

XR BURY REFLECTIONS AND CREATIONS INSPIRED BY THE LEGACY OF POL BURY'S WORK AND VISION


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Figure 01: *Pol Bury, Capteur de ciel, La Louvière, 2004, photo : Philippe Franck.*

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Abstract: In 2023, Transcultures (Interdisciplinary Centre for Digital and Sound Cultures - Federation Wallonia-Brussels) organized, in the city of La Louvière (Belgium), several events grouped under the generic title XR Bury (the international conference "Art in the age of Artificial Intelligence" with the CiTU-Paragraphe laboratory of the University of Paris 8, Sonic Spheres'CD+booklet (released on the Transonic label) and related concerts, augmented reality application of the Société i Matériel] P P P [- Pol Pipoling Project in homage to the artist Pol Bury (born in La Louvière in 1922, died in Paris in 2005). From these creations, contemporary reflections and a reminder of the transversal journey (from surrealism to kineticism via CoBra) of this pre-digital visual multi-creator and singular author most often known internationally for his imposing kinetic sculptures (Fountains) in space public, several links and extensions with practices and issues of the immediate future (Virtual/Augmented Reality, Metaverse, Blockchain/NFT, integration of Artificial Intelligence in the artistic process, electronic sound creation, etc.) are woven. The visionary and interdisciplinary aspects also emerge here, marking the particular attraction of a protean artist/inventor always resistant to any conformism, for slow movement and poetic metamorphosis, thus confronting us with our own experience of time.

1. From Surrealism to Kinetism

After studying at the Academy of Mons, Pol Bury met Achille Chavée, poet and mastermind of surrealism in the region of Hainaut (Wallonia), and frequented the members of the surrealist group Rupture (1938). He participated in the international exhibition of Surrealism held in Brussels in 1945. In 1949, he met the Belgian painter and poet Christian Dotremont, one of the founders of the CoBra (Copenhagen, Brussels, Amsterdam) movement. Bury was seduced by the deliberately non-conformist positions and experimental attitude of this group of artists, but quickly distanced himself from them.

In the early 1950s, Bury founded the Abstract Art group; he discovered the movement and abandoned painting to create his first mobiles of planes, driven by motors. As founder, together with André Balthazar, of the anti-academic 'Académie de Montbéliard' (1955) from which would later emerge the magazine and then the group/publishing house "Le Daily-Bul" (1957), Pol Bury moves from surrealism to abstraction and explores slowness, synonymous for him with the precision and calm of meditation in action.

He then discovered Alexander Calder and his marvelous mobiles; attracted by movement, Bury began to create *Plans mobiles mus par des moteurs* (mobile planes driven by motors) and from then on movement and especially the slowness of movement, would be at the centre of his creations. Considered as one of the main fathers of kinetics, his work uses wood, cork, stainless steel and copper as materials.

The use of extremely slow movement is for Bury a means of expression. These movements, almost imperceptible and random, of sculptures and reliefs confront us with our own relationship/experience to/of time. Only the interruption of an action or movement allows us to become aware of the perception of time.

It is worth noting the importance, from the 1960s, of the sonic dimension in Bury's work. Indeed, it is part of the famous *Fountains* and other kinetic sculptures that he designed in different urban and natural outdoor spaces. In 1976, Bury created his first hydraulic fountain, playing with water by destabilizing the position of steel tubes. Subsequently, many fountains would spring up around the world: Saint-Paul de Vence (in the gardens of the Fondation Maeght, 1978), Paris (*Les Sépharades* in the heart of the Palais Royal, 1985), New York, Antwerp, La Louvière (1992) etc. By working with the liquid element, Pol Bury chose to invoke the precision of dynamic moods that leave room to the unexpected¹.

In addition to light and punctual sounds produced by elements of the work (such as water), as in the majority of the artist's sculptures, the noise of the engines that drive them can be heard continuously and at low volume.

Pol Bury is not only a sculptor of genius (the main international recognition which sometimes overshadows his other talents and creative contributions) with a wonderful (post)surrealist sense of humor, he was also a writer, art critic, pamphleteer and poetⁱⁱ. This mischievous creator in all trades also designed jewelry, made digital prints and several experimental short films which are part of the same research of movement and deconstructed forms.

