## Images as Vexing Zones Contextualising SARS CoV-2 in Visual Methodologies and the Arts Olivier Rossel

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This publication has been written in response to the 8th Sino-German Conference held from June 15 to 17, 2023 at the Brandenburg University of Technology in Cottbus, Germany. Contextualising "SARS-CoV-2 in technology and environment in science, engineering and art", the conference sought to exchange on researching current evolving technoscientific lifeworlds, on pandemic socio-technical environments, and on relations of transcultural political economies (Schwarz 2023). Keywords: visual essay; visual methodologies; zoonotic assemblages; technoscience; artistic research;

Drawn on the various concerns running through the conference's lively variety of topics, this essay addresses problematic ways of scientific knowledge productions through visual materials. Designed in the form of a poster, it follows the principle of a layout, by which the images and texts can be critically brought in vibration across the surface of the poster. What I have personally observed at academic conferences is that visual materials, especially photographs, artworks and drawings, are often neither adequately revealing referenced nor discussed. But, mostly used decoratively, these materials reveal risky imprints. Conserisky imprints quently, and this is my primary motivation as a researching artist, it is well worth taking a closer look at where, how, and for which reasons visual materials are mobilized in academia.

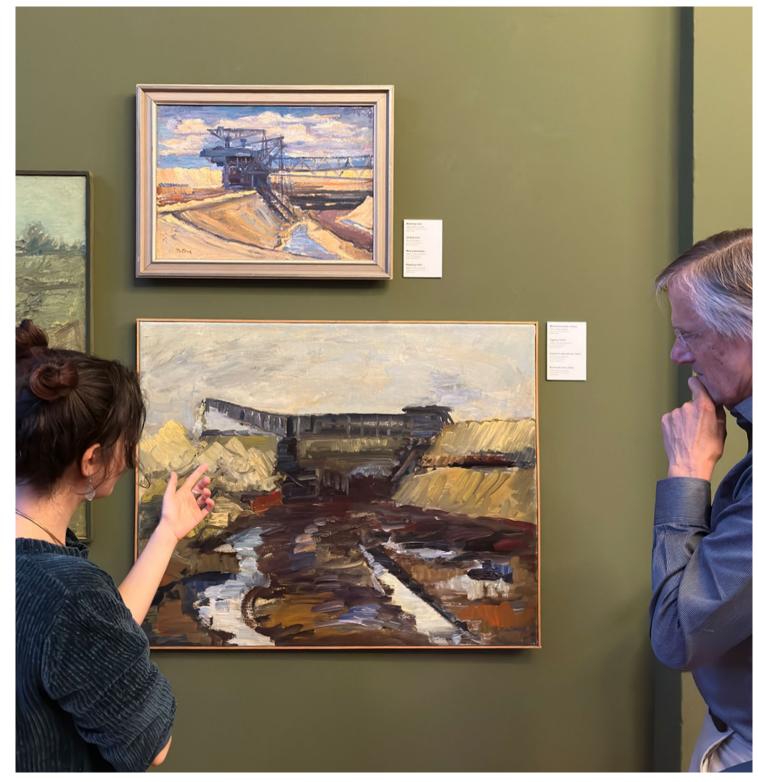
In detail, questions should be followed to what extent scientific knowledges are evoked through visual displays (Lynch and Woolgar 1990, 153), are performed in material-semiotic webs (Law 2019), and are situated in practices of doing, making, and here of special concern: through seeing (Mirzoeff 2023). Under more than - such scrutiny, by which images are considered "more than simply representations of natural order" (Lynch and Woolgar 1990, 5), a selecton of exemplary images and related literature are analyzed in this essay. ① Slides and files collected at the conference, ② own photos shot during the conference, and ③ literature from the fields of visual methodologies, science and technology studies and the researching arts.

