and he is not wholly convinced of its orthodoxy, as it seems to rule out a real change of metaphysical realities.<sup>72</sup>

Colombo finishes with a restatement of his conviction about the diverse certitudes of metaphysical and physical knowledge and their different relations to common knowledge or to revealed truth. Elaborated metaphysical knowledge is in direct contact with elementary metaphysical knowledge. From this elementary knowledge to profound metaphysical knowledge the procedure is logically continuous; the same method of thought, the same basic concepts, the same principles are employed. Hence, metaphysical knowledge guarantees continuity in the meaning of concepts, and consequently continuity in the meaning of revealed truth across time.

On the other hand, scientific physical knowledge lacks that kind of continuity with elementary physical knowledge. It is based, not on mere common experience, but on controlled experimentation. It uses higher mathematics not at the disposal of all. It does not always guarantee definitive and absolute certitude, because it elaborates theories only on the founda-

<sup>70</sup> Colombo, *art. cit.* (supra n. 66) pp. 28-31 and n. 14. This is scarcely an accurate statement of Selvaggi's position; see above, p. 411. Note besides that Selvaggi speaks clearly of the *substance* of protons, etc.; see above, p. 412.

<sup>71</sup> Colombo, *art. cit.*, pp. 32-45.

<sup>72</sup> Such worries seem superfluous. In his own way, de Baciocchi unmistakably affirms the fact of transubstantiation; see above, p. 416 and p. 418.

tion of phenomena actually known. Therefore, it cannot offer an equal continuity of meaning in its interpretation of reality.<sup>78</sup>

Colombo concludes that when we wish to expose revealed truth, we should leave aside the notions presented by the physical science of the time, renouncing all attempt to establish coincidence between the concepts of reality utilized by tradition and the realities made known by modern physics. This seems to be a discouraging attitude; but very likely many theologians will remain persuaded that theology, which has used sound philosophy to its great advantage, can continue to exploit other branches of learning, including the certain findings of the physical sciences, for its own future progress.

#### A MARGINAL ISSUE

In an endeavor to penetrate more deeply into the dogma, Carlo Colombo made a suggestion in 1955 which he probably came to regret later and which met with severe criticism. Starting with the premise that transubstantiation is the conversion of a natural reality into a supernatural reality, the body of the glorified Christ, he went on to say that by transubstantiation the substances of bread and wine change their order of existence: they cease to belong to the order of natural existence and enter into the order of supernatural existence of risen and glorified bodies. What will happen at the end of the world when all material reality, especially the bodies of the elect, will be radically transformed to give origin to "new heavens and a new earth" (2 Pt 3:13)? We do not know exactly. At any rate, the change does not fall under the category of ordinary physical transformations. St. Paul says that it is a "mystery." Other scriptural texts liken it to a new creation.

Although transubstantiation is completely beyond any changes that are available to our experience, Colombo recalls that it is an effect of divine causality comparable to creation. Moreover, it is an action by which a material reality is transformed into the body of the risen Christ and enters into an order of existence that is proper to matter in blessed eternity.

In line with such considerations, Colombo thinks that theology can open up a new way toward understanding transubstantiation, by conceiving it as an ontological change analogous to that which all material reality, particularly the bodies of the just, will undergo at the end of the

<sup>78</sup> Colombo, *art. cit.*, p. 50. In connection with such views, J. Filograssi, S.J., *De sanctissima eucharistia* (6th ed.; Rome, 1957) pp. 214 f., has some interesting things to say. In particular, he asks: "Who can maintain that common knowledge attains the intimate reality and substance of the bread, but that scientific knowledge abides only on the appearances on the surface? Is not rather the contrary to be affirmed?"

world. By transforming the realities of bread and wine into His own body and blood, Christ gives to them in anticipation the mode of existence that is proper to eternity.<sup>74</sup>

