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DELLA UNIVERSITÀ DI BOLOGNA
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SCIENCE, TECHNOLOGY AND LAW

Mutual Impact and Current Challenges

Edited by
LUCA MEZZETTI

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The volume collects the conferences presented during the International Seminar held on February 16-17, 2024, at the Faculty of Law of the University of Bologna on *Science, technology and law. Mutual impact and current challenges*.

The Seminar was conceived within the Master in *Constitutional Justice and Human Rights* of the University of Bologna, directed by Prof. Luca Mezzetti.

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GENERAL REPORTS

SCIENCE, LAW AND DEMOCRACY

*Luca Mezzetti**

1. The relationship between science, moral philosophy and law cannot be conceived in terms of antagonism, irreconcilability, incompatibility, but of interpenetration and complementarity, of simultaneous finalization to the common objective of defining and disseminating knowledge. Science is not democratic by definition because it understandably subordinates participation in the scientific debate and consideration of the implications that scientific applications entail by informed interlocutors, equipped with an adequate cultural background and solid ethical heritage: the intervention in the debate itself of know-it-all, boastful, pedantic, presumptuous presumed omniscient people and their contribution to the definition of the order of moral priorities on the basis of culture formed within social networks, the culture of the mass of followers enchanted by the spiritual guidance of influencers and YouTubers must be deplored[1]. The *incultus* and the *agrestis* have no right to participate in it. On this side, the opinion that calls for, against the tendency to simplify ideas, "reduced to tweets or slogans", the forceful vindication of the task of culture, "which is to teach, if anything, to complicate, to show the differences and nuances between concepts

* University of Bologna, Italy.

[1] P. Iacci, *Sotto il segno dell'ignoranza*, Milano, Egea, 2021; R. Burioni, *La congiura dei somari. Perché la scienza non può essere democratica*, Milano, Rizzoli, 2017.

and actions" is fully shared[2]. Otherwise, failing to comply with the "programmatic critical updating of the culture of individuals and communities" would mean generating a new mass ignorance that would contribute to the exponential multiplication of the already high number of idiots, "in the Greek sense of the term, that is, of people incapable of participating with sufficient awareness in political and cultural life, because they are closed in the particularity of their profession and within the limits of their existence and their immediate interests"[3]. The associated risk is that of the polarization and concentration of knowledge and power at the top of the social hierarchy, reserving access to and management of algorithms and databases to an oligarchic circle of privileged individuals, and confining the rest of the members of society to conditions of ignorance and intellectual poverty[4]. The widespread diffusion of scientific knowledge is ultimately in a relationship of direct and immediate functionalization with respect to the exercise of sovereignty through institutions of direct and indirect democracy: informed participation and "the good functioning of a democratic society pervaded by hyperspecialization, regulated by the principle of majority and at the same time respectful of the pluralism of values, is inextricably linked to the probability that our opinions are correct or true"[5].

What are the justifying reasons for trust in science? Among many, some seem worthy of particular appreciation.

The first justifying reason takes on a purely applicative connotation and derives from the perception of the functional aspects of science, regardless of the underlying political orientation. We trust these aspects "because we experience them directly every day: indirectly, and unreflectingly, we also trust the scientists who have made them possible with their theories"[6].

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[2] R. Bodei, *Dominio e sottomissione. Schiavi, animali, macchine, Intelligenza Artificiale*, Bologna, il Mulino, 2023, p. 328.

[3] *Ibid.*, pp. 329-330.

[4] *Ibid.*, p. 330.

[5] M. Dorato, *Disinformazione scientifica e democrazia. La competenza dell'esperto e l'autonomia del cittadino*, Milano, Raffaello Cortina, 2019, pp. 106-107.

[6] *Ibid.*, p. 81.

The second justifying reason derives from the perception of the unanimity of consensus that reigns within the community of scientists and of the intersubjectivity of scientific knowledge, which inevitably strengthens the persuasion of the correctness of the scientific theories shared by the community of experts and of the good faith that characterizes them[7].

The third reason is objective and derives from scientific realism. The ability of science to describe a world independent from human values, interests and needs, in a mind-independent way, capturing aspects that are independent from the presence of man on Earth, proves that "scientific theories on the natural world correspond, at least approximately, to 'how things really are' independently of how we would like them to be and therefore from the subjective interests of individual scientists. This form of strong objectivity would therefore be capable of explaining why consensus exists among scientists (the weakest objectivity or intersubjective validity) without calling exclusively sociological factors into question"[8]. Science cannot be identified with an instrument of patriarchal oppression, nor with a social construct: "it's simply true. Or at least truth is real and science is the best way we have of finding it"[9].

The fourth reason has a procedural root. If, retracing the history and philosophy of science of the last two centuries, one can question the existence of a single, golden scientific method, this cannot simultaneously mean giving up a defence of science against its detractors. The superior reliability of scientific theses derives from the social process that produces them.

This process is not perfect, but our trust has not to go to scientists – however wise or authoritative they may be – but to *science as a social process*, as it reaches and guarantees its consensus only after having subjected its theses to rigorous and plural scrutiny, following a debate that finds its natural place within the scientific community, made up of experts and specialists from different sec-

[7] *Ibidem*.

