Science, Humanism, and Christian Theology: Dialogue with Lluís Oviedo

IS CHRISTIAN THEOLOGY WELL SUITED TO ENTER THE DISCUSSION BETWEEN SCIENCE AND HUMANISM?

by Lluís Oviedo

Abstract. The last several years have seen the emergence of increasing hostility from philosophers toward some pronouncements on human nature by the biological and cognitive sciences. Theology is also concerned about such matters, even if there have been, until now, few theologians involved in the discussion. This essay examines both the reasons that justify a neutral position of theology in the face of scientific disqualification of human uniqueness and the reasons to engage apologetically in such a debate on the side of humanists. Constructing a synthesis, I propose a greater theological involvement and concern in the discussion already underway, even if it means accepting some trade-offs.

Keywords: apologetics; cognitive science; humanism; Niklas Luhmann; sociobiology; theology and science.

Recent years have witnessed increased hostility between those holding scientific views and some philosophical thinkers regarding the identity and uniqueness of human beings. The line that separates these parties follows a classical definition: humanists against antihumanists. At stake is anthropological theory and some fundamentals, or basics, of human nature. The argument has assumed the form of a protest, or resistance, from intellectuals and specialists in the field of the humanities, who oppose new views inspired by biological and cognitive sciences that are becoming standards

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in the new anthropological panorama (Malik 2002; Dupré 2001; Fukuyama 2003; Hayles 1999; Guillebaud 2001; Stenmark 2001; Smith 2003; Habermas 2003; McKibben 2003; Bolz and Münkel 2003; Tallis 2005).

There are two main reasons for the protest. The first has to do with the application of biological, evolutionary, and genetic ideas to the understanding of human nature, which then becomes increasingly reduced to its biological condition, as just another animal, conditioned in the same way and oriented by the same mechanisms that influence other species. The second is the development of cognitive studies and their approaches that limit the definition of human beings to their cognitive abilities, which are often described in computing terms, such as "an information-processing machine." In both cases the protesters feel that what has been overlooked is the quality that makes humans unique, specifically human, something more than mere animals, or machines (or even "zombies," as Kenan Malik [2002] observes).

The discussion has brought to light several interesting books and many articles urging resistance to what has been coined the "New synthesis" or "the new anthropologic unified standard," produced mainly by authors in the sociobiological and evolutionary psychological fields along with several philosophers of mind (Wildman 1998, 571–97; Wilson 1975; 1998; Nilsson 1998). There is much talk about "science wars," even though, in this case, the wars extend to a much broader range, encompassing human sciences, philosophy and ethics. The problem is, however, always the same: whether we can accept all of the consequences of the application of these scientific paradigms to the human person, including the promise of a more rigorous and precise understanding, and therefore the possibility to design better policies and solutions to many human challenges. For the protesters, the price is too high to even discuss the hypothetical advantages attained by such a method. Several critics point out that the problem not only resides in the dangerous consequences of the new theoretical framework but has to do even with the truth of their analysis, or their capacity to take into account the broad complexity of causes involved in human action. Indeed, some of the flaws of the new human theory are found in the lack of attention paid to the social aspects and to the levels of freedom that we still acknowledge and live by. In the end, the ethical, social, and political consequences always come into play and condition the entire agenda. The critics are convinced that the same thing also happens to the scientists, despite their claims of neutrality or their application of the label "value-free" to their work.

Christian theologians may feel some distress, even embarrassment, in observing such a struggle. Many of them have pleaded for a broad involvement of theological elaboration in the scientific enterprise, convinced of the advantages of such interaction. On the other hand, deep convictions in the field of theological anthropology are compromised by the pronounce-

ments of some scientists on human nature. Theology, at the very least, cannot remain outside of the discussion because what is at stake very much concerns theology's very identity and function.

The involvement of many theologians in the dialogue with science is well known. It is an activity that can offer, after long years of praxis, plentiful and mature results, among them a solid contribution to the epistemological redefinition of theology as an intellectual endeavor and new insights into some classical treatises in the discipline, such as cosmology, theological anthropology, and even the Trinity and Christology. Nevertheless, from the point of view just described, we can discern the uncomfortable position occupied by at least some of the theology-and-science specialists, who have worked toward open interaction with science and have had (up to this point) no trouble integrating the outcomes from the fields now under dispute. Indeed, reading the works of some theologians engaged in such dialogue, it is easy to get the impression that theology has behaved almost always as a "dependent variable," taking for granted many of the results of biological and cognitive sciences, some of which are now under deep scrutiny by other theoretical frameworks. Sometimes the situation may even seem a little embarrassing, moving us to wonder which side Christian theology supports: for or against humanism? And what kind of humanism?