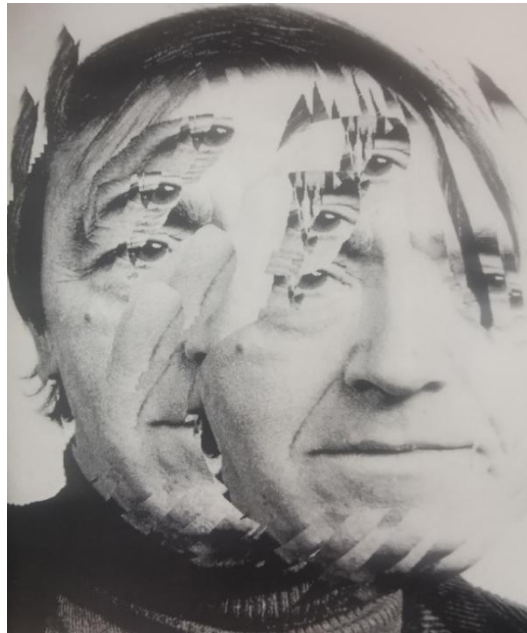


Figure 02: *Pol Bury, Autoportrait, Daily-Bul & co, 2004*

2. XR Bury - Art in the Age of Artificial Intelligence

XR Bury is a multi-part project (symposium, workshop, residencies, augmented reality courses) combining thought sharing and research-based creativity, which finds its inspiration in the work and vision of this multi-disciplinary creator/explorer (Franck, 2023). On April 27 and 28, 2023, the symposium "Art in the Age of Artificial Intelligence" was held at the Maison des Associations in La Louvière. It was co-organized by Transcultures, the Center for Digital and Sound Cultures then based in La Louvière and the CiTU-Paragraphe laboratory of the University of Paris 8, which since its creationⁱⁱⁱ in 2007 has brought together a team of professors, associate researchers and doctoral students in Information and Communication Sciences and Digital Humanities, from a variety of backgrounds, who are particularly attentive to creative projects. The CiTU, one of the branches of the interdisciplinary Paragraphe laboratory directed by Khaldoun Zreik, also relies on a large international network (including the organization of several series of conferences (including Hyperurbain, Design 1.0, Text, Sound & Image, etc.) in conjunction with other universities and partners from other continents.

The aim of the international guests of this symposium (first issue of a new series^{iv}-launched by the CiTu-Paragraphe/Paris 8 in partnership with Transcultures and the Pépinières européennes de Création (an international network based in Paris that promotes exchanges and collaborations for contemporary artists with a particular focus on hybrid and emerging

practices) was to question several issues that are part of the current state of change linked to the deployment of digital technologies and why this deployment responds to necessary transformations in our conception of the dissemination and communication of information on our current and virtual territories.

After our reminder of the theme and the transversal path of Pol Bury, who can be considered a precursor of digital arts – certainly too undisciplined and poetic to fall into any theoretical dogmatism – without having made digital art, except for certain graphic treatments (notably in his *Ramollissements* - softenings), at the end of his life used digital technologies. Antonella Tufano (University Sorbonne/Paris 1) pointed out Bury's work is essentially urban, spatial, antigravitational kinetic interpretations which are devices for refracting space. It is in this sense, according to this Italian architect-urban planner, that Bury “transforms real space into a “crystal”, in the sense of the philosopher Christine Buci Glucksman^v, and opens up to the multiple dimensions of the virtual. The figure of the mirror, translating the readings of Gaston Bachelard, is a fruitful heterotopia where the limits of the work are erased: we enter and exit as we immerse ourselves in digital spaces. She subtly introduced us to this question of the mirror (and we know Bury's attraction to distorting mirrors and the play of reflections also in his sculptures) as an anticipation of a digital virtual space. Khaldoun Zreik returned to the specificities and fundamental issues of art in the era to, "provoke, capture and sublimate latent information, explore the "paranormal" or what we do not usually perceive... art as a sensory prosthesis that is today also technological including in the use of robots," and also of AI (which exploits collective intelligence - a meta intelligence, trivializes expertise, formalizes the informal... which can be worrying but which also democratizes certain categories of knowledge). Both AI and Art pose these questions on our different forms of creativity, while Philippe Boissard, a digital artist, author and teacher with a philosophical background, engaged in a rich phenomenological critique of artistic processes linked to the emergence of AI (since the summer of 2022 at the general public level, of graphic and textual AI applications such as DALL-E 2, Midjourney, Stable Diffusion, GPT-3 or still the now famous and controversial ChatGPT), highlighting the lack of questioning of the specific processes of AI regarding the production of images. This flood of images has been accompanied by an accentuation of morphological-anthropological mimicry. In what sense, he posed, would a phenomenological analysis make it possible to grasp the specific potential of AI creation, both graphic and linguistic.

