

Given that it is still winter here in Lviv, I will end with a little *winter* poem that marvelously captures our theme of moral responsibility, with its celebration of the centrality of human promises, and our praise of irrationality, with its allusion to how even a little horse, when next to the forest, seems to know the difference between what is right and wrong. Written in 1922 – very near the place in New Hampshire where the famous Dartmouth seminar took place, Robert Frost’s words are as fresh and powerful today as they were a century ago when he wrote:

Whose woods these are I think I know.  
His house is in the village though;  
He will not see me stopping here  
To watch his woods fill up with snow.  
My little horse<sup>19</sup> must think it queer  
To stop without a farmhouse near  
Between the woods and frozen lake  
The darkest evening of the year.  
He gives his harness bells a shake  
To ask if there is some mistake.  
The only other sound’s the sweep  
Of easy wind and downy flake.  
The woods are lovely, dark and deep,  
But I have promises to keep,  
And miles to go before I sleep,  
And miles to go before I sleep.

<sup>19</sup> See Adolph Potmann’s *Animals as Social Beings* (1961).

## Information Overload, Big Data, and Freedom

### 1. Information Overload?

“Information overload” implies a thesis that sounds like a denial of the ancient wisdom: *scio me nihil scire* – I know that I know nothing. We seem to complain that we know too much, which makes us feel ill at ease. And this feeling of uneasiness seems to be one of the symptomatic ailments of “our time”.

Before we accept or reject what “information overload” implies, we should ask: who is speaking, who are we, and what sort of “information” is meant? Many would protest: we still do not know very much; and this little we know helps us only realize the immensity of our ignorance! Things like these may be expected first of all from those who, working on the first line of scientific research and serious reflection, return to fundamental questions and find in them their source of inspiration and motivation. They would point to how recent are those discoveries and theoretical findings in which our image of humankind, of different levels of reality, starting from that of quantum physics and ending at the cosmological level, is grounded.

Here are some plausible examples.

**One hundred years ago**, “our Galaxy” was the only galaxy known to astronomers. Only in 1923, did Edwin Hubble, an American astronomer on staff at Mount Wilson Observatory near Pasadena, California, show that the so-called nebulae are in fact galaxies, thus there are many galaxies beyond the Milky Way. One of the important consequences of this discovery was the observation that the spectra of the distant galaxies display the “redshift” effect. (Today the redshift effect is attributed to the expansion of the Universe.) Although Hubble’s measurements concerning the redshift effect were incorrect, his discovery changed our picture of the world. We had to admit that “our Galaxy” is one of very many similar cosmic formations. In the observable part of the Universe, there are an estimated two trillion galaxies,<sup>1</sup> separated by distances, constantly growing, measured in millions of light years. Hence, the effects of Hubble’s discoveries are put on a par with the impact of the Copernican Revolution.

**Fifty years ago**, most of the naturalists, physicists, astronomers, cosmologists agreed that in principle the entire mass of the stars and galaxies is accessible to us observationally, since this mass is emit-

<sup>1</sup> Michał Heller, *Nauka i Teologia – niekoniecznie na jednej planecie*, Copernicus Center Press, Kraków 2019, p. 79. The title of the quoted book means: Science and Theology – Not Necessarily on One Planet.

This figure appears in the following context: (p. 78) “We can say that Christianity is christo-geocentric. Or so it is at least (tacitly) assumed. The mere thought that Incarnation could be the privilege not only of the Earth, has seemed ‘theologically absurd’ (although sometimes it appeared as *theology-fiction*).”

Having mentioned the figure 2 trillion, the author asks: (p. 79) “How many planets are there that might be potential abodes of life? Are there living organisms on some of them? And what about rational beings? We still do not know. But the questions of christo-geocentric sense of Christianity are no more *theology-fiction*.” The very pondering of these questions has an important function: (p. 82) “... christo-geocentrism is changed into cosmic universalism of Christianity”.

ting light. However, it followed from the observational data and the appropriate calculations that, in the case of our Galaxy, there is a considerable disproportion between the mass emitting light and the gravitational field strength. That is, the mass of all the matter of our Galaxy emitting light is less than the mass of all the sources of gravitation. And this goes for other galaxies as well. Hence, an important component of the cosmos is “dark matter” of which the only thing we know is that it is a source of gravitation. Vera Rubin, another American astronomer, has shown that galaxies contain between five to ten times as much “dark matter” as ordinary matter. Her seminal paper on that topic appeared around half a century ago. The experts were skeptical at first. Today, the existence of “dark matter” is not only accepted, but also has become the departure point for new cosmological models, such as the Conformal Cyclic Cosmology elaborated by Roger Penrose.<sup>2</sup>

**Slightly more than a quarter** of a century ago, the only planetary system known to us was our solar planetary system. Today, it takes a few seconds to consult the catalogue<sup>3</sup> of 4,173 confirmed exoplanets in 3,096 systems, with 678 systems having more than one planet. Add that all these known exoplanetary systems belong to our Galaxy. Extragalactic exoplanetary systems are not yet known, but regarded as probable. This new field of astronomy has been initiated 1992 by Aleksander Wolszczan and Dale A. Frail with their discovery of the first exoplanetary system.<sup>4</sup> Today, observational findings of astronomy are largely due to technical means of IT, AI, and Big Data analysis. These instruments are equally important for quantum physics research.

