

Guest Editorial

“Analytical” or “Synthetic” Research in the Life Sciences

Correspondence to: Professor Béla Mess, M.D., Ph.D., DrSc.,
Dept. of Human Anatomy,
Medical Faculty, University of Sciences, Pécs,
Szigeti u. 12, H-7624 Pécs, Hungary.
FAX +36 72 536 393
TEL +36 72 536 392

A few years ago, on the occasion of my 70th birthday, the Scientific Society of my University honoured me by asking to deliver a so called “life-work” lecture. The title of this lecture was “Vertical or Horizontal Research?” According to my formulation, “*vertical researchers*” are interested in a more or less circumscribed problem, and they investigate this question for a longer period, sometimes for a life time. These investigators search even for the smallest details of their circumscribed research field so deeply that they are not interested sometimes even in the broader aspects of their own subject. In contrast, “*horizontal researchers*” are interested in more fundamental or basic mechanisms. When they have found the first satisfactory answer to their question, they omit investigating the further finer details of the problem. They already have several quite pressing other questions exciting their fantasy.

It is unnecessary to stress that both types of researchers and both styles of research have their advantages and disadvantages. I have to confess, I feel myself belonging rather to the latter group of investigators.

The title of the present paper refers to a similar question. I would say, “*vertical researchers*” usually make analytical research, while “*horizontal researchers*” do synthetic research. It would be senseless to raise the question, which one of the two types of research should be preferred, or which one represents a higher quality of investigation? Both have their real values and both are important in the progress of life sciences. If this is not so, what is the aim or purpose of writing a guest-editorial in a distinguished scientific journal on this subject?

It is quite evident that there are some “fashions” also in scientific research. Probably these fashions are not so frequently and quickly changed as fashions in ladies-dressing, but some fashionable trends can be detected equally in the methods used and in the subject of research. When a new method was described, a new fundamental observation was made, or even when a new theory was raised, hundreds and hundreds of papers appear within a short time applying this method or dealing with the

given subject. I feel, this is quite natural or even necessary. The only pity is that research lines or papers, not following the actual "fashion", are neglected or "looked down upon."

In recent decades molecular biology and genetics have been the dominating lines in biomedical research. These branches of sciences, with their sophisticated methodology, produced fantastically valuable new results permitting much deeper insight into the very complicated machinery of the living organisms. These, or the vast majority of these publications, are "per excellence" analytical works. The pity is again that some of these papers or authors forget the entire organism! I have sometimes the feeling, we "do not see the forest because of the many trees", as the proverb says. Undoubtedly, we are living now in the epoch of analytical research in the life sciences. However, synthetic research, dealing with basic mechanisms, or relationships of the different mechanisms within the entire organism, inheres an "equal-right" and is an equally valuable trend in our branch of sciences.

I was very pleased to notice, I am not alone with my seemingly "old fashioned" idea. Recently we wrote a short monograph with my coworker, Dr. Cs. Rúzsás "Maturation and aging of neuroendocrine functions" (Academic Press, Budapest). The official referee of the manuscript of this book has been Prof. P. Rudas (Head of the Dept. of Physiology and Biochemistry, Veterinary Medical School, Budapest). May I cite a few lines from this report: "In the years, with the spreading of cytobiology and genomics, the number of publications dealing with experiments performed on entire living beings and analyzing the results related to the entity of the organism, are rapidly decreasing. The present work always investigates the whole biological object and shows it in its complexity. Authors do not immerse themselves in molecular-biological details which allow for the drawing of only very few or any conclusions concerning the entire individuum. This book analyzes rather the results of neuroendocrine experiments dealing with important and evident biological parameters (reproduction, growth etc.). This represents the real value of this book. This is the value, why this work will be welcome by the international scientific community looking for these type of monographs giving overviews in broader aspects." (Rough translation from the original referee's report in Hungarian. Personal communication). Sorry for this involuntary self-advertisement, but these remarks are valid also in context to any other books or papers of similar type.

Nobody wants to deny, least of all me, the high value and importance of the analytical research performed with the most modern and highly sophisti-

cated techniques. However, synthetic research should equally be accepted and appreciated independently whether this is performed with the most modern "fashionable" methods or not. One should never forget, not everything is good, which is modern, and not everything is bad or obsolete which is not the most recent or is somewhat older, and vice versa, of course!

I would summarize this sequence of ideas with the following remarks:

1/ The existence of "fashions" in scientific research is quite evident. This is the consequence of the rapid development of methods. On the other hand, these "fashions" are initiated also by some basic or important findings leading to further progress of the given field of research.

2/ The rapid development of modern methods and techniques favours conducting rather analytical types of research, which produces quite incredible, reliable new data. No wonder that this type of research stands in the forefront in our epoch.

3/ Synthetic research style has its important role still at the present time. The value of this type of investigation (or investigators) does not depend either on the methods used (provided they are proved and reliable methods), or on the subject of investigations. Simple in vivo observations, histology, classical hormone assays (e.g. RIA) etc. can also produce new and valuable data even today.

4/ To search interactions, interrelationships or fundamental mechanisms within the entire organism are equally important as collecting new, finer or finest details, should they be of biochemical, molecular-biological or genetic etc. character.

I am convinced these statements correspond to the editorial policy of our journal, *Neuroendocrinology Letters*.

Finally, the reader surely noticed, there are no citations during the text, and no bibliography is attached to this brief writing. This was intentionally done. First of all, this is not a scientific publication. These were only thoughts of an ageing researcher who has spent his life time, over half a century, in biomedical research (*Neuroendocrinology*). On the other hand, it was not the intention of the writer to classify papers or publications, citing them as examples for analytical or synthetic type or style of investigations.

Prof. Béla Mess