Among the diverse but complementary communications, we will have dialogues with the public and the speakers, most notably Matthieu Quinou, lawyer at the Paris bar, lecturer at the University Paris 8 and Blockchain specialist. He returned to the history of recent years of a digital art having been revitalized on the one hand, by the phenomenon of the NFT market and on the other hand, by the general public AI devices of "artistic" creation. He notes that "these two technological and usage phenomena, without being convergent, are disrupting the lines of creation and the art market. While NFTs suggest an increased emancipation of artists thanks to a disintermediation of the actors of the art market, general public artificial intelligence devices are questioning the very production of the artist, the work". But in any case, these techniques and practices invite us to "re-examine in depth, and in an interdisciplinary manner, what makes art".

For Panagiotis Kyriakoulakos, professor at the University of the Aegean and partner of the Paragraphe/Paris 8 laboratory, the extension of the arts of today and tomorrow can be thought of "as a practice and an educational process applying a holistic design approach to the field of different forms of creation, establishing collaborations between artists, scientists and philosophers". In his communication, he presented the experience of the summer schools on new media in art, organized by the Department of Product and Systems Design Engineering in

Syros for ten years, under the name "International Conference and Summer School on Extended Arts - XARTS. In July 2023, he proposed that participants work on the specific potentialities of AI creation, both graphic and linguistic; this workshop was preceded by a symposium on the history and practice of computer animation.

In the interdisciplinary spirit of both Transcultures and the Paragraphe laboratory in Paris, the organizers of this symposium, which broadly opened the prospective field, wanted to give a voice to artists and researchers who are also creators. Thus, Carole Brandon (Franck, Jan 2023), artist and teacher at the University of Savoie-Mont Blanc, returned to her virtual reality work *Nymphaea's Survey*, which uses light and colors as materials for experimenting with mixed realities, emphasizing "the vibratory and elasticity-producing interfaces of space-time, rightly announced and materially declined in the spheres of Pol Bury". Kika Nicolela, visual artist and artistic curator of Brazilian origin, commented on her dystopian science fiction film *The 3rd hybridization*, which she made with the artist Thomas Israël, using AI as well as her work as an NFT curator (especially for the North American platform objkt.com). Tommy Lawson (Franck, 2022), French sonic creator/designer and director of the Zone Libre sound arts festival in Bastia, was inspired by the slowdown advocated by Bury as a way to "reject this accelerationist fatality by defending and producing content characterized by slower, more sensual and hypnotic rhythms that can be part of a broader political approach, or even a lifestyle, a relationship with the world that translates into slowdown". He drew a parallel between the slowness literally implemented by Pol Bury and the electronic or minimalist dub musical movement". Christl Lidl, who is a teacher at the Art School of Valenciennes and a media artist who questions time and space using digital technologies in their intersection with the visual arts, presented her VME-AR project which is both an exhibition of augmented reality installations and a study of *Life: A User's Manual* by Georges Perec using digital and artistic technologies. Master of ceremonies for the CiTu-Paragraphe/Paris 8 laboratory where he is an associate researcher, Marc Veyrat (Franck, Jan 2022), also an artist (we owe him in particular the multi-world VR project i-REAL) and teacher at the University of Savoie-Mont Blanc, returned to the notion of the in-between and the infra-thin (Marcel Duchamp) to talk about the body as place, but also of the territory in technology, a circuit of the machine to question the place of the body in the current/virtual space that is ours, a "mechanics of the invisible that takes humans beyond their own body, with a transmission of information that builds a living network linked to the external environment and not only a set of impulses from the neural network."