[8] *Ibid.*, p. 84.

[9] R. Dawkins, *Science is not an instrument of patriarchal oppression*, in *The Spectator*, March 13, 2021.

tors[10]. The apparent materialistic and mechanistic connotation that seems to envelop scientific determinism is actually underpinned by a participatory and shared dialectical process, pre-ordained for the identification of shared results and rules, to which contribute experts who submit their positions to the approval or criticism of the members of the community to which they belong. This entails a very significant responsibility of scientists towards contemporary society, which must be accompanied by the preservation, to the maximum extent possible, of their autonomy against social needs, political and economic pressures[11]. We live in times of increasing public distrust of the main institutions of modern society. Scientists are currently suspected of working to hidden agendas or serving vested interests. The solution is usually seen as more public scrutiny and more control by democratic institutions, conceiving experts as subservient to social and political life. I share here a radically different view: rather than democracies needing to be protected from science, democratic societies need to learn how to value science in this new age of uncertainty. By emphasizing that science is a *moral* enterprise, guided by values that should matter to all, we can consider science as a support for democracy without destroying it: new representative and consultative institutions – following the models of economic and social councils envisaged by many contemporary constitutions and by the Treaty on European Union – could mediate between science and society and improve technological decision-making for the benefit of all[12].

The safeguarding of this autonomy, on the other hand, obviously cannot translate into a haughty and proud isolation of science, whose contributions – for example artificial intelligence – cannot fail to be compatible with the peculiar demands of the different areas of society, primarily that of law and legal ethics, which under-

[10] N. Orekses, *Perché fidarsi della scienza?*, Torino, Bollati Boringhieri, 2021.

[11] H.A. Mieg (ed.), *The Responsibility of Science*, Springer, 2022; G. Gobo, V. Marcheselli, *Sociologia della scienza e della tecnologia*, Roma, Carocci, 2021; M. Bucchi, *Scienza e società. Introduzione alla sociologia della scienza*, Milano, Raffaello Cortina, 2020; A. Cerroni, Z. Simonella, *Sociologia della scienza*, Roma, Carocci, 2014.

[12] H. Collins, R. Evans, *Why Democracies Need Science*, Cambridge, Polity Press, 2017.

standably call for the enrichment of machine software, in a complementary and integrative way, through shared and widespread principles within society itself. In reality, a coexistence between man and technology is required, as well as with further factors (environment, climate, flora, fauna), in the context of a polycentric *koinocene* or *novacene* which, eschewing an already obsolete anthropocentrism, sees man interacting in a balanced relationship with these factors. The dialogue between science and society necessarily implies, on the other hand, the reliability of the interlocutors which, if on the scientific side is guaranteed by the previously mentioned dialectical process, on the other hand presupposes a long and widespread process of literacy of the society regarding the essential profiles that characterize science.

It is essential a fundamental work of cultural drainage, which in a capillary way spreads throughout society and at the level of all its articulations the awareness of the members of society about the multifaceted reality of science and its functionalization to the improvement of the human condition: "in addition to the direct intervention on the processes in progress by the institutions or the responsibility of technicians, scientists, industrialists, men of culture and citizens, education is the best tool to shorten these new 'birth pangs'"[13]. The sharp divide between those who believe that the pursuit of scientific knowledge is always valuable and necessary – the purists – and those who believe that it invariably serves the interests of people in positions of power has to be rejected, working out a more realistic image of the sciences, that allows for the possibility of scientific truth, but nonetheless permits social consensus to determine which avenues to investigate[14].

In addition to being widespread, this work of disseminating knowledge must be constant and cyclical, reiterated over time: "given the rapid obsolescence of our information and of the machines themselves, it is necessary to urgently introduce the system of con-

[13] R. Bodei, *Dominio e sottomissione. Schiavi, animali, macchine, Intelligenza Artificiale*, p. 326.

[14] P. Kitcher, *Science, Truth, and Democracy*, Oxford, Oxford University Press, 2001; E. Winsberg-S. Harvard, *Scientific Models and Decision-Making*, Cambridge University Press, 2024.

tinuing education or long life learning, inventing systems educational that include (…) the periodic reminder of citizens to update their knowledge and general culture, and training to operate in processes that connect human work to new technologies, in such a way that the former is at the helm, and not towed by the latter, so that men do not become stupid prostheses of intelligent machines"[15]. This is the gradual formative process of a *Bildung*, in the Hegelian sense of the term, which must affect not only represented people, but also the representatives within modern democracies: "democracy based on the principle of majority, which expresses the will of the people, only works on condition that the principle of competence applies"[16]. It is a question of reading our time as an age of knowledge and of directing democratic culture to the widespread and organized practice of science communication, understood as the main orientation for developing the positive aspects of our era with the transformation of information into knowledge, to constitute a scientific citizenship[17]. The identification of the group or representative to whom is delegated the task of providing correct technical answers implies "the need for scientific literacy and a higher cultural level, so that the probabilities that citizens assign to the various hypotheses are closer to the truth"[18]. Otherwise, a verticalization of the decision-making process is produced in favour of an unaware and obtuse oligarchy (uninformed representatives) and incompetents (scientists, smokesellers and charlatans), or surrender and capitulate in favour of an increasingly impetuous technoliberalism[19]. The trouble is that those who hold power often lack the knowledge they

[15] R. Bodei, *Dominio e sottomissione. Schiavi, animali, macchine, Intelligenza Artificiale*, p. 327.