<sup>2</sup> See [https://www.youtube.com/watch?v=I70r\\_mrx7S8](https://www.youtube.com/watch?v=I70r_mrx7S8) (accessed 18.02.20).

<sup>3</sup> <http://exoplanet.eu/catalog> (accessed 18.02.20).

<sup>4</sup> A. Wolszczan, D.A. Frail, “A planetary system around the millisecond pulsar PSR 1257+ 12”, *Nature* 355, 09.01.1992.

**Not quite a decade ago**, July 4, 2012, empirical observation of an elementary particle called the Higgs boson was officially confirmed. It was discovered in experiments in Geneva, Switzerland. Although the existence of the Higgs boson, often called God's particle, was inferred from theoretical considerations, the empirical confirmation was regarded as a breakthrough, since this particle is of fundamental importance for our understanding not only of quantum level physics, but also of the whole evolution of the cosmos, especially in its earliest stage.

## 2. Information Fatigue

The “we know that we know nothing (or very little)” attitude of scientists, researchers, thinkers etc. is oddly at variance with what seems to be the common experience of those who complain that they suffer from the daily overdose of information. These people may say: wanted and unwanted information seems to attack and overwhelm us. We do not know how to cope with the torrent of information that mass media serves us. In the end, we wish only that this constant stream stop and leave us a moment of peace and quiet. Such moments do not last long, however. After a while, we become afraid that something important is going on without our knowing it, something which we should know. And those for whom we are only a “target” have their ways to inundate us. Their messages: breaking news, campaigns, alerts, offers, invitations, announcements of upcoming events, new films, concert tours of stars, and absolute “must” bestsellers reach us by means of smart phones, TV, large screens in stadiums, in public transportation, at the airports...

Yes, we admit also, these people might continue to say, that we not only receive that mass of information, but that we also actively react to it. We try to stay in touch with people we feel close to. Hence we use the facilities the social media provide us to be in contact, to

share with others our experiences and thoughts and photos, to express what we like and what we find unbearable, to take part in local initiatives, to have access to politically important content that we choose for ourselves. Every now and then we do surf the internet searching for a useful piece of information or just to be *au courant*. That way we produce “data” that are highly appreciated by those who send us their messages and wish to persuade us that we should accept, buy, like or hate things they offer. We know also that the bulk of data about us is growing in many different ways and contexts: we are watched by video cameras when we walk in the streets; our itineraries in big malls are not only registered and stored, but also carefully analyzed by the “category managers”, that is, by people who are in charge of arranging the offered goods on the shelves. We are located not only when using GPS, but whenever we have our cell phones with us.

To put it briefly, these people might finish their complaints: we oftentimes feel that all that information that we are exposed to, that we produce knowingly and unknowingly, that is collected on us and stored somewhere, is a burdensome feature of our life, resulting in fatigue, anxiety, even different types of psychic disorders. (Psychiatrists report in particular on special problems of children and adolescent persons exposed to information overload).<sup>5</sup>

## 3. Big Data and Freedom

These two worlds – the world that science and serious reflection is mainly interested in and the world in which the experience

<sup>5</sup> Cf. Wiesław Babik, *Ekologia Informacji* (Wydawnictwo Uniwersytetu Jagiellońskiego: Kraków, 2014), especially ch. 2 on the information ecosystem of the 21<sup>st</sup> Century. On p. 82 the terms: information overload, information fatigue syndrome, data smog, information anxiety are introduced. Cf. also Marek Hetmański, *Epistemologia informacji* (Copernicus Center Press: Kraków, 2013).

of “information fatigue” is a common phenomenon, rely hugely on big data processing.

To illustrate once again: the discovery of the Higgs boson was possible owing to Large Hadron Collider (LHC). What is the LHC? David Stephenson, the author of a helpful textbook on Big Data calls it the “world largest machine”. Indeed, the LHC had to be located in huge tunnel, 27 kilometers in circumference, in and around Geneva, crossing the Swiss–French borders. Its sensors, 150 millions in number, produce data from experiments 30 million times per second. These data are then filtered and analyzed. The total flow of data reaches 50 PB per year.<sup>6</sup>

A remark that starts with an observation on big data and the world of “our” daily experience is: “We are generating data even when we are offline, through our phone conversations or when moving past video cameras in shops, city streets, airports or roadways. Security companies and intelligence agencies rely heavily on such data. In fact, the largest consumer of data storage today is quite likely the United States’ National Security Agency (NSA). In August 2014, the NSA completed construction of a massive data centre in Bluffdale, Utah, codenamed *Bumblehive*, at a cost between 1 and 2 billion dollars. Its actual storage capacity is classified, but the governor of Utah told reporters in 2012 that it would be ‘the first facility in the world expected to gather and house a yottabyte’.”<sup>7</sup>

Instead of trying to visualize the YB capacity, let’s insert an instructive flashback. Timothy Garton Ash tells his story of being under surveillance by the *Stasi*, the GDR security police, when he studied *in situ* the societies in countries of the so-called socialist block.

