



(35, 36)

Research based installation for Artience Daejeon 2019, Emmanuel Ferrand.

This work is based on the experience of a summer research residency in the city of Daejeon, supported by the Daejeon Culture and Arts Foundation and the Institut Français de Corée du Sud, during which I could investigate various aspects of the local scientific and non-scientific culture.

It features a number of interviews (videos) that were done at this occasion, as I had the opportunity to meet a diversity of actors of the local life : established scientists, workers in the traditional market, keepers of traditional fermentation traditions, farmers, students, retired citizens. Their voices are shared “as is”, with no intervention on my side, apart from asking very general questions about how they relate their life and their daily activity to the technological innovations, and how they project themselves into the future. The videos are shown as an internet-like playlist through which the audience can freely navigate.

This work also features some graphical elements displayed on the walls, taken from old science textbooks, from souvenirs of the 93 Expo, or from photographs that I took myself in Daejeon. To those Korean elements, I added a few similar documents from France : pictures from ancient popular science books, but also texts from the French scientists Marcellin Berthelot, a famous chemist, or René Thom a famous mathematician who influenced me a lot. The French modernity is represented by a recent call to rethink our relationship to technology and economic growth, issued by the community of students from the most elitist scientific institutions in France (Ecole Polytechnique, Ecole Normale Supérieure, Ecole Centrale, ...). This call (translated here in Korean) is, I believe, representative of the current mood among science students in Europe.

This, together with a few objects and books that I have accumulated during my stay in this city, forms a kind of “cabinet de curiosités”, an informal accumulation of often contradictory signals, through which I want to share some feelings about the question of progress. My hope is that this installation could be a place where

visitors could develop their own reflections on science, triggered by the variety of sometimes unusual views displayed there.

The title ䷢ ䷢ (35, 36) refers to two consecutive hexagrams of the Yi Jing : ䷢ 晉 (jìn) “progress” and ䷢ 明夷 (míng yí), "Darkening of the Light". What follows motivates this choice.

The techno-cult. I have been raised in a positivist background, full of naive trust into science and technology, which were supposed to bring a better future not only to us, but eventually to the whole world. I was a child at the moment when about 60 nuclear reactors were built throughout the country of France, for better or worse. When I got older, I graduated from a rather elitist technology university (Ecole Polytechnique, which share some similarities with KAIST) and I became an engineer and a scientist in a very natural way, never thinking seriously or critically about the societal impacts of science and technology. It is only when I met later my masters in mathematics, who were world-class Russian scientists coming to France after the collapse of Soviet Union, and who were promoting a down-to-earth, concrete approach to science, very unlike the French formalist tradition, that I began to understand the responsibilities of a scientist, and how science can also be considered as a social fact. My intimate lifelong relationship with science and its teaching may explain why I have such a particular feeling for the city of Daejeon, which I see as emblematic of the educational drive and the investment into scientific research that made possible the world-acclaimed “exponential” Korean tech-based growth. This place seems to concentrate most the complexity, if not the contradictions, I have encountered in my scientific life.

Now, at this moment in 2019 when everybody realizes that the price to pay for the “progress” that we praised blindly before includes climate change, a huge biodiversity crisis - 6th mass extinction - and foreseeable resources shortages (oil, metal, rare earths, food), times has come to reconsider seriously our relationship with science and technology.

Of course we live at times when science and technology are still making tremendous - and sometime objectively useful - advances in specialized areas, such as artificial intelligence, robots, drones, autonomous cars, bio-technologies. Daejeon is actually a world-class place in all those fields. And yet those admirable achievements of the human mind fail to give rise to any coherent vision of a desirable, positive future. It is an empirical fact that societal progress is not perceived anymore as a direct consequence of the scientific advances. Nobody

believes seriously that the so-called 4th industrial revolution, or the 5G network, will significantly improve our well-being. Those are certainly interesting innovations, they may even provide short-term business opportunities to some, but they don't make people dream anymore.

I am not saying we should throw out the baby with the bathwater. Actually my point is that science does not automatically involves negative outcomes. It can be humble and I consider its practice as a usefull exercise in “mental hygiene” in the first place. Most scientists will agree that there is an aesthetics of science, based on the idea of parsimony - “Occam's razor” - which promotes elegant, minimal solutions. In this sense science is actually humble by nature. And this is where we meet the traditions (and specifically the Asians ones) : a few of them can receive a nice interpretation through the eyes of true science. On a very practical level, the making of Nuruk according to the ancestral rules can be considered as a kind of non-trivial exercise in biotechnology, which has been empirically elaborated for centuries : humanity has learned how to collaborate with bacteria and micro-organisms. Similar examples actually abounds in the field of agriculture. The repair culture - I could check in the traditional market that sewing machines from the 60'ies are still well in service now, when appropriately serviced - is fainting in France or may be also in Korea, but at the same time this culture clearly belongs to any desirable future, in a world of limited resources. A modern electric bicycle is filled with electronic parts that will be obsolete soon, it is built from up-to-date alloys which can be recycled only at the expense of an insane amount of energy. It cannot really be serviced fully at the scale of a local community : it is not a resilient object. I have seen in the streets near Daejeon's traditional market many old-school heavy-duty bicycles. They actually have a unique, very clever design. They have been built 40 years ago or more and it looks like they will still be in use for the next 40 years. Is it possible that the true spirit of progress lies there, in elegant, deep but simple ideas?