Figure 03: *La Société i Matériel,] P P P [- Pol Pipoling Project, poster target, La Louvière, 2023.*

With Gaëtan Le Coarer (Urbanska, Jan 2022) (teacher-researcher at the University of Savoie-Mont Blanc and creator of the *An Domhan* project at the intersection of comics and VR), he presented the augmented reality tour *] P P P [- Pol Pipoling Project* which, freely based on the work and universe of Pol Bury, allows two black and white materialist target posters to trigger short sound and poetic sequences (fragments also inspired by Bury's writings) produced by Paradise Now (to whom we also recently owe the sound creation of *Alice* and *d-E+E-p_d-i+V-E* - worlds 3 and 4 of *i-REAL*) as well as geometric shapes imagined by himself and Gaëtan Le Coarer, and arranged by Jonathan Juste (digital developer) which are superimposed on the user's environment. Marc Veyrat explains that the idea is not to transform the hometown of Bury "into an elitist amusement park or to turn it into a museum using digital technology, but to encourage its inhabitants to draw on their own cultural heritage, which has an international dimension, without denying their popular traditions, knowing that the economy of this town, like its industrial past, is also linked to coal mining". With the installation of the application's trigger points, accessible in around twenty locations in the city centre of La Louvière, passers-by can not only immerse themselves in the work of the author of *La gravité des images*, but also "re/become aware of this past, to feel a certain pride in it, to draw on this heritage to transcend the future... through their mobile phone and digital networks". "The aesthetics of the site-specific sights - true immaterial information panels - have therefore been thought of, genetically remixed around these two roots of the 20th century, this double kinship that is not antinomic: the Earth and cybernetics"^{vi}. This new project by La Société i Matériel (which benefited from a residency at Transcultures in the last part of its design) therefore offers an itinerant, connective and immersive experience built around a tangible and intangible network of ramifications between art, heritage, science and technology, without forgetting the inspiration-stimulation of Bury which is envisaged as a workshop of poetic possibilities. After this first test phase, *] P P P [* was broadcast again in La Louvière, during the summer 2023 on the occasion of the ARTour Contemporary Art and Heritage Biennial (of which Transcultures is an important partner, particularly for the digital and sound proposals, and which for this edition has chosen the theme of "between worlds"^{vii}), 'i-materializing' Bury's quote: "I invent what I see; that's how I discover what everyone has before their eyes."



Figure 04: Sonic Spheres album cover, from an image made with AI by Christophe Bailleau, Transonic Label, 2023

3. XR Bury - Sonic Spheres

The *Fountains* and many of Bury's kinetic sculptures are originally sound based (today, their motors are no longer in action for some of them, and they remain sadly silent) and generative, which contributes to their strange organicity. "It so happens - wrote the artist in 1976 in response to a friend - that the noises of my sculptures are the consequences of their movements. I therefore do not seek to attract attention by making noises independent of these movements. It is good, sometimes, for people to be interrupted in their conversations; they can take advantage of this to change the subject, which is often very useful. There is also the case of the solitary person who can find charm in these noises, even prefer them to certain conversations." Bury liked to "listen to the noises and silences that separate them, sorted them into packets in envelopes in canvas bags with care and without noise, weighed all these silences and buried them deep in an old living room gramophone" (Bury, 1970). In the publication *Derrière le miroir* published in 1969 by the Maeght Foundation, a 45-rpm record with recordings of the sound of his sculptures was originally inserted. In 1970, still for the Maeght Foundation, he created graphic scores by "kinetizing" solfeggio staves that he called "string sculptures", leaving it to the reader to decipher these "musical compositions" that expand time and its notation. It therefore seemed potentially interesting that, in addition to the *XR Bury* component oriented towards digital arts/cultures, the other project initiated by Transcultures in favor of the Pol Bury – 100 years events would focus on this audio parameter that has been underinvestigated in his multisensory work (touch, sight, but also listening). Transcultures therefore placed an order with several sound creators (of various adventurous aesthetics) from the Wallonia-Brussels Federation for the production of a piece freely inspired by the man who made his double Ernest Pirotte write in the *Journal d'un Faiseur* (1952): "Some days I think I'm more of a musician than a visual artist." Indeed, the processes and series explored by Bury in his visual work, such as softening, kinetization, punctuation, and his passion for slow movement (or tempo), evoke effects or techniques used in contemporary sound creation and more particularly in the different modes of electronics. *Sonic Spheres* draws on the material, sculptural and kinetic explorations as well as the poetic, surreal and pataphysical explorations of this genius multi-creator/inventor.

