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Memorie della

Francesco's last *divertissement*: The Little Prince's Universe

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Abstract. The last accomplishment of Francesco in public outreach, was a book devoted to children, based on the character of the Little Prince by Antoine de Saint-Exupéry. Francesco completed the text, and Sylvie made the drawings. The book is now finally printed.

1. Introduction

Inevitably, this short text on the book "The Little Prince's Universe", begins with a personal note. Since the very first day I arrived in Arcetri in 2012, Francesco was one of the few astronomers in the Observatory I have met almost every week. We were talking mostly about science communication, how to involve and engage the public - particularly young people - into astronomy. The funny part was to find original ways to do that, create new and surprising events, and involve other scientific and cultural institutions in Florence. There was only one basic rule: there is no way to convey to the public the excitement and the fascination of scientific research if we don't have fun in doing this, in the first place.

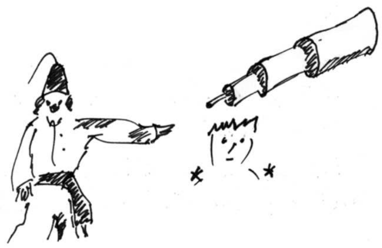

Fig. 1. The only drawing of the Turkish astronomer and the Little Prince made by Francesco himself.

The first event organized by Francesco in which I was involved, was the "end of the world". Or I should say better, "the failed end of the world". Francesco had a mayan calendar in his office, which was joke about the apocalypse expected on the basis of the mayan calendar, an hoax that was quite popular toward the end of 2012. This gave him the idea to organize at the Observatory a huge event, with hundreds of participants, to talk about the many ways the world will eventually end, despite, as we all know, the mayan didn't get exactly the right date. The event was a complete success, and set the stage for all the future public outreach events that were created at the Observatory of Arcetri in the last five years. The signature of Francesco on this events was clear: irony, self-irony, a solid organization, and a smooth logistics. He always said that you can't give something less than perfect to the public, and everything must be well organized, so that the public feel to be in expert hands.

Fig. 2. The Theater of the Sky at the Astrophysical Observatory of Arcetri

Eventually, he also decided to give a stable structure to the organization of the Summer Nights. The Summer Nights are a series of public outreach events taking place every year in Arcetri between June and July at the Sky Theater. The Sky Theater (shown in Figure 2) is a small, open-air theater planned under the direction of Franco Pacini, designed by Sylvie and realized by Francesco in 2009. It was originally thought to be a place to observe the night sky, during the classic visits to the Observatory. But Francesco was tempted soon to transform it in a real theater. Therefore, he gave a strong momentum to the creation of a real science festival, with more than 2 thousands people each year coming to see our "science shows".

2. The magnificent evening of the Einstein piano

The last time I talked with Francesco, he told me that he was planning a show in the occasion of the arrival of the famous Einstein piano. This is the piano that Albert Einstein gave to his sister Maya, who was living in Florence in the Twenties, and it is now in our library mostly thanks to the friendship of Francesco and Jacob Staude, whose father was a friend of Maya Einstein. The story of the Einstein piano was one of the favorite of Francesco, since it mixes the magic of an enchanted childhood with the tragedy of WWII, a synthesis of the splendid and tragic Twentieth Century. The point is that Francesco was dreaming of a great evening at the Theater to welcome the piano, but he was keeping it secret. But he was too excited about it, he could not keep it secret anymore, so he ended up telling me many details on how the evening should be organized according to his ideas. Thanks to this short, last conversation we had, and other details we were able to recover, we were finally able to organize the Einstein Piano Summer Night in June 2016, probably in a way very close to the orig-

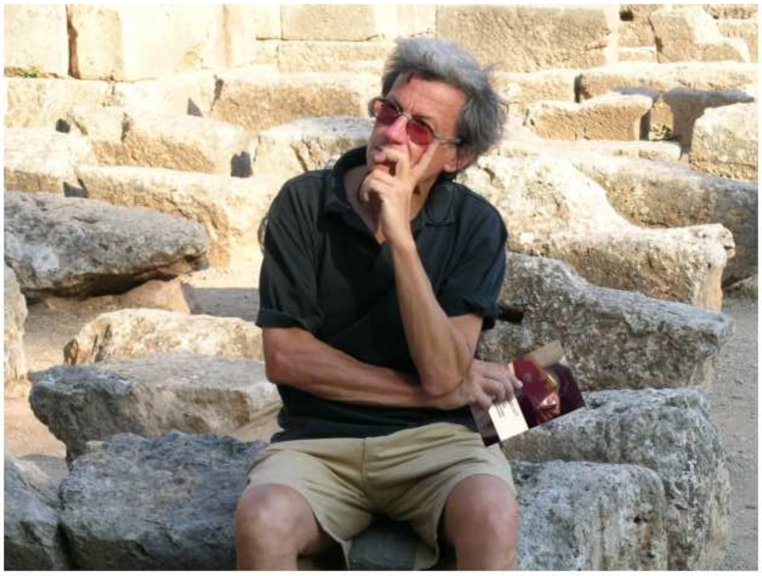

Fig. 3. Francesco reading and thinking.

inal ideas of Francesco. And it was the most expensive and magnificent event organized so far during our Summer Nights. For us, that was also a way to see one of Francesco's dream becoming reality almost exactly as he dreamed it.