generating and transferring scientific knowledge was the subject of literature published mainly in the 1990s, discussing the so called visual turns<sup>1</sup>. In more recent times, and of particular interest in this essay, epistemic realities in the interdependence of science and the arts (Liggieri 2015). problematic interplane of science in art and science practices (Mertens 2014), rival schools of seeing in arts and natural sciences (Daston 2014), as well as the dangerous allies in fighting the pandemic. interpretation and manipulation of the world with images as tools (Galison and Paglen 2013).

reception are embedded in scientific processes, the essay is written and designed against the background that no consensus in artistic research methodology exists<sup>2</sup>. Hence, not interested in an "unsustainable" pretention to truth and authority" (Citton 2012), the essay leaves interpretative authority behind and instead turns to an open-ended analysis through "different strata of knowledge and perceptions" (Citton 2012). Looking towards a multitude of interpretative futures<sup>3</sup>, different ways of enabling, allowing, or making to see (Foster 1988) are encouraged.

1 For literature on the visual turns, see further reading list.

2 On the contrary, conflicts of faculties are observed (Bergdorff 2012). While some authors promote aesthetic practices (Henke et al. 2020) as their main objective, others tend more towards art-based action-research (Jokela and Huhmarniemi 2018), focus on research-creation (Chapman and Sawchuck 2012) or turn to undisciplinary participatory methodologies (Bernstorff 2014) 3 Term borrowed from Brian Rotman's essay "Absence of an Origin" (Rotman 1987). I particularly relate to "signs outside natural language", a concept that fascinates me.



Hoyningen-Huene exchange about artistic exploration and expression by looking at Jan Buck's artwork "Tagebau Lieske" from 1978. The artist painted the artwork artistic - expression as documentation and the active lignite mine near Lieske (Lěska), a town that has partially been destroyed by the mining company and to destroyed by the mining company and the destroyed by the destroyed by the mining company and the destroyed by the mining company and today is part of New-Sealand (Nowa Jazorina), a community founded in the year 2002. Photograph taken at Kunsthalle Lausitz, Cottbus, by the author, June 16th 2023. Gestures staged at request. Painting courtesy of Sorbisches Museum, Bautzen. Fig. 11 ↓ Welzow-Süd, active pit lignite mine, view on the conveyor type F 60, with

Fig. 13 \(\gamma\) Conference participants Marina de Castro Teixera Maia, and Paul

more than 500 meter long conveyor bridge. Welzow-Süd is active since 1966, and produced 10,4 Millions of tons of lignite in 2022 (LEAG 2022). Photograph by the author, June 17th 2023.

Fig.1 \( \) Key visual, used by Astrid Schwarz for her contribution to the conference. By asking "What are the consequences of the broken or shifted contact zones of intra- and interspecies assemblages?", Astrid Schwarz addressed concerns towards "quasi-natural regions" turning "biodiversity and regeneration to danger spots and health hazards". Following Schwarz's thoughts, I will explore this figure's visuality, which I see visuality of the key visual clearly situated in the relationships of biological, technological and discursive realities, or as Serenella lovino writes relating to "ecocritical materialities", in it's "meaning-producing permeability" (lovino 2018).

Initially published in Eric Roston's Bloomberg article "Want to Stop the Next Pandemic? Start Protecting Wildlife Habitats" (Roston 2020), there captured "Getty(2)", presumably for copyright reasons, the visualisation appears, sprung from an unknown photo-laboratory, isolated from it's own history, leaving its visuality undisturbed for a first moment. But thankfully, the caption "Getty(2)" led me to the world leading supplier of stock images, Getty Images. The original underlaying painting as well as the overlaid viruses could be found after a few minutes of searching on Getty's website (Fig.  $2 \& 5 \rightarrow$ ). Providing little details there, suspicious relations to 19th century euro-centered exotic animal painting and to recent practices of biotechnical visualisation were gradually revealed. In addition, after consulting literature on the history of exotic photography (Krauter 1987) and specifically on the origina of the analysis and amalgam Frederick painting. An "amalgam of knowledge and prejudice" becomes increasingly clear, an amalgam Frederick of knowledge and prejudice and prejudice exotic photography (Krauter 1987) and specifically on the origins of the artistic style of the underlying Borer discusses (Bohrer 1991), which is also in connection with Fig. 12 \( \preceq \).