[16] M. Dorato, *Disinformazione scientifica e democrazia*, p. 110.

[17] P. Greco, *Homo. Arte e scienza*, Roma, Di Renzo, 2021 and N. Wiener, *Introduzione alla cibernetica. L'uso umano degli esseri umani*, Torino, Bollati Boringhieri, 2012.

[18] M. Dorato, *Disinformazione scientifica e democrazia*, p. 111.

[19] S. Vaccaro, *Gli algoritmi della politica*, Milano, Elèuthera, 2021; E. Sadin, *La silicolonizzazione del mondo. L'irresistibile espansione del liberismo digitale*, Torino, Einaudi, 2018; E. Severino, *Il tramonto della politica*, Milano, Rizzoli, 2017.

need, while those who possess that knowledge do not have the power[20]. Political representation requires scientific expertise, and scientific institutions may become sites of political representation (examples can be identified with expert advisory committees, bioethics councils and lay forums). Different institutional venues mediate different elements of democratic representation. If we understand democracy as an institutionally distributed process of collective representation, it becomes easier to see the politicization of science not as a threat to democracy but as an opportunity for it[21]. Writing in a famous essay about the polarization of the "two cultures" – literary intellectuals on the one hand, and scientists on the other – C.P. Snow set up the thesis that the intellectual life of the whole western society was split into two cultures – namely the sciences and the humanities – and that this was a major hindrance to solving the world's problems and hoped for the emergence of a "third culture" that would bridge the gap (a modern version of what Hegel called *Realphilosophie*), but it is only recently that science has changed the intellectual landscape[22]. More recently, the thesis that science is emerging as the intellectual centre of our society was brought to life by very important works of Heisenberg, Schrödinger, Piaget and Brockman[23].

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[20] P. Burke, *Ignorance. A global history*, New Haven, Yale University Press, 2023, trad. it. *Ignoranza. Una storia globale*, Milano, Raffaello Cortina, 2024, p. 313.

[21] M.B. Brown, *Science in Democracy. Expertise, Institutions, and Representation*, Cambridge, MIT Press, 2009; R.A. Pielke, *The Honest Broker. Making Sense of Science in Policy and Politics*, Cambridge, Cambridge University Press, 2007; L. Gallino, *Tecnologia e democrazia*, Torino, Einaudi, 2007; J.L. Cordani Jr., *Science and Liberty. Patient Confidence in the Ultimate Justice of the People*, Wilmington, Vernon Press, 2021; L. Del Corona, *Libertà della scienza e politica. Riflessioni sulle valutazioni scientifiche nella prospettiva del diritto costituzionale*, Torino, Giappichelli, 2022; B. Liberali, L. Del Corona (eds.), *Diritto e valutazioni scientifiche*, Torino, Giappichelli, 2022; L. Soneryd, G. Sundquist (eds.), *Science and Democracy*, Bristol, Bristol University Press, 2023; P. Hartl, A.T. Tuboly (eds.), *Science, freedom, democracy*, London, Routledge, 2023; A. Potoschnik, *Science and the Public*, Cambridge, Cambridge University Press, 2024.

[22] C.P. Snow, *The Two Cultures and a Second Look*, Cambridge, Cambridge University Press, 1963, trad. it. *Le due culture*, Milano, Feltrinelli, 1965.

[23] J. Brockman, *The Third Culture. Beyond the Scientific Revolution*, New York, Simon & Schuster, 1995, trad. it. *La terza cultura*, Milano, Garzanti, 1999.

We cannot refrain from pointing out how contemporary society is frequently affected by the pathological tendency to discuss certain terms without having a clear understanding of their true meaning. *Psittacism*, related by Leibniz to the so-called blind or deaf thoughts, often leads man to think and reason using terms and thoughts formulated by others, or his own memories, repeating them without being truly aware of them and without having duly analysed them[24]. The degeneration of the phenomenon is evident where this conformation occurs on the basis of parameters offered by influencers, YouTubers, certain journalists or politicians: "the internet and social networks, giving vent to the narcissism that leads to thinking that everyone can express himself or herself on everything, frequently propagate the wrong theory like a powerful virus, rapidly spreading completely erroneous beliefs. The disintermediation operated by Internet favours the partial or total elimination of any filter between experts/scientists and citizens/inexperienced people, so that the voice of the former loses any authority"[25].