The question of the soul, for example, has divided Christian philosophers from theologians. Those in favor of the existence of the soul include Peter T. Geach (1969), Richard Swinburne ([1986] 1997), Charles Taliaferro (1994), Robert Spaemann (1996), and David Braine (1992). A more skeptical position is held by theologians Warren S. Brown, Nancey Murphy, and H. Newton Malony (1998) and Andrea Vaccaro (2001). An exception among the theologians is Keith Ward (*In Defence of the Soul,* 1998). This is presently not an easy question. Perhaps theology can emerge as a third party in such contentious issues, beyond an easy alliance with ideological humanism, which, after all, is not a Christian but a modern, "enlightened," concept. Theology obviously extends beyond the boundaries of science, but there can be a naturalistic theology. Roman Catholics, at least, have in recent decades produced their own version of humanism, pleading overtly for it and resisting any kind of naturalization (the French Catholic thinker Jaques Maritain had already in 1936 coined the term *integral humanism* [(1936) 1996]; Spaemann 1996).

The question, in my opinion, is not whether theology can claim to constitute a new party in the extended science wars but rather under what conditions Christian thought is able to get involved in such a discussion. Is theology properly interested in taking part in such polemical issues? If so, what contribution can it offer? Perhaps it would be better to await some maturation, more conclusive results—and risk less energy or, more to the point, intellectual credibility. After all, the wait-and-see strategy worked in the Roman Catholic reception of evolutionary theory. The

church waited nearly a century before making its pronouncement, thus avoiding a repetition of the error of condemning a scientific position that turned out to be correct, as happened with Galileo.

To tackle our problem, I propose a dialectic method: first, to examine the reasons that dissuade theology from getting into such an engagement or that counsel it to remain aloof from the discussion; second, to review the positive arguments for theological engagement in the controversy; and third, to formulate a kind of "synthesis" aimed at a proper strategy for dealing with the entire program.

Theology Outside of the "Science Wars": The Case for Neutrality

Typologies on the relationship between science and religion span a spectrum ranging from incompatibility to many forms of dialogue and synthesis. Some positions refuse any contact and proclaim the necessary exteriority of theology to other theories, especially the natural sciences. The tradition of "dialectic theology" is one example, and there are many other forms of Christian thought that lack interest in the progress and results of science. Theologies more aligned with critical modern philosophies sometimes defy the role played by science in some social processes and point to other interest centers, such as "liberation" or "emancipation."

For all of the versions of theological indifference to natural science, the shared conviction is that its outcomes will not, or at least should not, interfere with theological reflection, which has other subjects, other methods, other goals. For such an approach, the scientific view of the human person should not contradict the Christian understanding, in the same way that medical theories and therapeutic praxis have not usually influenced theological anthropology. The field of "human nature" is not one disputed among several theories. Rather, it is distributed or divided among different perspectives, each with a particular language and contribution to offer. Furthermore, one ought not to forget that, as Nancey Murphy notes, "the proscription against the mixing of science and theology began in the modern era as a way to preserve theology from the corrupting influences of "natural philosophy" (Murphy 1990, 199).

A different way to arrive at the same conclusion is provided by systems theory and the strong distinction, or differentiation, that it imposes on the semantics and communication styles of the several social systems. The German sociologist Niklas Luhmann (d. 1998) is one of the scholars who explored in a deeper way the function of religion in advanced societies and developed an ambitious analytic instrument to deal with the complexities of social evolution, based on a particular development of systems theory (Luhmann 1977; 1988). Each social configuration is subject to a properly different communication code (monetary, scientific, political, esthetic) that manages different "distinctions" (counting/discounting, truth/ignorance,

power/lack of power, beautiful/ugly). The consequence is that each system creates its own operations and uses different means to achieve its goals or fulfill its function. Science has its own, appropriate to the milieu of scientific research but sharply distinct from the means applied by economics, morals, politics, or religion.

In his social systems theory, Luhmann warns about the excessive and inopportune interference of religion and other social systems in regard to the ecological crisis. Some of his harshest reproaches are reserved for theologians who try to theorize the causes and possible remedies for nature's exhaustion, as if they were scientists and technically qualified to cope with such a challenge. The main criticism concerns the redundancy of theological pronouncements that repeat well-known commonplaces without any effectiveness in a discussion looking for realistic solutions (Luhmann 1986, 183ff.).