By looking closer, Fig 1. started to pose, described in the words of Stacy Alaimo, a "vexing site", where visual materials come into hazardous contact in "a place where figures, narratives, concepts, and histories bear the marks of their worldly entanglements" (Alaimo 2015). My concerns started to grow, by looking beyond the technical fabrication of the collage. Computer-generated SARS-CoV-2 virus models, reduced in colorfullness, perfectly blended into the digital copy of a seemingly much older chromolithograph, which turned out to be a reproduction from Friedrich Specht's exotic painting, dating back to 1897 (Specht 1897, Fig.  $5 \rightarrow$ ). From this viewpoint, the image used by Astrid Schwarz, became quickly more than a decorative Fig.5 →). From this viewpoint, the image used by Astria Conwarz, Schools (Iovino 2018), revealing an illustration for a newspaper article. Much more I consider it a "landscape of risk" (lovino 2018), revealing an illustration for a newspaper article. Much more I consider it a "landscape of risk" (lovino 2018), revealing an illustration for a newspaper article. environment in which the understanding of the SARS-CoV-2 zoonosis becomes highly problematic.

Therefore two observations made during the conference are mentioned here to make a little detour. Firstly, Alfred Nordmann's contribution, stating that "the pandemic presented a technical and management problem" by referring to his and his colleague's recent study (Liu et al. 2021), analysing that a fall-back "to a particular regime of knowledge/power" is related to 1920's administrative sciences. And, secondly, a publication found right after Nordmann's talk, published by the Zurich Centre for Creative Economies (Weckerle and Grand 2020), claiming that artistic practices could have been able to provide skills "that are particularly important in times of uncertainty", but have been neglected due to the lack of their economic significance. I identify related concerns at this point. While on one hand, as Nordmann explained, I would like to give a brief orientation on the latter. Historically, ways by which visual materials are "universities became invisible", fertile soils for visual communication on the other hand were dried out "in terms of identity and organization" (Weckerle and Grand 2020) during the pandemic. According to Nordmann, "much more was going on than met the eye when one looked at societies, politics, cultures, or ideologies" (Liu et al. 2021), while the arts were, as of Weckerle and Grand, simultaneously stripped off their own organisational means to establish appropriate forms of visual practice to effectively tackle the crisis. In own organisational means to establish appropriate forms of means to established administrative science and old practices of visual representation became of two dangerous allies

Coming back to Fig.1, I found the same article by Roston in Time Magazine online (Roston 2020), where it With specific regard to how artistic image production, manipulation, transmission, appearance and was chosen to use a different image from Getty's repository, and a modified caption. As a result: "Pygathrix nemaeus, Queen of langurs, at Son Tra Peninsula, Danang, Vietnam", initially proposed by the photographer Jethuynh (Getty 2017), became "Old World monkeys at Son Tra Peninsula, Vietnam" for said article. The newly created caption below Roston's article's main visual, fragmenting the globe in "new" and "old" parts, reveals a euro-centrist technology of producing images of "barbarians and outsiders" (Loomba 2005). A practice which according to Ania Loomba dates

> Although I am far from able to make a profound scientific statement by considering the complexity of colonial and postcolonial studies at this point, seen from an arts-infomed technoscientific perspective, the way of handling images and captions dealing with SARS-CoV-2 zoonosis in both articles by Roston, appears highly problematic to me. In order to oppose further generation and dissemination of such hazardous patterns through visual materials, I would like to emphasize to take expertise from recent artistic research into account 4.

back to ancient Greek and Roman times.

4 For instance, "Zoonoses - A Visual Narrative", by Nicola Hooper (2019). In her doctoral theses, the connection of visual representations of animals to human fear of diseases is explored through artistic practice. And, "The Work of Art in the Age of Artificial Intelligence: What Artists Can Teach Us About the Ethics of Data Practice" by Luke Stark, and Kate Crawford (2019).