Finally, the reason that leads to trust in science consists in the libertarian attitude of technology and in the release of its power for the purposes of liberation, emancipation, redemption: "the power of technology frees and creates the conditions so that thought can free itself, and conceive the human in its integrity and in the infinite potential contained in its finiteness"[26]. If the spaces opened up by technique and power can find different concretizations and realizations, even extreme ones, declinations capable of translating into the annihilation of the human or into its full realization, the choice between the different paths "depends on the relationship established between the level of technical progress achieved in a given era, and the widespread capacity – social, political, institutional, moral – to manage the power achieved by orienting it so as to get as close as possible to an ideal condition where it can be used to protect the community as a whole integrity of the human – of the whole human in its granular molecularity – and homogeneously increase its levels of self-recogni-

[24] G.W. Leibniz, *De arte combinatoria*, 1666.
[25] M. Dorato, *Disinformazione scientifica e democrazia*, p. 101.
[26] A. Schiavone, *Progresso*, Bologna, il Mulino, 2020, p. 108.

tion and autonomy"[27]. Science and technology are vehicles of freedom and equality[28]. The direction of the path of history is turned, in a Hegelian way, in the direction of freedom, "indicated by the tendency to reach, by increasingly larger groups with respect to the totality of humanity, the highest possible ratio between the available technical power – and therefore control over one's conditions of existence – and the recognition and valorisation of one's existence"[29]. In this sense, "technical progress defines the general form of all human history, in the infinite variety of its particular aspects. This does not mean that the thrust ensured by this advancement is mechanically transferred from one plan to another, and that everything proceeds together at the same time. But it means that the entire history reflects and reworks the progress of technology in every part, and constitutes, so to speak, an interpretation of it, which can lead in different directions: towards the abyss or towards an increasingly complete realization of the human. The choice depends on the relationship, which occurs each time, between control and power, between reason and domination. And it is a relationship which, over the long term, has so far tended increasingly to rebalance itself on the side of reason"[30].

Cybernetic-digital technologies have affirmed themselves over the past few decades as an indispensable and unavoidable horizon for community life in the industrial and post-industrial societies of the planet. They act as a driving force for development for those countries that aspire to emancipate themselves from misery, poverty and cultural and social backwardness, following paths that are sometimes mimetic with respect to those of the so-called Western societies. The frontier of artificial intelligence, in particular, is already visible, rapidly growing in terms of performance, efficiency and speed incomparable to human ones – even if limited to operations based on the possession of a prodigious memory but not always creative[31]. The anthropocentric dimension is being questioned both

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[27] *Ibid.*, p. 114.
[28] T. Ferris, *The Science of Liberty*, New York, HarperCollins, 2010.
[29] A. Schiavone, *Progresso*, p. 117.
[30] *Ibid.*, pp. 118-119.
[31] R. Kurzweil, *La singolarità è più vicina*, Milano, Apogeo, 2024, pp. 93 ff.

for the risks to which it subjects the Earth's environmental system and for the limits of insufficiency that rapid automatic digitalization would allow to overcome, exempting humans from repetitive tasks entrusted to machines. The posthuman sphere emerges in this context, subverting the epistemological barriers of the types of knowledge inherited to date and trying to rework an overall vision that is disenchanted with respect to modernity and, at the same time, consciously "reenchanted" with respect to the new goals of technological devices. How much all this affects the perception and the very construction of social and political systems is yet to be deciphered, measuring the level of awareness of political and social knowledge in interpreting trends and effects of digitalization and identifying the attitude of the new technological devices try to transform life[32].

2. Man has experienced the transition from the classic *homo faber* (capable of dominating nature through his own intelligence) to the *homo creator*, he has conceived tools capable of destroying his own world which he is unable to control[33], he feels the "shame perceiving his own subordination, as a new Prometheus, to the world of the machines he himself created, he feels a sense of "difference", of non-synchronicity, between himself and his mechanical products which, increasingly new and efficient, surpass him, making it feel "old fashioned"[34]. In addition to being perfect, the machine is tireless, repeatable, standardized, reproducible, and possesses a kind of eternity that is denied to the human individual: a rivalry ensues, an unequal competition between science and man, an inversion of the means with the ends, which makes it clear how with the advancement of technol-

[32] B. Henry, S. Vaccaro (eds.), *Tecnologia, politica, società*, Milano, Mimesis, 2024; U. Galimberti, *Psiche e techne. L'uomo nell'età della tecnica*, Milano, Feltrinelli, 2016; U. Galimberti, *L'arte della tecnica e la fine della storia*, Napoli, Orthotes, 2021; E. Severino, *La filosofia futura*, Milano, Rizzoli, 2006; E. Severino, *Téchne*, Milano, Rizzoli, 2021.

[33] E. Pulcini, *Dall'homo faber all'homo creator. Scenari del post-umano*, in I. Sanna (ed.), *La sfida del post-umano. Verso novi modelli di esistenza?*, Roma, Studium, 2005, pp. 13 ff.; L. De Stefano (ed.), *Tecnica e coesistenza. Prospettive antropologiche, fenomenologiche ed etiche*, Milano, Mimesis, 2024.

[34] G. Anders, *L'uomo è antiquato*, Torino, Bollati Boringhieri, 2007.

ogy is endangering his existence[35]. If man, sinning of a naive anthropocentrism, believed he could dominate nature through technology, now the situation is reversed. Man is no longer the subject of history, but technology is. The disruptive dissociation "between the speed of technological advancement on the one hand, and the fatigue or inability of the rest of human history in adapting to it in a positive way, on the other" has become definitively evident[36]. A disconnection, in other words, "on the one hand an accumulation of the impetuous developments of technological and scientific intelligence, and its transformative impact on the reality of every single life; and, on the other hand, an ever-increasing difficulty in implementing a cultural and social planning, and a political and governmental rationality – both in the geopolitical order and within individual states – barely proportionate to the scenarios that were taking shape"[37]. A structural and systemic dissociation and imbalance between power and reason. History's anxiety in rationally chasing the technique that took off with exponential and unstoppable speed.