The social theory of Luhmann consigns a precise place to religion and theology within advanced societies—as a communication system able to hide the paradoxes of other forms of social communication or as a way to designate the shadows, the dark side, that exist within any process of knowledge. Religion indeed is linked to the need to communicate about things that other social systems exclude or that stay out of reach of their distinctions, making sure that such dimensions are at least "designated," since a complete ignorance of them could become unbearable (Luhmann 2000, 36). The social functions of religion are quite broad and can encompass new proposals, from the most abstract to the most concrete, but inside this theoretical framework there is no place for a theology pretending to correct scientific views or to compete with biology in the real and effective understanding of human nature. The role of theology is to name and give a sense to the areas in human experience left outside of scientific theory.

In this case, theology is placed in the uncomfortable position of appearing to be a "theory of the gaps," which resorts to a theoretical divine presence to perform this function. However, for Luhmann, things appear quite differently. In his opinion, a state of complete reflexivity will never be achieved; we will always have to cope with a great gap that no other social system is able to fill, neither science nor any other "technique."

From the point of view described above, theology acquires a kind of social legitimacy, but at the price of renouncing the strategy of interfering with or invading other fields beyond what has been assigned to it and instead managing vague areas of contingency, "shadow lands," in the contemporary cognitive panorama. Religion has to do more with the background of any knowledge than with the concrete description and analysis stemming from observation and distinction. Theology plays a rather behind-the-scenes role in the drama of knowledge in that, from that position, it can help keep the play going but not influence its development. It is true that the axiom Luhmann puts into play acknowledges some possibilities of interpenetration between systems, and inevitably between science

and theology, as two kinds of reflective subsystems; but the survival of religion as an integrated social system in advanced societies depends on its capacity to repress or restrain its influence, to establish limits to its reach. In the case under study, it seems clear that theology must limit its anthropological perceptions to the very strict realm of the theological dimension and not intrude into the realms of the scientific, the ethical, or the political.

Theology has a large supply of resources to provide a credible and useful discourse in modern societies, but it cannot pretend to hold a privileged position or general wisdom schema that places it above all other disciplines or forms of knowledge, as was the case in premodern, prescientific times. Its role is very limited and has to do with a precise social function that does not include the correction or limitation of scientific statements. In such fields, the process of correction or evaluation of theses and theories reflects an intradisciplinary dynamic, decided through the slow process of the proposal of a new theory, critical assessment, verification, criticism, and, after tests and maturation, acceptance as a standard by the scientific community. This process is normally governed (and rightly so) only by scientists, away from political or economic interests.

The sociological studies of scientific activity describe a dynamic of competence where established researchers and the theories they defend are continually challenged by new arrivals trying to offer better explanations or fitter theories in their field (Bourdieu 2001). Such competition may be reproduced in the theological field, but it is very unlikely that theologians can successfully challenge biologists in their own field, despite talk about interdisciplinarity or transdisciplinarity, a topic affected today by the consciousness of its many limits and fallacies (Kline 1995, 236ff.; Klein 1990; Klein 1996, 93f.)

The point is that, in normal circumstances, theology does not belong to the circle of specialists dealing with biological or cognitive research and proposals. Pursuant to Luhmann's view, Christian reflection moves rather in the margins of the natural sciences, dealing with the leftovers, those parts excluded in the continual process of distinctions that helps to advance scientific knowledge. The more distinctions and advancement, the more leftovers and unmanaged areas remain—not less. In Luhmann's view, science and religion constitute two different social systems, together with economy, politics, and even art and education. Some interference can be devised in that pattern between science and religion, but, as he puts it, theology is not a kind of scientific enterprise dealing with religious faith but just the reflexive subsystem of religion. From this point of view, theology has little to do with science and more to do with the task of ensuring the identity of the religious system through the reflexive process (Luhmann 1977, 59ff.). Therefore, its role is not to deal with scientific questions but to warrant the continuous need of religion despite the new inputs from science. Of course, to fulfill its duty, theology should listen to science and

incorporate that information into its own code. But this is ever at the margins and not in order to influence the normal course of scientific work.

Interestingly, science, despite its advancement, cannot avoid leaving things out whenever the process of observation takes place. Observing means focusing on one aspect of reality, extracting it from the rest through a dynamic of exclusion. The more one aspect of the reality is illuminated through observation, the more shadow areas are left outside of the understanding produced by the observation. The presence of the so-called blind spots are unavoidable when a kind of reality, or phenomenon, is observed. The image of the advancement of science is not, in this sense, well represented by the traditional image of the pie, where science gets more slices and less is left to religion. In Luhmann's theory religion will always have its own slice, because science can "eat" just a portion and cannot deal with other dimensions or social codes, political, economic, or religious, excluded a priori (Luhmann 1990, 299–302). This is reinforced by the new consciousness about the insurmountable limits of science, as authors such as John Horgan and John Barrow had shown in past years (Horgan 1996; Barrow 1998; Rescher 1984; Trigg 1993; Almeder 1998; Stenmark 2001).

