by John L. Allen Jr.

On Aug. 22, 2006, Allen interviewed Dominique Tassot, director of Centre d'Etude et de Prospectives sur la Science ("Center for Studies and Prospectives on Science" or CEP), a group of 700 European Catholic scientists and intellectuals based in France. They discussed evolution, science and intelligent design.

NCR: Can you describe the Centre d'Etude et de Prospectives sur la Science?

TASSOT: It was formally founded in 1997, though that was really the transformation of a preexisting informal group of people into an organization. We're mainly a French-speaking association. We publish an in-house quarterly, *CEP*, and sponsor an annual conference. We have 700 members, with about half of them being scientists. There are also historians, religious men and women, and others. We publish some materials on the history of science. The main axis around which our interest revolves, however, is a critical approach to evolutionary theory.

Would you say it's a Catholic organization?

Yes. Not all members are Catholic, but certainly the most influential members are Catholics.

What is your scientific training?

I graduated from the Paris School of Mines, which is an elite school of engineering. I studied mathematics, physics and chemistry. In my professional career I worked in metallurgy plants, not in a teaching or research centers. Many members of CEP, however, are involved in full-time teaching and research.

Do you have any relationship with the French bishops?

Yes. Bishop Henri Marie Raoul Brincard of the diocese of Le Puy-en-Velay, for example, is a friend. (Le Puy-en-Velay is an important Marian shrine and pilgrimage destination in France). In fact, it was through Brincard that I was able to get a letter to Benedict XVI about evolution directly on the desk of the pope. I wrote the letter before the *New York Times* article on evolution by Cardinal Christoph Schönborn, but sent it afterwards.

What did you say in this letter?

I made two points.

First, I reminded that the pope that Pius XII in the encyclical *Humani Generis* in 1950 suggested a debate inside the Catholic Church on evolutionary theory, but it has never happened. I said that it's now time to open the debate, because in each discipline we can find people on both sides, which was not the case in the 1950s.

Second, I said that the impact of this debate is not just scientific. In itself, evolution is a scientific question, but it has consequences on a much larger scale. It opens a possibility for the church to regain the initiative in the field of culture. Right now, Catholic intellectuals spend their time explaining that such-and-such a theory is or is not compatible with the faith, which means that the initiative is always coming from other groups or movements.

What's important is the possibility for the church, for Christians, to reestablish an autonomous world view. The concept of creation is important in this regard. Today, most people believe that truth is given by science and the church reacts to it. If you accept that science gives the truth, inevitably Christian intellectuals will all move inside a scientific worldview which is actually foreign to Christianity.

What was the pope's response?

He responded very positively, offering a blessing for our members and encouraging us to continue with our contacts with the scientific world. He didn't say anything, however, about the idea of creating a commission or some other vehicle for launching a debate.

**What was your reaction to the op/ed piece of Cardinal Christoph Schönborn in the *New York Times*
last July?**

Schönborn didn't say that Darwin is or is not compatible with the Christian faith, but that Darwinism is wrong. From a theoretical point of view, that's quite different. He affirmed that it's possible for philosophy and theology to attain certainties which are higher than scientific certainties. That's something new from theologians. For three or four centuries, theologians have generally followed the scientists, taken their lead from the sciences. This is a question of intellectual authority, and of course it stems from the Galileo case and so on. Little by little, authority has shifted from theologians to the scientists.

Once again, the question is whether it's possible to recover an autonomous Christian worldview, within which science has its own very important place. To have a place, however, is very

different from being the frame within which everything is set.

What are your thoughts on the Sept. 1-3 meeting of Pope Benedict's *Schülerkreis*?

In my letter to Benedict XVI, I advised him that he should remain the master of this debate. By that I meant that he shouldn't delegate it to the Pontifical Academy of Sciences, even though I couldn't quite say it that way. Even though it's not possible for me to see all the influences behind the Schülerkreis, I suspect the pope has the aim of using the *Schülerkreis* to test new opinions and to review them. For me that's very important, though I don't know what the result will be.

What are your concerns with the Pontifical Academy of Sciences?

The problem is that it's not a Catholic academy. Instead, it's the place where the scientific worldview can enter inside the Catholic Church. Two-thirds of its members are not Catholic. It's also the pontifical academy with the greatest number of Noble Prize winners, who are very well known in their disciplines. I'm not questioning the quality of these people, but the meaning and use of this academy inside the church.

Do you see the *Centre d'Etude et de Prospectives sur la Science* as an alternative to the Pontifical Academy of Sciences?

I wouldn't say that. I would say instead that it's a place where the debate that has gone on for many years can take place. My concern is simply that the Pontifical Academy for Sciences exists almost by itself, and I'm not sure it's the tool for the pope that it should be.