But it is not just a question of the gap between the ability to produce and foreseeing future effects: as L. Grion observes, "the split is widening between our ability to rationally think about possible risks and the possibility of actually feeling them as such on an emotional level. This means that, although we know the problems, we are unable to perceive them as such; and therefore we do not take action as we should to control the foreseeable effects of our actions. It is as if we were not adequately equipped for the challenges that technological development has placed before us."[38] He is the man in whom H. Jonas would like to see fear instilled towards a power that could slip out of his hands, willing to take a bath of humility that allows him to identify the impending dangers and the solutions aimed at curbing them, a heuristic of fear as an antidote against the hubris of the new millennium[39].

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[35] G. Anders, *Il mondo dopo l'uomo*, Torino, Bollati Boringhieri, 2008.

[36] A. Schiavone, *Progresso*, p. 32.

[37] *Ibid.*, p. 33.

[38] L. Grion, *Chi ha paura del post-umano?*, Milano, Mimesis, 2021, p. 29.

[39] H. Jonas, *Tecnica, medicina ed etica. Un'etica per la civiltà tecnologica*, Torino, Einaudi, 1977.

However, in our opinion, it is not just a question of a lack of humility, a quality that rarely occurs in human nature: man rather appears, in the current phase of evolution, disoriented, lost in the face of the finitude that science has revealed: of the Universe, of the Earth, of the species, of each of us[40]. It is a "future syndrome" generated by a deficit of culture and government which politics does not seem capable of remedying, "itself also reduced, almost everywhere, to a short-term challenge, impoverished in language and ideas, in turn perpetually crushed in everyday life; a competition between contenders who resemble each other in an ever greater and reciprocal downward identification, without a project, without talents, without visions of the world, without different perspectives that are not the pure and simple conquest or conservation of power, here and now – and let the rest wait"[41]. Parties, flour and gallows of Bourbon memory: the demagogic and deresponsibilising welfarism accompanied by justicialism and the evaporation of the rule of law, at least in the current Italian experience[42].

Heidegger, Gehlen and Marcuse follow, in their own way, the "paths of technology" in search of the "true" nature of man. The path followed is different for each and presents particular aspects. Heidegger places the reflection on technology within the scope of his philosophy and connects it to the radical question of "meaning"[43]; Gehlen connects his analysis to the investigation of the fundamental characteristics of the human being and to the construction of an "elementary" anthropology[44]; Marcuse focuses his examination of technology on the value to be attributed to this powerful instrument, which can be considered both as a possibility of liberation and as a means of enslavement[45]. Despite the diversity of perspectives and starting points, there is a thread that unites them and leads them to seek in the developments of technology a way out of the

[40] T. Pievani, *Imperfezione*, Milano, Raffaello Cortina, 2019; T. Pievani, *Finitudine*, Milano, Raffaello Cortina, 2020.

[41] A. Schiavone, *Progresso*, p. 45.

[42] L. Castellani, *L'ingranaggio del potere*, Macerata, Liberilibri, 2020.

[43] M. Heidegger, *La questione della tecnica* (1959), Firenze, goWare, 2017; M. Heidegger, *L'abbandono* (1959), Genova, il Melangolo, 1995.

[44] A. Gehlen, *L'uomo nell'era della tecnica*, Milano, Sugar, 1984.

[45] H. Marcuse, *L'uomo a una dimensione*, Torino, Einaudi, 1967.

impasse. Different are the paths that lead to *post-histoire* and that man must follow to fulfil his destiny. At present it is as if we were lost in a forest where, among the thick vegetation, rays of light filter. Each philosopher interprets this light according to his own point of view: for Heidegger it represents the allusive appearance of being that shows itself even in hiding; for Marcuse it is the critical capacity of man that at times emerges from the flattening of one-dimensionality; for Gehlen it is the possibility of fully realizing human nature in an era of transition[46]: today, Man searches for a meaning of existence by accepting his own finiteness and entrusting himself to science, handing over his own perpetuation to it. The human creates the post-human aware of his own partiality and imperfection: the man who has seen the hologram of utopian ideologies dissolving, which had promised the eschatological redemption of his destinies or who have disregarded the expectations of widespread well-being and of greater equality[47]; the man who saw the hologram of religion evaporating, which he had built in the hope, equally disregarded and unanswered, of liberation, emancipation and redemption from his own condition of precariousness and transience[48]; contemporary man builds the new hologram of Artificial Intelligence as a tool of regeneration and which, in a not too distant perspective, is capable of making it eternal and immortal. A challenge to God?[49] A form of techno-paganism?[50] A new "religion" as a system capable of giving meaning to the experience of a dematerialized world in which the invisible and the intangible become decisive?[51] A paradigm of ori-

[46] M.T. Pansera, *L'uomo e i sentieri della tecnica*, Roma, Armando Editore, 1998; G. Grimaldi, *Oltre le tempeste d'acciaio. Tecnica e modernità in Heidegger, Junger, Schmitt*, Roma, Carocci, 2016.