There are other aspects to the argument for the neutrality or nonintrusion of theology in the "science wars." Several scientists have advocated for a sort of "non-overlapping magisteria," or distribution of areas of knowledge, in which science would have to do with facts and religion would have to do with values (Gould 1999). Many theologians welcome this suggestion as a sort of peace treaty in which there would be mutual respect from both sides—science and religion. Yet, what happens if science takes religion as an object of proper research? Religion and theology are increasingly becoming subjects of scientific inquiry and, therefore, are considered to be objects in the discussion. How can religion or theology engage as partners in a discussion in which the other side is always scrutinizing it to decide whether religion is valid and deserves serious treatment?

Previous years have seen a proliferation of essays and studies dealing with the biological and cognitive interpretations of religious experience. A new subdiscipline has emerged that could be called biocognitive religious studies (officially: Cognitive Science of Religion). Its aim is to understand spiritual phenomena as outcomes of a positive evolution, as adaptive mechanisms, or as cognitive processes. In most cases, religion is discovered to be a helpful mechanism in the perception and management of some areas of reality. The principle of causality, for example, is applied when some populations resort to supernatural beings in order to cope with situations of distress or just to understand phenomena otherwise beyond their grasp. After all, the prodigious survival capacity of religion, despite the fatalistic prophecies of many authors since the nineteenth century, constitutes an argument for its positive influence in the human and social realm. This is illustrated by such titles as *Why God Won't Go Away* (Newberg, d'Aquili,

and Rause 2002), *Why Gods Persist* (Hinde 1999), and *How Religion Works* (Pyysiäinen 2001). Through these and other titles (see Boyer 2001; Wilson 2002), religion recovers a central place in the scientific domain, which arouses a renewed interest in a reality perhaps somewhat forgotten or out of fashion in former times.

It is not easy to make a judgment about the advantages and the handicaps of such scientific reappropriation of religion, so affected by ambiguities and maneuvers of reductionism. However, it is beyond question that religion today is a subject of scientific interest and that it belongs within the new framework configured by the biological and cognitive sciences, where it finds not only a place but an explanation and a rationale. Such a view both includes and excludes, integrates and marginalizes, the religious dimension, rehabilitated within the scientific repertory but at the price of a certain form of domestication, of silencing any theological resistance. By being so integrated, theology is subsumed within the schema of the new rationality, where the role of religion is defined and circumscribed. The voice of theological argument is neutralized, and the pretension to subvert the new cognitive order becomes impossible. Anyone in the scientific community will understand that theological pronouncements regarding the soul, human dignity, or the meaning of love belong to this particular religious rationality, to this particular cognitive field or module. Religion surely still has a role to play, at least as a provider of some ideas better suited to cope with certain personal and social problems, but it is not able to compete with the scientific enlightenment reached in recent years. The theological protest will appear as ever obvious, rhetorical, and unable to better describe the real thing.

From these reflections there emerges a kind of statute of limitations for theology as a hypothetical partner in the discussion on the meaning of human beings. The problem is not only that the scientific party would feel uncomfortable with such a possible partner but that the theological party might feel even more embarrassed. Reading some recent books that argue against genetic and cognitive reductionism, we realize how religion and theology can be excluded from the new humanistic view, which resorts more to the Enlightenment's agnostic tradition or to other skeptical philosophical traditions to make their case for human dignity, specific identity, or the sociocultural constitution of the person (Malik 2002, 387ff.; Guillebaud 2001, 353ff.). Clearly, it is not taken for granted that Christian theology makes a good ally of the humanistic cause.

A final, but not less important, reason for theology to keep away from the ongoing discussion is more empirical and requires a return to the theological field and to the production of essays and studies. A quick survey of recent articles written in specialized journals and Web sites shows that the standard of such research tends neither to confrontation nor to criticism regarding the relationship with science. Specialized theology in such an

area prefers a peaceful relationship, beginning with an implicit acknowledgment that science provides insightful understanding of many areas of reality and that theology can learn more from them and can take more advantage of the achievements than by staying away from, or just ignoring, possibly dangerous outcomes. The opposite attitude would be completely against the spirit that guides the present specialized engagement of science and theology. The alternative is well known: to assume the position of theology against science or theology apart from science, which often characterizes other theological engagements. It seems that the imperative to do theology-and-science assumes a more positive disposition toward the scientific inquiry, as opposed to engaging in science wars or philosophy-versus-science wars.