At the time of his first reply, Selvaggi paid little attention to Colombo's suggestion. He readily admitted that Christ's body since the resurrection is in an order of supernatural existence. But he pointed out that at the Consecration during the Last Supper the body of Christ was like our physical, mortal bodies, and that the glorified body is basically identical with the body as it was during its sojourn on earth.<sup>75</sup>

With no intention of entering into the main question, Mario Ghirardi contributed a searching criticism of Colombo's new proposal.<sup>76</sup> He refuses to admit that Christ, by changing bread and wine into His own body and blood, gives them in anticipation the manner of existence proper to eternity. In fact, the substances of bread and wine wholly cease and become another thing, the Saviour's pre-existing body and blood. The ordinary bread does not become glorified bread; it becomes the glorified body of Christ, a human body that is not bread.<sup>77</sup>

To tell the truth, the supernatural condition of Christ's glorified body has nothing to do with the transubstantiating process. Selvaggi's point about the first transubstantiation at the Last Supper is so obvious that Colombo could hardly have failed to advert to it. Indeed, Ghirardi thinks that Colombo's whole theological mentality induced him to pass it by deliberately, for in the latter's mind the sacrament of the Lord's body has always been the sacrament of Christ's glorified body.

One of the reasons underlying Colombo's idea was brought out in a conversation reported by Ghirardi. Colombo holds that the Eucharist is for the Church during the phase running from Christ's resurrection and ascension to His second coming. This is a time of faith that is the foundation and anticipation of things to come, among which the bodily glorification of the elect is eminently important. The Church which on earth receives the sacrament of the Lord's glorified body has already a foretaste of the future life. Even at the transubstantiation during the Supper, first link in the entire chain, the substance of bread was converted into the substance of Christ's glorified body.<sup>78</sup>

<sup>74</sup> C. Colombo, "Teologia, filosofia e fisica nella dottrina della transustanziazione," *Scuola cattolica* 83 (1955) 123 f.

<sup>75</sup> F. Selvaggi, "Realtà fisica e sostanza sensibile nella dottrina eucaristica," *Gregorianum* 37 (1956) 18.

<sup>76</sup> Mario Ghirardi, "Ai margini d'una controversia eucaristica," *Scuola cattolica* 84 (1956) 289-300.

<sup>77</sup> *Ibid.*, p. 290.

<sup>78</sup> *Ibid.*, pp. 292 f. and n. 10.



Ghirardi will not concede this. In all the Eucharistic consecrations performed by the Church, the bread is indeed changed into the Lord's glorified body. But the first transubstantiation is to be isolated from all that follow, for a number of reasons.

In the first place, the thing that matters is the Eucharistic order instituted for the Church as sacrificial commemoration of the Passion and as supernatural food, abstracting from the physical situation of Christ's body under the sacramental species. The Church has the full symbol of its living unity in Christ, independently of the state of the Lord's flesh, which is ever life-giving and the seed of resurrection. At the Last Supper the apostles, by sharing in the body and blood of the Saviour, still capable of suffering, shared in the whole mystery of Christ who was about to die and arise in glory. It is extremely difficult to maintain the identity of Christ's body at the Supper, if it was glorified under the sacramental species while at the same time Christ in His own proper species was possible; these real qualities, intrinsic to the substance, are mutually incompatible.

Moreover, Colombo has St. Thomas against him.<sup>79</sup> The Angelic Doctor teaches that the real, extrasacramental state of Christ's body determines the real state of His body as it exists simultaneously in the sacrament. St. Thomas is very precise, and exactly on our question: "It is clear that the same true body of Christ which was then seen by the disciples in its own species was received by them under the sacramental species. But as seen in its own species it was not impassible; indeed, it was ready for the Passion. Therefore, the body of Christ that was given under the sacramental species was not impassible either."<sup>80</sup>

We must also recall Trent. The reason for the presence of Christ's blood and soul under the species of bread is "the natural connection and concomitance by which the parts of Christ our Lord are united together," because now Christ "has risen from the dead and will die no more."<sup>81</sup> If today the Lord were passible, mortal, or dead outside the sacrament, He would be the same in the sacrament, not glorified. At the Supper the passible Christ converted the bread into His passible body.