<sup>6</sup> David Stephenson, *Big Data Demystified* (Pearson Education Ltd.: Harlow-London-New York etc., 2018), 10.

<sup>7</sup> Idem, op.cit., p.8.

The book is titled *The File: A Personal History*.<sup>8</sup> It is, to a large extent, a report on how painstakingly the *Stasi* agents shadowed the young scholar. Watching all the “anti-socialist elements” took much effort and personnel: Władysław Bartoszewski, certainly much more a suspect “anti-socialist element” than Ash, estimated that the number of agents “working on” him reached at times around four hundred.

Today, the appropriate agencies are much more effective, and the hardships of their work have been considerably alleviated by means of Big Data analysis. In a sense, all the “objects” of their work, both the actual and potential ones, are eager to cooperate by almost permanently producing data traces of their activities. In other words, the business of surveillance has become so much easier and more effective because those under surveillance “spy” on themselves.

In countries like the US, the official justification for the security services’ growing control over a larger and larger spectrum of citizen’s activities is theoretically related to new kinds of security threats. Some of the arguments cited do “hold water”. Many others sound, however, only as lip service to values – such as individual dignity, freedom, privacy. Quite openly, large scale control of each and every one, made possible by Big Data storing and processing, is implemented in China<sup>9</sup> as the foundation of the so called Social Credit System. Even lip service to values of individual dignity, freedom or privacy is regarded by leaders of China as superfluous.

<sup>8</sup> Timothy G. Ash, *The File: A Personal History* (Random House: New York, 1997).

<sup>9</sup> On AI, China, Silicon Valley and artificial super intelligence, see Kai-Fu Lee, *AI Superpowers. China, Silicon Valley, and the New World Order* (Houghton Mifflin Harcourt: Boston, 2018). On p. 20 the author writes: “China and the United States have already jumped out an enormous leap over all other countries in artificial intelligence, setting the stage for a new kind of bipolar world order”.

For a critique of “utopian” interpretations of Artificial Intelligence, see Stanisław Lem, *Bomba megabitowa*, (Wydawnictwo Literackie, 1999), pp. 65–72: “Artificial Servility”.

Michał Kosiński, whose name surfaced on the margin of the Cambridge Analytica affair, argues that there is no considerable difference between China and the “West” as far as the scope of the actual control of the population is concerned.

This shows what the situation is like: it is an either-or-situation. Either the uses of Big Data for the purpose of growing control of individual human beings will be tamed by means of legal regulations or the very roots of individual dignity and freedom will be undercut, and human societies will resemble termite colonies.

Taming big data industry will succeed on the condition that the necessary legislative initiatives will be elaborated and accepted, both internally and internationally, by democratic countries. Given the deep divide of public opinion<sup>10</sup> in many democratic states, to meet this condition will not be an easy task. The realization of what is at stake in this *aut-aut* is, therefore, vital.

This dilemma is only a part of the larger context created by consequences of what is called the Anthropocene.<sup>11</sup>

<sup>10</sup> In her Nobel Lecture, Olga Tokarczuk, *The Tender Narrator*, Nobel Laureate in Literature 2018, The Nobel Foundation 2019, p.11, made this point as follows:

“Will not knowledge within easy reach mean that people will become sensible, that they will direct the progress of their lives with equanimity and wisdom?”

When the Internet first came about, it seemed that this notion would finally be realized in a total way. (...)

A dream fulfilled is often disappointing. It has turned out that we are not capable of bearing this enormity of information, which instead of uniting, generalizing and freeing, has differentiated, divided, enclosed in individual little bubbles, creating a multitude of stories that are incompatible with one another or even openly hostile toward each other, mutually antagonizing.”

See also: Steven Levitsky and Daniel Ziblatt, *How Democracies Die* (Broadway Books: New York, 2018), pp. 261–265.

<sup>11</sup> Cf. [https://www.nationalgeographic.org/article/age-man-enter-anthropocene/?utm\\_source=BiblioRCM\\_Row](https://www.nationalgeographic.org/article/age-man-enter-anthropocene/?utm_source=BiblioRCM_Row) (accessed 23.02. 2020); Ewa Bińczyk, *Epoka człowieka. Retoryka i marazm antropocenu* (PWN: Warszawa, 2018), Horst Hiller, *Der ge-*

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*quälte Planet* (Ueberreuter: Wien, 1994); Hans Jonas, *Das Prinzip der Verantwortung. Versuch einer Ethik für die technologische Zivilisation* (Frankfurt am Main, 1979), Jacek Filek, *Filozofia odpowiedzialności XX wieku* (Znak: Kraków, 2003); Ewa Bińczyk, *Technonauka w społeczeństwie ryzyka. Filozofia wobec niepożądanych następstw praktycznego sukcesu nauki* (Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika: Toruń, 2012).