Fig. 12 ↓ Cover artwork, exhibition catalogue. Concept and photography by Kieser et al. (1987). Projecting Henri Rousseau's 1910 painting "Forêt vierge au soleil couchant" (Rousseau et al. 2005) on an undocumented bust. Produced for the exhibition "Exotische Welten, Europäische Phantasien". Curated by the Instituts für Ausphantasies andsbeziehungen Stuttgart and the Württemberg Arts Association, shown at Kunstgebäude, Stuttgart, fall 1987.

Henri Julien Félix Rousseau's inspiration for the jungle paintings was not drawn from real experiences in the tropics, but instead spired by visits to the Paris World Exhibition in 1889, the Jardin des Plantes, and from reading popular magazines (Kunstmuseum Basel 2024). The cover of the exhibition's catalogue exemplifies the artistic creation of imaginary natures and environments around the year 1900. Figure connects to Specht's "Neotropiscal realm (wildlife environments)" — imaginary natures and environments around the year 1900. of Central and South America)", see Fig. 5.



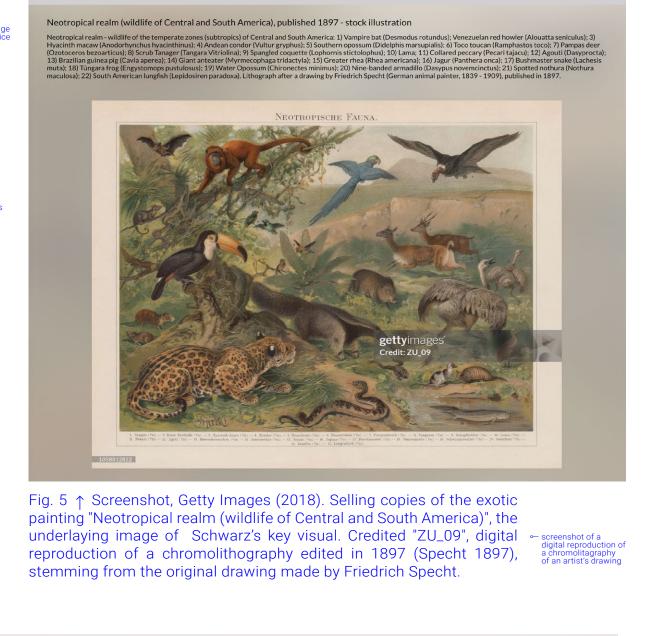
Fig. 6 ↑ Photography of oil painting "Bank of Central African State, Yaounde #2" (2023) by Chinese artist Cui Jie 崔洁, courtesy of Pilar Corrias. Artwork photographed by the author at the for-profit art fair Art Basel, on June 11th 2023.

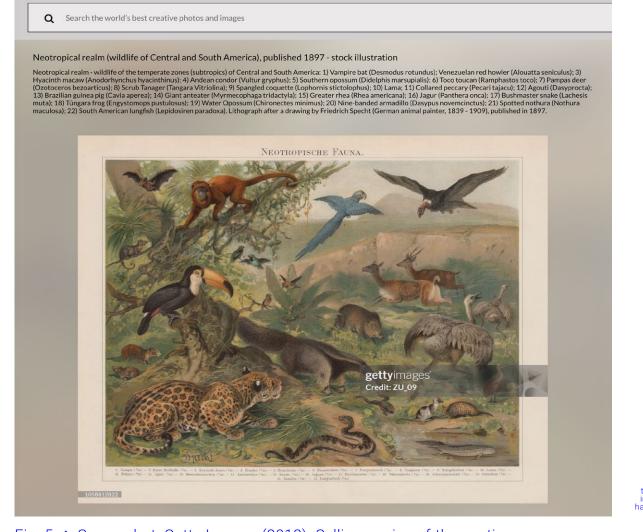
Shortly after Astrid Schwarz's lecture, I felt a deep irritation about the intertwining of eco-technology, zoonotic assemblages, and artistic practice. My ruminations led me to review the photograph of the artwork, which I encountered only a few days before the 8th Sino-German Conference.