THEOLOGY AS PROTAGONIST IN THE HUMANISTIC DISCUSSION: THE CASE FOR ENGAGEMENT

As in the medieval scholastic method of disputation, after exposing the cons, the second step is to expose the pros and critically review the negatives before engaging in the synthetic conclusion.

When the argument supports an engagement in the debate for or against a humanistic view, everybody will understand that the case is intended to be *for* the humanistic party and against scientific reductions of human nature. It seems obvious that such a position corresponds to the identity and tradition of Christian anthropology.

Returning to the fundamental question of the typologies of relationship between science and religion, many authors have pleaded in past years for a more egalitarian and complex-free attitude toward science in order to avoid an incorrect assimilation, or synthesis, that would not respect the identity and convictions of Christian faith. The discussion among scientist-theologians such as John Polkinghorne and Ian Barbour, for example, is paradigmatic of such differences. While Barbour is more inclined to a schema of integration that would end in a proper assimilation of theology within the scientific vision, Polkinghorne pleads for a more theologically independent position that allows for a more fruitful dialogue, wherein theology can give its own vision and even propose corrections of "scientistic" abuses (Polkinghorne 1996, 5ff.).

Polkinghorne is not the only theologian in the new field who espouses a more engaged form of Christian dialogue with science. Others have pleaded for a specific role for theology in the age of science, from a position of strength, in order to restrain certain scientific statements within particular limits or keep scientific proposals from going beyond the threshold of what defines ultimate meaning. Scientists cross the line when they claim that their discoveries can answer the basic questions that affect human and social life. Theology is called to exercise its critique whenever biologists or cognitivists pretend to have solved the mysteries of human nature, or to

have discovered the ultimate hope for humanity, thus exceeding the limits of scientific methodology and rational thinking.

How are we to ascertain when and where the boundaries that divide science and religion are being crossed? Who decides, as a kind of methodological police force, who should be admonished or repressed for such excesses, especially if theology cannot pretend to have any particular stature above the other disciplines? It is commonly accepted, as Karl Rahner once claimed, that theology along with philosophy are among the few disciplines that are prepared, or have enough experience and a broad enough vision, to determine what is appropriate and what exceeds the purview of science. Theology and philosophy are, it seems, best suited to make pronouncements about the theological and philosophical correctness of scientific claims and applications (Rahner [1970] 2001, 693–703; [1971] 2001, 704–10).

Going a little further, it is difficult to sustain the claim of theological neutrality in the present time, partly because science is being viewed as a "not-neutral activity" as well as exhibiting a biased view—more often than not negative—toward religion and is prone to take its own position in the religious field and even to substitute itself for religion (Clouser 1991; Midgley 1986; 1992; Vogd 2001, 3–39; Stahl et al. 2002). Can theology remain neutral in the face of sociobiological statements concerning the meaning of human action? The simple fact of its existence and fundamental teachings makes theology an easy target for scientific criticism. Moreover, the publication and proliferation of neurophysiological accounts of human existence, culminating in its reduction to a computing system or to a zombie, constitute a real challenge to Christian beliefs. To put it starkly, there is no real world where both views, Christian theological and scientific, may be sustained at the same time, certainly not if in the process theology loses its identity and its sense of Christian doctrinal reflection.

It is appropriate to consider religion and theology within a schema of social differentiation, where any subsystem keeps its own identity, autonomy, and proper function. But we need at the same time a more differentiated view of the question. It is possible to envisage both internal and external reasons for a system's social theory to redefine the role of theology in the context of the scientific panorama. Indeed, Luhmann has acknowledged a kind of counteradaptive survival strategy for religion in modern times where such a social reality can survive and even grow in a way that maintains a line of resistance and nonassimilation to its social and cultural environment. It is legitimate to ask if the same applies to theology as a discipline that might endure, and even prosper, if preserved from assimilation, and also be better able to resist the main lines of contemporary thought or theory (Luhmann 1985, 1005–20). This seems to be the case for some theological styles in recent years (Milbank 1997).