[47] M. Cacciari, P. Prodi, *Occidente senza utopie*, Bologna, il Mulino, 2016.

[48] *Dio è morto* secondo F. Nietzsche, in *Così parlò Zarathustra*, Milano, Adelphi, 1986 and *La gaia scienza*, Milano, Adelphi, 1977.

[49] R. Dawkins, *Diventare più grandi di Dio*, Milano, Mondadori, 2019.

[50] E. Davis, *Technopagans. May the Astral Plane Be Reborn in Cyberspace?*, in *Wired*, 1995, p. 128; E. Davis, *Techgnosis: Myth, Magic, and Mysticism in the Age of Technology*, New York, Three Rivers Press, 1999.

[51] G. Balbi, *L'ultima ideologia. Breve storia della rivoluzione digitale*, Roma-Bari, Laterza, 2022; M. Ventura, *Nelle mani di Dio*, Bologna, il Mulino, 2021; P. Sloterdijk, *Dopo Dio*, Milano, Raffaello Cortina, 2018; D.F. Noble, *The Religion of Technology. The Divinity of Man and the Spirit of Invention*, New York, Alfred

entation in a world in dizzying acceleration, yet perceived as capable of destroying everything we love, where man feels a mixture of enthusiasm and horror, exaltation and anguish, acceptance and repulsion in the face of the progress of history?[52] The attempt to eradicate the innate germ of death warned by Hegel?[53] However, it is an approach that denotes man's overcoming of the perception of the immutability of his own limits and fragility in favour of a new and different conception that considers them as mere boundaries that now can be crossed[54]. The escape from the present is entrusted to the digital revolution, the neuro-scientific one, the genetic one and the nanotechnological one: "the imagination of the new technological man proposes, in the final analysis, ancient anthropological dynamics of which the idolatrous figure itself seems to grasp with the internal logic is surprisingly effective"[55]. The positive outcome of the struggle that man engages in with his own limitations translates – in the post-humanist narrative – into the conquest and "plundering of paradise"[56], describing this success as a "robbery of heaven" as a celestial condition not obtained through divine grace, but achieved through the work of man. The re-emergence of the gnostic culture in the heart of modernity[57] declines "a profound sense of dissatisfaction with the present situation which is accompanied, second element, by the belief that today's difficulties can be attributed to the fact that the world has an intrinsically deficient structure"[58]. Emptied of meaning and human value, "the limit, the fragility, the vul-

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A. Knopf, 1997; C. Schmitt, *L'epoca delle neutralizzazioni e delle spoliticizzazioni*, in *Le categorie del politico*, Bologna, il Mulino, 2014, pp. 167 ff.

[52] M. Berman, *Tutto ciò che è solido svanisce nell'aria*, Bologna, il Mulino, 2012.

[53] G. W. F. Hegel, *Enciclopedia delle scienze filosofiche in compendio* (1817), Milano, Bompiani, 2000.

[54] D. Sisto, *I confini dell'umano. La tecnica, la natura, la specie*, Bologna, il Mulino, 2023.

[55] L. Grion, *Chi ha paura del post-umano?*, p. 210.

[56] A. Vaccaro, *L'ultimo esorcismo. Filosofie dell'immortalità terrena*, Bologna, EDB, 2009, pp. 93 ff.

[57] E. Voegelin, *Il mito del mondo nuovo. Saggi sui movimenti rivoluzionari del nostro tempo*, Milano, Rusconi, 1976, 19 ss.; H. Jonas, *Il principio gnostico*, Brescia, Morcelliana, 2011.

[58] L. Grion, *Chi ha paura del post-umano?*, p. 218.

nerability appear only as imperfect products that ask to be redeemed and transfigured through a work of progressive improvement"[59], the work of continuously transcending the limit appearing as the only significant factor.

The perspective of the "beyond-man" is characterized by four pathological profiles, which have been summarized by those who have sought to identify "an unhealthy relationship with time and space: a being in the world incapable of a peaceful gaze with its own present, looked only in its negative aspects; (…) a deformed relationship with techno-scientific knowledge, considered not as a tool at the service of the human flourishing, but rather elected as the ultimate goal in order to which everything that is possible, insofar as it is knowable, must also be feasible; (…) a deformed relationship with the body, rejected in its aspects of fragility and corruptibility and object of indefinite enhancement so as to adapt one's physical equipment to the perfection to which the new man is called; (…) a deformed relationship with autonomy, absolutized and placed as a bulwark of human freedom"[60].

The category of the post-human is based "on the observation that Man – *Homo sapiens sapiens* – no longer possesses the exclusive prerogative of that faculty which constituted, *ex origine*, the connotation of his specificity, namely thought"[61]. Knowledge and intellect, which constituted the factor differentiating man from the rest of the cosmos, no longer represent an exclusive faculty of him. Sharing cognitive abilities with the machine involves the extinction of the relationship of instrumentality between the machine itself and man and the dissolution of the supremacy of the latter over the former, resulting in the emergence of a different type of relationship, marked by equal-ordination if not autonomy and sovereignty of the machine over man[62]. The planetary radiation of science and technology implies the revision of concepts of individual, identity, freedom,

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[59] *Ibid.*, p. 219.

