

Preface

Scientific dialogs in a genuine atmosphere surrounded by creative paintings above a piano, with beautiful various *objets d'art*, fantastic photographs and many prestigious books bring to life the eminent Rumi's statement that "There is no limit for thought, and there is a world of freedom inside every person." That was the atmosphere in which I conducted 25 interviews with a scientist who ignited his own "Otto-cycle" in the 1950s, to become a biologist at first, and turned to theoretical chemistry afterwards. Later, Maxwell's equations electrified him, Poincaré's three-body problem and chaotic strange attractors absorbed him, and Einstein's general theory of relativity attracted him to physics. Nevertheless, at the end of my interviews as long as the "cycle" was running with its high efficiency, he could also become a theologian and ultimately even combine all of those four strands together!

The pivotal principle for Otto E. Rössler and me, which made both of us have 25 prosperous dialogs, was Dirac's Principle of Beauty: "If one is working from the point of view of getting beauty in one's equations, and if one has really a sound insight, one is on a sure line of progress." Let it not remain unsaid that the elegant atmosphere in which those talks took place supported metaphysically our joint principle and even led us spontaneously to talk about a link between symmetry and art.

It was not the first time that I had discussions with Otto, but it was the first time that we had dialogs in that exceptional atmosphere. Although our discussions were not "dialogs concerning the two chief world systems," we did not achieve complete agreement on several ideas. Nonetheless, for those special interviews I had made a treaty with myself, that I should not criticize him during his elaborations. Although it was quite difficult on several occasions to be faithful to my inner treaty, I succeeded in not having a pro and con round-table with him but rather an interview. The main reason for my promise was simply to get to know his complete ideas about a given subject without any external intervention. Otherwise due to his kindness, as soon as I wanted to make a comment he would stop talking in a flow and might lose a main clue and then it became difficult to come back to the primary path. In this way, I can now say that I have obtained almost complete

answers to my questions, none of which he knew beforehand. One could imagine that it may be burdensome to undergo many interviews and to answer various questions for which one does not have any idea in advance. So the next point which I should perhaps underline here is that those dialogs could not only collect comparatively complete answers, but also that Otto did not have any idea what my questions would be. It is also worth mentioning that I personally had no idea what his answers would be so that I could have tailored my questions in anticipation. Such a strategy—despite its seeming laboriousness—could enlarge the degree of creativity in our project and helped both of us not to saturate in a steady state.

The main thread in these dialogs was to start out from an early age, when Otto E. Rössler began becoming a scientist, up until now. Accordingly, the style of the book can be called a “scientific autobiography,” for we were not going to talk about the private life. As I see it, one of the principal advantages of such a collection is to harvest his ideas about several subjects which can stimulate and foster more discussions and trigger comments. So I would be delighted if I had succeeded in establishing a basis for others who would like to discuss with Otto or even try to refute his ideas. As physicist John Wheeler, and subsequently also philosopher of science, Karl Popper, put it, “our whole problem is to make the mistakes as fast as possible”; we also are reminded of Einstein’s saying that the essence of science is that “anyone who has never made a mistake has never tried anything new.”

To preserve the dialogical structure, we kept the style of the whole book in the form of “questions and answers.” Moreover, the reader will see an easy switching of subjects between biology, theoretical chemistry and physics. Keeping the autobiographical structure of the book implied to preserve the sequence of themes as they occurred. Otto loved to remain in his “cycle” and draw upon various fields and combine them in unexpected ways to answer my questions. Hence the reader will realize that when Otto talks about, for example, intelligence, he cannot reign in his emotions and starts explaining the special behavior of orangutans with abundant eagerness! Due to his special style, he also mentions many names and works—not only in physics, but also in biology, zoology, chemistry, philosophy, mathematics, literature, theology, etc. In order that the reader can easily follow, a comprehensive index and bibliography have been compiled at the end.

Johann Wolfgang von Goethe believed that “Every day we should hear at least one little song, read one good poem, see one exquisite picture, and if possible, speak a few sensible words.” I hope our 25 dialogs can be considered as some “sensible words.”

My special gratitude goes to Oliver Purnell and Michal Rössler for editing all interviews. I would also very much like to thank Ivan Zelinka, Guanrong (Ron)

Chen, Thomas Ditzinger and Andrew Adamatzky who helped me a lot to finish this work. I am delighted to dedicate the book to my parents who first taught me that, in any chaos, one can eventually find harmony.

Tübingen, December 2013

Ali Sanayai

Chaotic Harmony

A Dialog about Physics, Complexity and Life

Sanayei, A.; Rössler, O.E.

2014, XII, 278 p., Hardcover

ISBN: 978-3-319-06780-3