The problem surely is whether we can operate in a counteradaptive way while trying to keep in touch with scientific achievements. The solution

comes from trials that combine axiomatic independence and dialogue ability with scientific approaches to reality, a relationship that seems easier when some topics are not compromised, especially those concerning essential human traits. This seems to be the case at least theoretically, but I am convinced that, empirically as well, a fruitful dialogue can be promoted between science and theology in which theology keeps a high profile and maintains its own identity, being able at the same time to integrate input from scientific knowledge. An example of this is cosmology's influence on theology. Many other attempts can be found in the integration of evolution into the theological field. The issue at stake, however, is how to deal with scientific input concerning human identity that strongly challenges religious convictions. At some point the decision to dissent from the scientific consensus should be made, even if doing so risks some level of implausibility. Even in such cases where there is disagreement, there seems to be enough space for interaction, especially since there is no unanimity in the scientific field and since it is still possible to choose among several interlocutors in the biological and cognitive disciplines. (One may, for example, choose between Richard Dawkins and Stephen Jay Gould, between Daniel Dennett and Richard Lewontin). In the end, some unanswered questions and disagreements can be settled only by means of a pragmatic process that decides the truth and value of theories after checking their effects in real life and in the evolution of societies.

It has been noted already that the Luhmann theory acknowledges some levels of interpenetration between social systems. It is necessary to explore which levels are appropriate for theology in the scientific realm (Luhmann 1988, 289ff.). There is surely already a strong penetration of science in some theological areas, but it is not easy to find a way of reciprocation except in a marginal and anecdotal fashion, such as when some scientists try to formulate theological conclusions from scientific theories or when they go into quasi science-fiction territory in their predictions and models (Tipler 1994).

The systemic theory has left many unanswered questions, at least in their abstract formulation. If we follow the pattern of strong differentiation pointed out by Luhmann, it is difficult to find a place for theology in the field of scientific enquiry. I am convinced that this is just part of the story. The suggestion that theology belongs only to the religious system as its reflexive subsystem without much interference with other reflexive social functions can be challenged from several points of view. One is the empirical fact that theology has played a historical role, which Luhmann sometimes acknowledges, in the dynamic of opening and at the same time keeping a minimal required closure of cognitive processes. It would be naive, from an empirical point of view, to ignore the concrete influences of religious ideas in the orientation of research, at least after the analysis of Max Weber, and more so after the contribution of some sociologies of science (Clouser 1991; Stahl et al. 2002). Next, it is necessary to recognize

that theology has reached in modern times a certain academic status and respectability, at least in the sense that theology belongs often simultaneously to the religious system as its reflexive dimension and to the scientific one as an area of study focusing on one aspect of reality, necessarily open to dialogue with other disciplines sharing the same academic space. This double identity carries some problems, as a tension arises between its ecclesiastical mission and its submission to disciplinary scientific criteria. Consequently, theology is prepared to enter some contemporary academic discussions while at the same time teaching its own view of the world.

The second way to overcome the confinement of theology outside of the borders of science is to resort to alternative social and epistemological theories. The strongest candidates are the theories that emphasize interdisciplinarity and the collaboration and synergy between social spheres or disciplines. One example is the social theory of Manuel Castells (1996), in which the success of some contemporary social aggregations depends on the ability to coordinate different sectors of social life, as, for example, the productive-industrial, the administrative-political, and the academic-scientific. When these aspects of a social structure are linked in a functioning web, advanced societies reach their optimal potential. There are more insights to be discovered regarding social networks and synergy in organization and management theory that show the advantages of links and connections that simultaneously maintain a structure of loose coupling, or relative autonomy.

The open question is whether religion and theology may be part of the social web, or are able to occupy a niche in the social networks, for the benefit of the entire society. Castells' theory is indifferent to the presence of religion in the "network society." Religious institutions seem, rather, to occupy a place for outsiders in relationship to the social web, and their contribution is not particularly clear or defined. Perhaps what is needed is more empirical work in order to show whether the advancement of the networked societies includes a connection with religious links. Several studies point in that direction, stressing such topics as "spiritual capital" and "religious coping" (Iannaconne 1990; Pargament 1997). The question assumes a more specific form in our inquiry about the links, cognitive of course, that may help science to play its own role in the best way, and whether theology may be helpful in such an endeavor. The question takes us again to the interdisciplinary debate and to the possibilities for science and theology to engage in a fruitful dialogue.

There is much talk going on about inter-, multi-, and transdisciplinary methods and also about their limitations. Excellent studies aiming at a critical assessment have been published and are useful for our subject (Kline 1995; Klein 1990; 1996). Again, the problem assumes some of the same characteristics as in organization theory. Only a sense of boundaries and a schema of loose coupling permit such an exercise to be productive for both parties, thus avoiding improper invasions or some of the excesses denounced

in recent years, particularly problems of translation and fallacies of transposition (of topics and theories from discipline to discipline).