Can you cite any prominent scientists who belong to your group?

I'd mention Guy Berthault, whose work on the dating of sedimentary remains is highly relevant for this debate, as well as interesting from the point of view of the history of science. Evolution

relies from the beginning on an extremely long chronology of the earth, which is based in turn on sedimentary theory. Basically, the idea is that when you find many different strata of sedimentary rocks, the strata at bottom is older than those on top, and the whole complex took an extremely long time to form. It seems so obvious that for two centuries geologists didn't question the underlying principle.

But if you think about it, the question of what's on top and what's on bottom doesn't necessarily have anything to do with comparative ages. If you pour mercury, oil and water into a glass, the mercury will end up on the bottom, and not because it's older. Physical principles operate. Density is the causal factor that determines position; chronology has nothing to do with it. The same thing applies to the different strata of sedimentary remains. The strata have been deposited where they are, and it's not necessarily the case that the oldest material is on the bottom. That's akin to thinking that the sediments basically feel from the sky. Instead, they were carried by horizontal currents. The layers were formed by density, speed, and geometry, not time. Berthault first published these findings in a publication of the French Academy of Science in 1990. He then went to the University of Colorado in Boulder, and did experiments using very sophisticated equipment there which is capable of simulating water currents and related physical phenomena. In effect, he's created a science of sedimentation, and we can actually calculate the time necessary to deposit what we observe. There's a Russian team of scientists who have picked up on these experiments and are publishing their findings with the Russian Academy of Science. In effect, it means that the usual geological chronology has been destroyed.

What are the consequences for the theory of evolution?

It means that the timescale we use to think about evolution has no scientific basis. It's now possible to calculate the time it took to produce particular sedimentary remains, and it's a question of days, not millions of years. Hence, for now, fossils can tell us where an animal died, not necessarily when it lived. As fossils are the rationale for evolution theory, Berthault's experiments seriously question, if not refute, the theory.

Did you come to doubt evolution on scientific or religious grounds?

When I was in school studying mathematics, my favourite book was by Teilhard de Chardin. I studied with Jesuits who were all in favor of Teilhard's very positive approach to evolution. I was a Teilhardian. I didn't question that at all. I saw no contradiction between my faith and what I

was studying in science. But later I read a book by two French scientists written during the Second World War, in which they questioned evolution on scientific grounds. My doubts began at that time.

What convinced you?

Originally, it was the argument from probability, meaning the extreme improbability of positive mutation in the sense that evolutionary theory suggests. Later, of course, I have also been persuaded by Berthault's refutation of the geological chronology. At bottom, theological, philosophical, and scientific truth must be in accordance. All truth must function together. Thus if evolution does not have a sound scientific basis, it's not necessary to waste time arguing over whether it's compatible with Christian theology.

When you say that evolution does not have a sound scientific basis, are you talking about micro-evolution (development within species) or macro-evolution (development from one species to another)?

I mean macro-evolution. This, by the way, is what makes the book *Truth and Tolerance* (2003) by then-Cardinal Ratzinger so interesting, because he's one of the few theologians who understands this distinction. Normally people talk about 'evolution' but they don't distinguish, and it's impossible to say anything meaningful that way.

You may remember that in his *New York Times* piece, Cardinal Schönborn said something fairly incredible about the 1996 text of John Paul II that termed evolution 'more than a hypothesis.' Schönborn called that text 'rather vague and unimportant.' Many people were surprised to hear him talk about a papal text that way, but it's actually very easy to understand. 'Evolution' is never defined in that text. In philosophy, we are supposed to define everything, but that was not the case here.

The phrase 'more than a hypothesis' was actually a reference to *Humani Generis*. [Note: Pius XII in that encyclical referred to evolution as a 'hypothesis.'] But what does this formula mean? What does it mean to be 'more than a potato'? It means nothing without further definition and distinction.

What do you mean by 'macro-evolution'?

I mean the appearance of an organ in the offspring which did not exist in the parent. When you put it that way, you understand immediately that it's impossible. The continuing dominance of evolutionary theory depends upon a voluntary confusion between micro and macro-evolution. Darwin himself relies upon micro-evolution, giving many examples of it, but the he switches to making generalizations about macro-evolution. This is philosophically incorrect.

If the evidence against 'macro-evolution' is as compelling as you say, why do most scientists still support it?

They live in this confusion, and in general they don't think about it. Very few people, in reality, make these distinctions. I think they live and think inside the paradigm of evolution. As Thomas Kuhn explained [in the book *The Structure of Scientific Revolutions*], theories are accepted or rejected in order to defend the dominant paradigm. Information which conflicts with that paradigm is set aside, it doesn't get published. Psychologically, this is all quite normal. It's not just scientists who behave this way.