[60] *Ibid.*, pp. 221-222.

[61] M. Revelli, *Umano. Inumano. Postumano. Le sfide del presente*, Torino, Einaudi, 2020, p. 102.

[62] U. Galimberti, *Heidegger e il nuovo inizio. Il pensiero al tramonto dell'Occidente*, Milano, Feltrinelli, 2020.

salvation, truth, meaning, purpose, as well as those of nature, ethics, politics, religion, history, which nourished the humanistic age and which now must be reconsidered, dismantled or re-founded at the roots[63]. In the above mentioned work, Schmitt does not propose a definition of the religion of technical progress. Taking into account what we have stated previously, it could however be described as "a quasi-religious belief in the ability of scientific and technological development to solve problems, provide meaning, give direction and lead to salvation"[64]. Following the definition proposed by Erich Fromm, religion is here understood in a broad sense, as "a system of thought and action shared by a group, which offers the individual a means of orientation and an object of devotion"[65], and which therefore does not have strictly to do with the divine and supernatural dimension of existence. The proposed definition of the religion of technical progress is allegedly accompanied by four characteristics that qualify it more precisely: truth, neutrality, salvation and inevitability. Considering the technical progress as truth is essentially the belief that technology establishes the limits of what human beings can achieve or know about reality. If fully embraced, the religion of technical progress excludes other possible interpretations of reality, because the only type of knowledge that can be had of the world is technical knowledge: the attempt to solve every problem by means of technical instruments alone, ignoring other possible solutions in other areas of the social, political and even religious spheres in the strict sense, therefore linked to the presence of a divinity. The religion of technical progress exacerbates this belief, making the technical solution the only possible solution to achieve any type of objective. As Schmitt wrote, "a religion of technical progress arises, according to which all other problems are solved, precisely by means of technical progress"[66]. The existence of a single possible solution – the technical solution – would lead to an equation between tech-

[63] U. Galimberti, *Psiche e techne. L'uomo nell'età della tecnica*, Milano, Feltrinelli, 2016.

[64] F. Nasi, *La religione del progresso tecnico: l'attualità di Carl Schmitt fra tecnica e depoliticizzazione*, in *Pandora*, 2022.

[65] E. Fromm, *Avere o essere?*, Milano, Mondadori, 1976, p. 208.

[66] C. Schmitt, *L'epoca delle neutralizzazioni e delle spoliticizzazioni*, p. 176.

nical progress and neutrality, a fundamental element in the identification of the reference centres mentioned by Schmitt. Technology could never be politically biased or value-oriented. Technology is neutral because it is the ground that brings everyone together, where the conflict given by the intrinsic human plurality is silent and differences disappear. In this way, technical progress is not only an object of devotion among many, but the ultimate answer to the great questions of humanity. If all knowledge is technical and if all problems can be solved through technology, then salvation – understood in a broad sense as a final state of peace and well-being – is achievable only through technology. According to this narrative, thanks to the manipulation of the natural world, technology could thus liberate the unlimited human possibilities for change and improvement. This element emerges in post-humanist and transhumanist thought. According to post-humanism, humanity would be headed towards an ideal situation in which the limits of human biology will be transcended thanks to the achievement of technological singularity. The transition to this final status is facilitated by transhumanism, the project of human enhancement and transformation. According to this vision, technology will remove the natural imperfections of man and, eventually, lead to the paradise of cyberspace. The belief in the incessant evolution of technical knowledge involves both technological determinism and technological inevitability. According to this idea, technical progress is both the main force influencing human life and an independent process with predetermined outcomes. For this reason, it cannot be stopped or changed: human beings can only follow the road that has been traced by technology itself, not lead it or contribute to its development through their own values and ideas.

The anthropocentrism of Ptolemaic origin that has innervated classical and modern humanism carries the burden of very serious responsibilities, among other things, in terms of the devastation of the environment in its various components (fauna, flora, water, air, earth), of the climate, of minority cultures. In this sense, a relocation of man in a plural world, within a polycentric, multipolar creation, is required, re-assigning him to an equal position with respect to other creatures and other vital elements with which he is called to coexist and cohabit and which must cease to dominate and possess: "a *Hu-*

manitas capable of taking care not only of man in the limited sense of his individuality as a person or species, but of the entire chain of being in world: other living species, animals and plants, future generations, the habitat, the objectivity that surrounds us but which for this reason becomes subjectivized in interaction, places and things (…). A hybrid and hybridizing, connective and recombinant *Humanitas*, open and plural as hybrid, recombinant and plural is the post-human condition in which we live our lives"[67].

If humanism and the Enlightenment – although identifiable as seasons of strong expansion of autonomy and freedom – expressed the imposition of an abstract universal on the real particular, the dictatorship of the identical on the vital variety of the multiple, the posthumanism implies farewell to the legacy of Cartesian man, a unitary, rational subject, entitled to rights and rapacious owner of a world in which he acts as an undisputed lord[68], as well as the definition of a new anthropology based on the union between man and machine[69]: it is a concept that embraces the different positions that share the common denominator of the criticism of traditional humanity and the affirmation of the need to overcome the usual idea of man, as a rejection of every form of anthropocentrism (*posthumanism*) or as self- human transcendence conceived at the centre of history and validation of the protagonism of the modern subject (*transhumanism*)[70]. Looking at the first two decades of the 21st century, it is almost inevitable to have some doubts about the "magnificent and progressive destinies" promised by that Age of Enlightenment and Reason that was the birthplace of modernity. A new Enlightenment can help us to grasp contemporary reality in the light of the ideals of reason, science, humanism and progress, recognizing the beneficial effects they have on improving the human condition and the enormous steps forward made in every field: in life expectancy, in the protection of health, in the reduction of

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[67] M. Revelli, *Umano. Inumano. Postumano. Le sfide del presente*, p. 128.