Some epistemologies of science have stressed the model of the web of knowledge, with evident consequences for theological speculation. Nancey Murphy stresses this aspect, using the ideas of Willard Van Orman Quine and Imre Lakatos to demonstrate the necessary link of theological propositions to a web of ideas in attempting to achieve the best representation of reality. It is uncertain, however, whether theology should simply adapt in a coherent way to such a web or whether it is able to contribute to the reformulation of the entire schema. Again, it seems that only empirical research can provide an answer to the question. At the moment the only option left to theology is to accept the challenge and to try to engage in a discussion where nothing, except the risk, is guaranteed, and to try a "scientific theology" keeping in contact with sciences (McGrath 2004).

Another aspect of the argument concerns the inclusion or exclusion of theology in science's paradigm of reality. Murphy has consented to the risk of leaving to the sciences "more progressive accounts of religious behavior" than those delivered by theologians (1990, 199). The fact that biological and cognitive sciences offer their own descriptions and insights of religious experience constitutes a real challenge for theology that cannot simply be left alone. There are surely different ways to cope with the threat posed by new scientific interpretations of religion. An unavoidable one is theoretical confrontation. The critical review of such works, which have been growing in the last years, and a critical comparison with particular forms of theological understanding is a necessity, perhaps as a first step before engaging in deeper discussion about human nature and identity. What must be confronted as a precondition for further engagement between science and theology are the discrepancies between two competing representations of religious experience. Which is the more appropriate and true? Is it the view from within or the view from without? Or in what measure are they found to be complementary?

There is yet another dialogical strategy, established very recently, discovered in the position of so-called radical orthodoxy. It is an attitude of programmatic resistance to any trend of secularization (Milbank 1997; Milbank, Pickstock, and Ward 1999). The movement represents a kind of work in progress needing more maturity. Nevertheless, this new brand of theology is offering interesting insights in the area where theology and culture meet. One of its proposals concerns the function of theology as it faces a culture almost entirely secularized. John Milbank makes the case for a more affirmative strategy intended to invert all of the processes that resulted in the exclusion of the theological vision from the modern understanding of nature, society, and the self. In this program, the main role of theological endeavor, after deconstructing the modern theories and uncovering the modern social-political failures, will be vindicating the notion that everything participates in divine reality in a constitutive

relationship that returns all phenomena, human beings included, to their creational roots. The movement inverts the scientific approach: instead of secularizing reality, divinizing it. Proponents want to recover areas that, in their perception, have been unjustly colonized by the sciences and other modern discourses, for example, regarding the bodily dimension of human nature, human sexuality, and the community. Does this represent a return to the old confrontation schema between science and theology or just a redistribution of the field? In my opinion, things are far more complex, especially in the aftermath of postmodern criticism and the cultural revisionism of recent years. Inevitably, a position of this sort attempts to balance the imbalances that have arisen recently between the disciplines and, in doing so, a new kind of symmetry is able to emerge between them. Thus, in the same way that science secularizes religion, theology can theologize the cosmos, biology, and the psychology of human nature.

The risk associated with this position is that theology and science end up constituting two separate discourses that move in parallel lines without any possibility of meeting or engaging in dialogue. In this case it seems that the exercise of theological criticism may exact a certain price, resulting in a trade-off between theology and science.

A final issue concerns the empirical perception of a concrete theological engagement with science where, at first view, it seems that theology has been less critical than humanist philosophers in their relationship with biologists and cognitivists. Indeed, a Christian author, an outsider to the theology-science specialization, complained recently about the "scientific seduction" affecting Christian leaders and thinkers who demonstrate an overly indulgent attitude toward scientists who attempt to define and dominate the field of human knowledge (Goldberg 2000). Such criticism reflects only a partial view. There are many examples of critical theological engagement with science concerning human identity and nature. Certainly, they are not among the majority of Christian thinkers, but the possibility exists for different options (Grant 1997; more explicitly, McGrath 2005). Whatever the case, the problem seems to be the same as already noted in the difficulty of theology's sustaining an effective dialogue with science that can prescribe limits, denounce wrong paths, supply a critical perspective, and offer complementary views. In brief, theology is faced with a difficult challenge as it attempts to maintain an apologetic stance along with an open or receptive attitude when confronted by scientific statements regarding human nature.