Sonic Spheres has given rise to a CD album with the participation of Todor Todoroff (the electro-acoustic composer-chaser of Belgian-Bulgarian origin opens the album with a cinematic-ghostly composition with the help of the cellist Sigrid Vandenbogaerde from whom he elegantly borrows some rubs and pizzicati), Charo Calvo (with a very dense Pol & le Sphinx nourished by granular/lunar synth sounds and balloons subtly arranged by this materialist composer of Spanish origin), Raymond Delepierre (the sound lab technician makes the Intersections between the different mobile and sculptural forms, terrestrial, machinic and cosmological elements heard) Isa*Belle + Paradise Now (in an interlacing of singing bowls and vibratory objects dialoguing with their electronic extensions manipulated by the sound creator Didié Nietzsche alias A Limb), Pak Yan Lau (musician from Hong Kong and artist who sculpts/ prepares her piano with wooden sticks, magnets and even adhesive tape in order to obtain tactile sounds – the title of her piece – and to match the slow rhythm), Didié Nietzsche (subtly treating the *Voix A-pesanteur* (weightless voices) of virtuoso vocalists Maja Jantar and Jean-Michel Van Schouwburg from an improvised performance during the *OMFI-One Minute Free Improv* event organized in April 2023, in Brussels), Alain Wergifosse (the unrepentant veteran of experimental electro audio and intermedia creation who here takes us into a mysterious organic labyrinth of “imaginary whispers hidden in a large metal bubble slowly pouring water from its entrails”^{viii}), the American-Brussels maximalist pioneer Charlemagne Palestine (who closes the album with his *Ballekesss Soupee Pourrr Pol Bury* in duet with his French sound collaborator Lionel Hubert for a slow trance mixing the voice of the master interviewed, the sound of water and an ambient synth carpet) and the duo Pastoral (Christophe Bailleau and Philippe Franck), with 4 poetic haikus inspired by Bury's "Bul thought", on transonic miniatures associating electronic reliefs, guitar punctuations, bass lines and sober spoken word: "A *Bul* thought, not a school, not a movement, Bul... nonchalance, derision, contradiction, jubilation, Belgianness, attitude."^{ix}

In the digipack cover of the CD version is inserted a 20-page booklet containing the presentations of the pieces by the artists as well as quotes from Pol Bury and visuals created by Christophe Bailleau (who also designed the album cover) generated using the AI application NightCafe Creator, propelling the Bury-style spheres also evoking the Hal supercomputer from *2001: A Space Odyssey* into our immediate future.

Sonic Spheres was the subject of live performances for its public launch, on May 13, 2023, in La Louvière, in the garden of the Daily-Bul & co Center, co-founded on the initiative of Pol Bury. Amidst the master's metal sculptures, Alain Wergifosse, Raymond Delepierre, Isa*Belle + Paradise Now and Pastoral offered, in a bucolic atmosphere, sets of around twenty minutes each, designed as a form of extension of their participation in the album. Then 4 pieces appearing in this rich tribute album were selected for the Reflets Sonores^x festival organized from June 9 to 11, 2023, by the Belgian Federation of Electroacoustic Music (FeBeME/BeFEM) in partnership with Transcultures. In the magical setting of the Chapelle de Verre in Fauquez (Walloon Brabant), the compositions of Charo Calvo, Didié Nietzsche, Isa*Belle+Paradise Now and Todor Todoroff were spatialized on an acousmonium of loudspeakers, like an ever-moving soundtrack of an ultimate invisible work by the great poetic-kinetic architect that was Pol Bury.

4. Conclusion

As Raymond Delepierre points out in the presentation text of his piece *Intersections* composed for *Sonic Spheres*: "All of Pol Bury's work is articulated through intersections that appear as invisible and moving spaces. These intersections highlight the boundaries between the different mobile forms that make up the artist's sculptures. They are dark, sometimes mysterious and changing cavities from which a multitude of worlds are born that blossom over time. A straight line tilts. A curve unties itself and rises like a body. An oscillating and

faltering vibration opens Pol Bury's work towards forms and imaginaries linked to terrestrial and cosmological activity. From one form to another, from a quivering movement to a gently jerky rhythm, from the slowness of the metal giant to the immobility of an engraving, what Pol Bury's universal jewelry offers reflects the games of a world in permanent circulation. Then, sounds composed of imaginaries collide, framed by a metal tube, a mirror sphere, a ball frozen in matter or a rusty rod stretching its long fingers towards the sky^{xi}. It is these intersections and extensions of the movement that Pol Bury has explored throughout his artistic research (with many technological and poetic discoveries, allowing him to achieve his goals) driven by a vision that is both interdisciplinary and undisciplined, and a critical look at all conformisms, both societal and cultural. *XR Bury's* artistic projects and university interventions have been an extension of this singular approach that opens up to other "distorting mirrors"^{xiii}, kine-poetic metamorphoses and intermedia constellations.