Do you believe scientists defend evolution because it does away with the need for God?

In the States, people are quite conscious of the religious and political dimensions of evolutionary theory. In Europe, I have the impression that most scientists just don't think about it. Evolution is the accepted paradigm, and that's it. They think inside this scientific vision of the world. They're forced to question it only when they find themselves in front of a fact that's clearly incompatible with the paradigm.

You said Pope Benedict is one of the few theologians who distinguishes between micro and macro-evolution. What do you know about his thinking on the subject?

For one thing, Pope Benedict became familiar with the discoveries of Professor Berthault many

years ago, from the time he was a cardinal. He met Berthault at a conference center and spent several days with him, quite by accident. This is a center in the Alps that Ratzinger used as a meeting place for a theological conference, and Berthault was one of the directors of the association that owned the place. Ratzinger came several times over a period of years, and got to know Berthault. I think that has had some influence on him. It was an opportunity for him to see that even on the scientific questions surrounding evolution, debate is possible. Most people think that the findings of science are completely established and are beyond discussion. They think it's the way it's presented in textbooks in school. But those textbooks are the result of a long process, which in itself is not so simple. Science doesn't give definite certainties.

Are you a 'creationist'?

No, because we arrived at our position before we even knew about creationists. Our position is different, first of all because we're Catholics. From what I can see, creationism is mainly a movement of evangelicals. Their approach to religion is different. We once had a lecture by an evangelical scientist who works in genetics and considers himself a creationist. On scientific grounds, good relations with the creationists are possible, but it's a different position. We are not committed, for example, to a literal reading of the Bible. Catholics read the Bible in terms of church tradition, the fathers of the church, and so on. Quite often, Biblical literalism means that each person interprets the Bible for himself.

What do you think of 'intelligent design'?

We discovered the intelligent design movement some years ago, and we study it with interest. Certainly on the idea of design in nature, we agree. Several articles that we have published in our quarterly come from intelligent design sources.

Once again, the difference is that we are Catholics. In general, the intelligent design movement intentionally tries to stay away from the question of religion. If it's a matter of an intellectual approach to explaining nature as the result of intelligent design, I would agree with that. But we believe that this designer can be known from religion.

What do you expect from the *Schülerkreis* meeting?

I expect that the debate will go further. Some months ago, Cardinal Schönborn published an essay in *First Things* on this subject that I found interesting, and I translated it into French. I sent it to him along with my letter to the pope. In reply, Schönborn said that the debate is going on, and he's delighted with that. At the time, I was unsure of what Schönborn was thinking, because what he was saying at that time was unclear.

What I hope the meeting at Castelgandolfo means is that this scientific debate will interest philosophers and theologians more and more. For many theologians, the very fact that there's a debate within science is something new.

Do you think Benedict XVI will make a formal statement on evolution?

I think it is too early. I think he's using the meeting of his *Schülerkreis* to give a broader extension to the debate. But even if he himself knows where he wants to go, and I believe he does, it will take more time. Most Catholic intellectuals today are convinced that evolution is obviously true because most scientists say so. To show that debate is possible on scientific grounds, and also on philosophical and theological grounds, is more than a question of a few months. In the meantime, what I see is that in his normal daily teaching, Benedict is providing some glimpse into the importance of creation and so on. I do not expect, however, an official theological statement quickly.

You say you think you know where the pope wants to go. Where is that?

In the past, Cardinal Ratzinger was convinced that evolution was true, and being an intelligent man, he devised a way to make it compatible with theological truth. Today I think his view is different. Some years ago, he began to understand that there is a difference between micro and macro-evolution, which is an important point for him. At a conference in Germany, he actually said that this was one of the most important experiences of his life. The fact that he devoted three pages to the subject of evolution in *Truth and Tolerance* is by itself abnormal. He grasps that micro and macro-evolution are not the same, and I think he believes people accepted an atheistic world view in relation to evolution because they accepted the confusion between micro and macro-evolution. He wants people to understand this important truth.

If he doesn’t make a statement, how will he do this?

I think he will use Cardinal Schönborn once more, or perhaps several more times. They know each other well, Schönborn understands where the pope wants to go, and together they are devising a way. Sometimes the best way to get from A to B is not by a direct path. The first thing is to let people know that debate is possible. Ultimately, the solution will be given by science, because evolution in itself is a scientific question. But it’s important to let theologians know that within the scientific world, debate is not only possible, but it’s happening right now. For the moment, only that will change the minds of theologians, because in too many cases their thoughts are subordinate to science.