Concluding Remarks

The questions that the foregoing discussion has raised represent points of crucial importance for Christian anthropology. It would be unwise for a theologian to ignore them. Sooner or later the theological conception of the human person will be forced to confront the visions disseminated by

sociobiologists, neurophysiologists, and psychological cognitivists. An apologetic strategy will be necessary to deal with certain positions that are becoming standards of the biocognitive understanding of human nature. The task will require a deep knowledge of these positions in order to expose their flaws and limitations. This will be possible only through interdisciplinary engagement and with the help of allies in the scientific and philosophical realms. It is not an impossible thing to accomplish; the terrain has already been prepared by other critics, and this makes things easier for theologians. There has been a good deal of critical argumentation, even if theology cannot in every case identify with all of the arguments used within a scientific or humanist framework. Indeed, the discussion, before taking place between scientists and humanists, is first a discussion within the scientific realm itself. It is necessary to be cautious, because it is not uncommon to find would-be allies in the same scientific field who sustain critical views toward their more antihumanist colleagues but who do not espouse a Christian framework or core beliefs. Therefore, theology has a duty to articulate its own view on these subjects and to defend its convictions in order to avoid a further process of secularization beyond what is already happening.

Some questions that have emerged in the course of this analysis remain outstanding. First, it seems inevitable that theology should demonstrate a degree of pluralism when dealing with scientific challenges. An elemental law of systems theory may help in this context. When the complexity of the outside ambient increases, the complexity inside the system increases proportionately in order to respond more efficiently to new challenges. Theology can develop several different strategies in order to guarantee the survival capacity of the Christian faith, especially since there are many fronts open, many different sensibilities inside the Christian community, many intellectual positions in the cultural environment, and too many different ideological frameworks, because of the confessional Christian diversity, to simplify any Christian response. A plurality of apologetic positions will inevitably correlate with the plurality of theologies in parallel with modern culture and science, and with some theologies of the margins, in a Luhmannian fashion (even if they themselves are unaware of the fact).

This first perception leads to a second, which concerns the so-called trade-off duty, affecting the logic of the relationship between theology and science. To be honest, such a condition affects not only theology but any intellectual endeavor of conversation between disciplines. We cannot have the best of two possible worlds: the world of apologetics, engaged in the defense of Christian identity and tradition, and the world of cultural dialogue, openness, and the gains of recognition, insight, and legitimacy that depend on a more decided assimilation to scientific ideas. There is always a price to pay, and it is not easy to find the ideal middle point that will satisfy everybody. The pluralism already alluded to may be an answer.

There are minimal sacrifices that Christian theology may be willing to accept in order to engage seriously in the discussion with the sciences. The most evident is the metaphysical framework that has served since the Middle Ages as a foundation of Christian doctrine: the so called "substantive, static conceptual building" of the Aristotelian-Thomistic tradition is one of the first candidates for revision in some theological arenas (Muck 2001). Indeed the Aristotelian-Thomistic model, a metaphysical foundation broadly shared by theologians through the centuries and still alive in many academic circles, has been the base for the standard cosmology in Roman Catholic tradition. From this point of view, the universe is well ordered, with everything oriented to a preestablished end. A system of matter and form, substance and accidents, genres and species helps to describe and to bestow order to reality. Even if some Catholic scholars are maneuvering in order to adapt such a schema to the evolutionary pattern (Bonnette 2003), it is not easy to ensure success when one takes into account the great amount of contingency present in reality and its consequent chaos and unpredictability. It may be more useful to recall some alternative paths of medieval thinking such as those trod by Duns Scotus and other Franciscan masters who gave more room to contingency and to the empirical realm and retreated from the conceptual schema of universal ordering ideas while still keeping a high theological profile and a reference to God.

There is still a long road to travel before an agreement or consensus can be reached, even within the natural sciences, about some subjects concerning human nature such as consciousness, degrees of freedom, and the relationship between nature and nurture, genetics and culture. Theologians may feel called to examine everything, but they should not be overly eager to anticipate their own pronouncements in these areas. One of the strengths of theology is its ability to take the long view. In doing so, it is able to exercise patience, restraint, and a both broad and balanced critical approach as it offers its own contribution to a work still in progress.

This does not mean that theology should just sit down and wait to see what happens in these very contentious fields. It needs to take part in the ongoing discussions and to secure the role of partner in such dialogues, where more voices should be heard in order to find adequate answers. An example is the field of consciousness studies, where a consensus is still out of reach as many try to understand one of the deepest mysteries of our universe. It would be wrong for theology to stay away, to leave only the specialists contending. In fact, theology's stance on consciousness is a good test case to gauge theology's ability to enter such discussions and to negotiate its own position precisely because the lack of consensus leaves open doors to the entry of more interlocutors. Theology should take this challenge seriously, even if it means risking its own purity and becoming contaminated by alien forms of reasoning. After all, such contaminations have been fruitful in the past and have helped to keep the credibility of the Christian faith alive.

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