



# Literature Monitor

## BOOK REVIEW

*"The artificial womb"*, by  
Henri Atlan (*Editions du Seuil*,  
Coll. "Points", Paris, 2005,  
2007)

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Having recently participated, in two work  
forces on the difficult issue of what is called  
in France "Gestation for the Other", I have  
realized the extent to which Henri Atlan's book,  
"The artificial womb", opens for us reflective  
paths in bioethics. Physician and biologist,  
philosopher, author of many books in cellular  
biology, biophysics, and artificial intelligence,  
H. Atlan is Professor Emeritus in Paris as well  
as in Jerusalem. He is also Director of Studies  
in Philosophy of the Biology, and is involved  
in a very stimulating thought process on the  
development of sciences.

Published in 2005, this book has been reprinted  
in 2007, in the midst of a reform in the French  
law on Bioethics, with a new preface added  
by the author. In this preface, he emphasizes  
the fact that development of new techniques  
for medically- assisted procreation (MAP),  
creates a new situation where "parenthood, in  
part biological-based, becomes more and more  
a societal construct". This remark echoes with  
the anthropologist Maurice Godelier's (2007)  
statement that "one needs always more than a  
man and a woman to make a child".

Atlan's book is especially interesting, not  
because it explains the scientific techniques  
of ectogenesis (full pregnancy outside of the  
woman's body), but because it promotes an  
in-depth reflection on the impact of ectogenesis  
on some of our basic concepts, as well as on our  
social, cultural and religious positions.

Up to now, only the beginning and the end  
of the pregnancy can happen outside of the

mother's body: after in vitro fertilization, the  
fertilized egg can develop in vitro until the  
stage of the blastocyste (5th day, or D5), and a  
prematurely born fetus can live in an incubator  
from the gestational age of 24 weeks (W24).  
Full ectogenesis therefore requires to fill this  
gap between D5 and W24. Atlan thinks it is  
only a matter of time, though it is still very  
uncertain how long it will take to develop the  
necessary biological techniques (10, 20, 50 or  
100 years...). In Atlan's view, as soon as it is  
possible, it will happen.

If so, we can, we must, therefore, already now,  
think about the multiple implications of this  
development of things and techniques, thanks  
to Atlan's clever and subtle analysis. Indeed,  
the biological advances that will enable the  
creation of artificial wombs, are, and probably  
will be, much less revolutionary than were those  
that led to the contraceptive pill, the MAP, and  
the cloning techniques, because they will need  
to deal only with the growth conditions of the  
fertilized egg, and not with its creation.

It is beyond the scope of this book review to go  
into the details of Atlan's thought, but several  
strong points can be outlined:  
When can/should we speak of an embryo, or  
when does the gamete become an embryo? Up  
to now, the criteria is the successful in utero  
implantation. As soon as the uterus is artificial,  
we will need to rethink this fundamental  
ontogenetic question. To answer the question of  
the person, the Anglo-Saxons have invented the  
notion of "pre-embryo", meaning the first post-  
fertilization 14 days. The full ectogenesis will  
completely change this question of "threshold"  
very much artificial, with quite radical religious,  
philosophical and legal implications.

What impact will the artificial womb have  
on the issues around reproductive cloning?  
Indeed, one of the limiting factors in the human  
cloning process is the number of procreative  
women. With the advance of artificial wombs,  
this obstacle becomes much less relevant, and  
human cloning will become more feasible...

The access to artificial wombs will open  
the possibility of procreation not only with  
no pregnancy, but also without women...  
Consequently, the meaning and the ethical  
implications of abortion, will completely  
change. Women will be able to give up

motherhood at whatever stage of the in vitro  
pregnancy, without having to kill the fetus. The  
whole domain of studying the fetus-mother  
interactions will also be radically changed, as  
one will be able to compare in vivo and in vitro  
pregnancies...

What will be the specific cultural, social and  
religious consequences of this new procreation  
technique, that will create, no doubt, a deep  
fissure in the history of parenthood?

These are only some of the questions treated  
by this concise but very dense book, and are  
pertinent, not only to reproductive biologist  
scientists, but to any citizen who cares about  
humanity in general.

It is therefore clear why the first chapter of the  
book starts with the mention of Aldous Huxley's  
famous book "The Best World", because it is  
about how a whole social organization changes  
with the introduction of a new technique of that  
kind.

Thank you again to Henri Atlan for bringing us  
these thoughtful insights, that are essential to  
the accompaniment of revolutionary techniques,  
which, without it, may become very dangerous  
on the anthropology level.

The Israeli WAIMH Affiliate is proud of having  
among its active and pioneer members, our  
colleague, Miri Keren, who represents a double  
important filiation, since she is both the heritor  
and the spiritual daughter of Sam Tyano, and...  
the biological daughter...of Henri Atlan.

## Reference

M. Godelier. (2007). *Au fondement des  
sociétés humaines – ce que nous apprend  
l'anthropologie (The foundation of  
human sciences – what we learn from  
anthropology)*. Editions Albin Michel,  
Paris, 2007.