3. The birth of the Little Prince's Universe

The Little Prince's Universe is another dream of Francesco which comes to light after his departure. The text was completed by Francesco, and the drawings have been realized by Sylvie, as he planned. Francesco made only a small drawing which synthesizes his book (the astronomer, the Little Prince and a telescope, shown in Figure 1). This is, in fact, the only drawing of Francesco, he was very proud of it, but clearly he was not planning to illustrate the entire book.

In the introduction Francesco says that he made a discovery while reading the Little Prince during a vacation (maybe during one of his *thinking moods*, as the one shown in Figure 3), and the discovery is that Saint-Exupéry's most famous book has a sort of astronomical thread. Maybe he just pretended to discover this, it may well be one of the many rhetorical tricks used to talk about something he loved so much, but this is not relevant.

According to the interpretation of Francesco, the animals that the Little Prince meets in his adventure, are taken from the constellations, like the Fox, the Ram, and the Snake, as we can see in the sky charts made by Sylvie (one of those is shown in Figure 4). And the two stars on the shoulders of the Prince, as in the famous portrait drawn by Saint-Exupéry, are Castore and Polluce, the two bright stars of the Gemini. Many other astronomical reference are spotted by the fictional astronomer who speaks in Francesco's book. The character of the astronomer is

Fig. 4. A sky chart created by Sylvie.

clearly the same Turkish astronomer of the Saint-Exupéry's book.

Everybody knows the story of the Turkish astronomer, who, in the book of Saint-Exupéry, discovered the asteroid of the Little Prince, but then announced his discovery in a conference wearing his traditional dress. For this reason, nobody believed him. But when, one year after, he proposed his discovery again while wearing a proper western-style dress, his discovery was accepted. Well, we know that we astronomers are not pure heart, because after all we are all humans and thus affected by all the weaknesses and prejudices of human beings, despite we deal with heavenly matters. In addition, we have the bad habit of treating stars as "problems" to be solved by our theories and formulae, as the Little Prince complains in the book by Saint-Exupéry.

As the book proceeds, the Turkish astronomer describe to the Little Prince the way astronomers work, explaining how it is possible to investigate star formation, discover distant planets, exploring mysteries like dark matter and dark energy. In practice, the scientific world of Francesco. So, thanks to the Turkish astronomer, throughout the book Francesco shows his fresh didactical attitude, and his attention to the young kids, and potential future astronomers.

4. The essential is not visible to the eyes

But there is more than this. Francesco often focuses on this sentence from the book of Saint-Exupéry: "The essential is not visible to the eyes". This sentence, uttered by the Little Prince, is actually turned, by the Turkish astronomer, into a scientific theme: the universe is dominated by dark matter and dark energy, things that we are not able to see, but that are responsible of the past history and the fate of the Universe, and therefore also of our own existence. In other words, this sentence in the mouth of the Turkish astronomer would sound like "what is essential is not visible to the eye yet", or "it is not visible unless you learn how to use a telescope". But the Little Prince, we know, really means it: what is essential is invisible to the eye, it is not a matter of telescopes, dark matter or astronomical research.

Now, let's make a step back and consider the deep meaning that scientific research has for us astronomers. Scientific research, in fact, is strongly rooted into our mind, and not only in our rational mind. High-level scientific research is always driven by a sense of nature that goes beyond what we know and what we expect. It is a continuous practice consisting in comparing our limited imagination with the signals from the physical world. Doing scientific research means to continuously challenge our commons sense. The most famous drawing of the Little Prince by Antoine de Saint-Exupéry is the hat which is viewed as an elephant swallowed by a snake, showing how imagination can go beyond the immediate appearances. Only a child can view what is "invisible to the eye". There would be no research, no discoveries without this momentum coming from a pure and childish desire to know and to see through, to see more. "Only children know what they are looking for", as the Little Prince says. For this reason I think that the fictional character of the Turkish astronomer in the book of Francesco is not representing entirely the vision of the Author. The Turkish astronomer talks as any clever astronomer would have talked, but that's only one part of Francesco's life and work. The thoughts of Francesco are found also, if not mostly, in the Little Prince himself, the one who listens and makes questions, and challenges the astronomer's views, or, we should say, his own views, as any good scientist does.

In the last page of the Little Prince, Saint-Exupéry shows an image made only by two line standing for the horizon, and a lonely star above them. With an innocence that only a kid may have, Antoine de Saint-Exupéry writes: "Look carefully to this: this is the place where the Little Prince disappeared". Therefore the book ends with the image of loss, he does not avoid the hard fact that when we loose a friend, many things are lost forever. And what is left is something that depends on us. The Little Prince, when he was discussing his departure with Antoine de Saint-Exupéry, says: "In one of the stars I shall be living. In one of them I shall be laughing. And so it will be as if all the stars were laughing, when you look at the sky at night ... It will be as if, in place of the stars, I had given you a great number of little bells that knew how to laugh". This is also what we are left with after the loss of Francesco, a space of our minds that is now silent and void. But this space can now be used to preserve and raise our sense of wonder and imagination, which is the same feeling that foster scientific research, and also the same feeling that help us in enduring the loss of a friend and a colleague.

Acknowledgements. I am grateful to the organizers of the Conference "Francesco's Legacy" for giving me the chance to talk about the unique view of Francesco about popular astronomy, a view which is an important part of his legacy and will set the stage for the outreach activity of the Observatory of Arcetri for many years to come.