Philippe Franck, 2024

References

- Bury, P. (1972). *L'art à bicyclette et la révolution à cheval*. Gallimard.
- Bury, P. (1986). *Les caves du Botanique*. Les Éditions du Botanique.
- Bury, P. (1988). *Guide de l'art inopiné*. Daily Bul & co.
- Bury, P. (1992a). *Esthétiques galopantes*. Daily Bul & co.
- Bury, P. (1992b). *L'art inopiné dans les collections publiques*. Daily Bul & co.
- Bury, P. (1996). *La gravité des images*. Éditions Jannink.
- Franck, P. (2023a). *Pol Bury, un parcours et une oeuvre trans avant-gardistes*. *Turbulences Vidéo*, (120), 38–43.
- Franck, P. (2023b). *XR Bury Sonic Spheres, entre réalités et sons augmentés*. *Turbulences Vidéo*, (120), 46–54.
- Franck, P. (Ed.). (2023). *Sonic Spheres*. Transonic label.
- Marquenie, G. (1997). *Pol Bury, le temps en mouvement*. Fonds Mercator.
- Martin-Scherrer, F. (2023). *Pol Bury - Livres et écrits*. Daily Bul & co.
- Pahlke, R. (1994). *Pol Bury*. PMMK Museum Moderner Kunst.
- Veys, C., Blondel, V., & Martin-Scherrer, F. (2023). *Pol Bury va-et-vient*. Centre de la Gravure et de l'Image.

ⁱ Commenting on the creation of *La Fontaine*, made of stainless steel and water, in Saint-Paul de Vence in 1978, Bury said: "Fountains or sculptures, each will do what it wants and what it can. Once they are in a place, they no longer belong to me. They live their own life with their sun, their moon, their rain."

ⁱⁱ As Frédérique Martin-Scherrer rightly points out in her presentation of her essay *Pol Bury, livres et écrits* (Daily-Bul & co, La Louvière, 2022): "Pol Bury does not mix plastic and literary activities. However, his writing comes directly from the practice of his art. He translates and transposes it not "literally" but "laterally", thanks to a constant invention in the form and content of his texts".

ⁱⁱⁱ Multimedia creator and academic Maurice Benayoum was co-founder and artistic director of CITU (Création Interactive Transdisciplinaire Universitaire) - where he continued his research, creation and reflection on emerging media.

^{iv} The second edition of the series was hosted by the Ionian University Corfu on May 26-27, 2024.

^v In her text *The Crystals of Art: An Aesthetics of the Virtual* (1998), Christine Buci Glucksman immediately quotes Gilles Deleuze: “Events are like crystals, they only become and grow at the edges, on the edges” (*Logique du sens*, Éditions de Minuit, Paris, 1969).

^{vi} Excerpt from the interview conducted by Kenza Berraouan and Philippe Franck with Marc Veyrat in March 2023 (to be published).

^{vii} In addition to the augmented reality tour of *La Société i Matériel*, Transcultures also proposed as part of ARTour 2023 (which covers 10 locations in the Centre region of Wallonia), the sound and geolocalized tour of Tommy Lawson (*D'un monde sONore à l'autre*, also the result of a multi-stage residency in La Louvière, at Transcultures), the *Digital Dreams* exhibition designed by Kika Nicoleta based on her NFT collection and the multi-screen installation *Slyder* by Régis Cotentin.

^{viii} Extract from the artist's explanatory note for his piece *Dans une bulle de métal* published in the booklet of *Sonic Spheres (a tribute to Pol Bury)*, Transonic Label, Brussels, 2023.

^{ix} Excerpt from *Une pensée Bul*, Pastoral in the booklet of *Sonic Spheres (a tribute to Pol Bury)*, Transonic Label, Brussels, 2023.

^x *ound Reflections*, a pictorial title that Bury would undoubtedly have appreciated. <http://transcultures.be/en/2023/05/16/reflets-sonores-festival-federation-belge-de-musique-chapelle-de-verre-fauquez/>

^{xi} Raymond Delepierre, note for *Intersections*, *Sonic Spheres*, Transonic label, 2023.

^{xii} “*Distorting mirrors, unfortunately rare, have shown that their indocility was only a way of being more penetrable*”. Pol Bury in *896 têtes ramolies*, Éditions Plein Chant, Bassac, 1989, p. 36.