[68] R. Braidotti, *Il postumano. La vita oltre l'individuo, oltre la specie, oltre la morte*, Roma, DeriveApprodi, 2014.

[69] D.J. Haraway, *Manifesto cyborg. Donne, tecnologie e biopolitiche del corpo*, Milano, Feltrinelli, 2018.

[70] A. Allegra, *Visioni transumane. Tecnica, salvezza, ideologia*, Napoli, Orthotes, 2017, pp. 9 ff.

hunger and the multiplication of sources of sustenance, in the growth and distribution of wealth, in the reduction of inequalities, in the affirmation of peace and the defence of security, in the spread of democracy, in the respect and equality of rights, in access to knowledge and in the chances of happiness. This indisputable material, intellectual and moral progress is the result of the guiding ideas of science and reason, even if they are often treated by intellectuals with indifference, scepticism, sometimes with contempt and openly opposed. To face the formidable challenges of our time, such as hunger, inequality, climate change, impetuous waves of migration, we do not need neither the jeremiads of the prophets of doom nor the cynical proclamations of boastful and ignorant leaders, but the clear rationality of those who believe that these are problems that man is capable of solving and offer rational solutions to them: there is no limit to the improvements we can achieve if we continue to apply knowledge and science to increasing human prosperity[71].

What is the "place" and importance of man at the time of the *Koinocene*, a neologism that tends to evoke the era of connections or participations, which imposes the definitive recognition of the profound ties, connections, participations between living beings and non-living people who cohabit the planet, between human and non-human collectives?[72] What is man's relationship with intelligent machines and what is the destiny of the Earth in the phase of overcoming the Anthropocene, of profound wounds inflicted by man on nature, the climate, the environment – the geological era in which our species has proven to be a critical factor for the entire planet[73] – towards a Novacene characterized by interaction and collaboration between humans and machines? It is difficult today to ascertain the hypothesis according to which in the near future new beings will take shape from the artificial intelligence that we have designed and

[71] S. Pinker, *Illuminismo adesso. In difesa della ragione, della scienza, dell'umanesimo e del progresso*, Milano, Mondadori, 2018.

[72] B. Latour, *La scienza in azione. Introduzione alla sociologia della scienza*, Roma, Edizioni di Comunità, 1998; B. Latour, *Politiche della natura. Per una democrazia delle scienze*, Milano, Raffaello Cortina, 2000.

[73] S. Peppoloni, G. Di Capua, *Geoetica. Manifesto per un'etica della responsabilità verso la Terra*, Roma, Donzelli, 2021.

that they will think 10,000 times faster than man: it is however plausible that, as hyper-intelligent beings, they will know better than us to be totally dependent on the state of health of the planet. Like us, machines will also need Gaia's regulatory system to survive and since Gaia depends on organic life, it will be in their interest to preserve it. The Novacene could be the beginning of the conquest of the entire cosmos by a widespread intelligence, the dawn of a new universe[74].

What is certain and incontrovertible is that nature and science have profoundly relativized the anthropocentric vision of reality, bringing out the crisis of the individual and his place in the world: the current crisis constitutes an unmissable opportunity to redefine collective identity and give meaning to the world[75].

The epochal challenge that awaits man in his relationships with science and technology consists in the development and growth, alongside the competence in the construction and functioning of intelligent non-biological systems, of the understanding of the uses of the systems themselves, as awareness of their functionalization towards objectives compatible with human values, principles and interests[76]. Setting aside hysteria and catastrophism, man must conceive of science as a necessary tool to give the two parallels of freedom and equality the twist that allows their curvature and definitive convergence towards a point of synthesis: the syncretism between effective freedom and substantial equality.

Only a new "planetary thought" can save us from retreating into national identities, a "cosmopolitics" that is at the same time cosmopolitanism and care for the planet. To the sterile dichotomy of a philosophical tradition based on the opposition between nature and technology can be opposed an alternative paradigm based on "technodiversity": the possibility of a multiplicity of techniques understood as different ways of ordering experience, to combat the risk of a war that "technological singularity" brings with it[77].

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[74] J. Lovelock, *Novacene. L'età dell'iperintelligenza*, Torino, Bollati Boringhieri, 2019, pp. 79 ff.

[75] P. Blom, *Il gran teatro del mondo*, Venezia, Marsilio, 2021.

[76] M. Ferraris, *Documanità. Filosofia del nuovo mondo*, Roma-Bari, Laterza, 2021, pp. 200 ff.

[77] Y. Hui, *Tecnodiversità. Tecnologia e politica*, Roma, Castelvecchi, 2024.