Accordingly, Colombo's "new way" must be rejected. He is opposed by St. Thomas and by theologians generally, who agree on the fact of the pres-

<sup>79</sup> Cf. *Sum. theol.* 3, q. 76, aa. 1 and 2; esp. a. 1 ad 1m, and a. 2 c: "Unde si tunc [tempore mortis] fuisset hoc sacramentum celebratum, sub speciebus panis fuisset corpus Christi sine sanguine, et sub speciebus vini sanguis sine corpore, sicut erat in rei veritate."

<sup>80</sup> *Sum. theol.* 3, q. 81, a. 3.

<sup>81</sup> *DB* 876.

ence of Christ's passible body under the Eucharistic veils at the Supper. And Trent's teaching settles the matter.<sup>82</sup>

To his credit, Colombo acknowledges that the criticism suggested by Selvaggi and fully developed by Ghirardi is well founded. He remarks that the consideration he proposed was somewhat novel, and hence was immature and lacking in precision. It has to be re-evaluated, corrected, deepened.<sup>83</sup>

With reference to Colombo's insistence that, because of its union with divinity, Christ's human body was different from ours, that it was *un'altra cosa*,<sup>84</sup> reflection on the distinction between the order of existence and the order of essence seems advisable. In the essential order, the body of the Saviour, during His mortal life, was quite like ours in all things; but in the existential order, how inconceivably different!

Selvaggi still had something to say about Colombo's analogy between transubstantiation and the transformation of matter, particularly of glorified bodies, at the end of the world. Catholic theology has always been aware that Christ's body, owing to the hypostatic union, exists in the supernatural order not only now that it is risen, but also when it was passible and mortal. The hypostatic union is the summit of the supernatural, and in comparison with it the glorified state of Christ's body after the resurrection has an absolutely secondary value.

The desire to illustrate transubstantiation by some vague analogy after all the theological speculation and doctrinal definitions that have gone before, tends to ignore the progress that has been made in the evolution of the dogma, with the grave danger of losing sight of the real character of transubstantiation, which is different from any other change known to Catholic theology. The renovation of nature (of which we know precious little) and the transformation of glorified bodies, however mysterious and profound, will be purely accidental changes and will leave the nature of the bodies substantially unaltered: this body of mine, substantially identical, will be glorified. In transubstantiation, on the contrary, the exact opposite occurs: the accidents remain unchanged and the substance is totally converted.

Therefore, it would be more accurate to say that there is question of opposition rather than of analogy. For this reason, Colombo's proposal, far

<sup>82</sup> Ghirardi, *art. cit.* (supra n. 76) pp. 294 ff., 299.

<sup>83</sup> C. Colombo, "Ancora sulla dottrina della transubstanziazione e la fisica moderna," *Scuola cattolica* 84 (1956) 283.

<sup>84</sup> *Ibid.*, p. 286, n. 35.

from being enlightening, is rather a peril for the correct understanding of the mystery of transubstantiation.<sup>85</sup>

Colombo was seemingly glad to let the issue drop. He subsequently mentioned that, along with other approaches, one effective way of presenting the dogma is to stress the harmonies prevailing among various revealed truths which bring out the ontological orientation of the whole material universe toward the supernatural order. In such an orientation, which is knowable solely by faith, transubstantiation can be made more intelligible, as it is the keystone of all relations between material reality and the supernatural world.<sup>86</sup> This is a good point, and on it we can all agree.

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<sup>85</sup> F. Selvaggi, "Ancora intorno ai concetti di 'sostanza sensibile' e 'realta fisica,'" *Gregorianum* 38 (1957) 514.

<sup>86</sup> C. Colombo, "Bilancio provvisorio di una discussione eucaristica," *Scuola cattolica* 88 (1960) 52.