The artwork of Cui Jie narrates a relationship between a giraffe, its calf, and the urban environment in the vicinity of the headquarters of the Bank of Central African State (BCAS) in Yaoundé, Cameroon. In addition to the narrative interpreted by a first glance, the artwork bears an economic interest related to the pandemic. It exemplifies the developments on the arts market at the time: According to Maddox Gallery (2021) "Experts are predicting a return to representation" when "Galleries and exhibitions are reopening to the public for the first time in almost two years" Collectors, confined to their homes and therefore increasingly turned to digital arts during the pandemic, have seen, as Maddox claims, figurative painting to be a particularly worthwhile investment right after the pandemic.

Seen against this background, and this is particularly noteworthy, the painting not only represents an urban ecosystem in a colorful manner. Consequently, the artwork activates more than an imaginary habitat of giraffe and calf in an urban landscape. It evokes a widely reaching ecosystem. Observing what Maddox Gallery is addressing, it becomes apparent that the painted fauna, and the urban landscape are entangled with an economic speculation. Arguably, artistic and economic processes of seeing and meaning-making are intertwined in this case.

After briefly examining how the painting and the financial interests by gallerists relate to each other, I conclude by the words of arts theorist Barbara Bolt. According to her, the work of art has the ability to mobilize and interweave many perspectives, it hence "doesn't describe somet but has the power to change the world" (Bolt 2008) itself.





onavirus particle, illustration - stock illustration

Fig. 2 ↑ Screenshot, retrieved Getty Images website, Creative #1205739966 "Coronavirus partic

illustration", no information on artis

available, credited "KTS Design/Sc

Getty Images® is a USA based media

company with a library of over 470

million assets. The worldwide leader

in trading stock media, has a mark

capitalization of around 2 billion U

(Yahoo Finance 2023).

ence Photo Library" (Getty 2020).



Fig. 4 ↑ Street sign with logo, logotype and byline of Beutlhauser Company. Photographed by the author on a guided tour in Welzow town, southeastern Brandenburg, Germany, on June 17th 2023

Fig. 3  $\downarrow$  Following the technological becoming of the image of the coronavirus used in Fig. 1 and Fig. 2  $\leftarrow$ Shown here is a computer calculated representation of a SARS-CoV-2 virus, overlaid on a cryoelectron tomography of a sample containing inert viruses (Yao et al. 2020). Zimmer's article in the New York Times mentions (Zimmer 2020), that both these kind of visualizations – the underlaying black and white image, and the colored overlay, are mostly generated by computer-aided simulation and electron

tomography. This mix of methods of imaging contributed substantially to molecular understanding of SARS-CoV-2 virus during the pandemic according the authors. To capture such images, the technology applied differs significantly from optical methods, such as Fourier transform infrared spectroscopy,

As to Yao et al. (2020), the observed matter is set in vibration by the tomograph's electron beam.

mathematically compensated to obtain adequate insight into the molecular structure of the samples.

As to Yao et al. (2020), the observed matter is set in vibration of the samples.

Occurring effects, leading to blurry and not sufficiently sharply recognizable images, are therefore compensate blurry vision.

case of Fig.  $3 \leftarrow$  measurements were taken from lifferent angles. In Detail, explained in Yao et al.'s paper, at 3° steps from -60° to 60° angle, with a nominal magnification of 64,000×. For each tilt eight frames were recorded, each frame with an exposure time of 0.0265 seconds, with an overall resolution of 131.2 electrons per square ångström (10<sup>-10</sup> × 10<sup>-10</sup> m) per tilt series. To reverse engineer the "molecular architecture" of the SARS-CoV-2

samples (hence the publication's title) GPU-based - GPU-based

beam induced motion correction enabled a near

Based on the fact that the example of visualizing

molecular structures in the context of the SARS

CoV-2 pandemic made clear that purely optical

methods are unable to provide adequate information about the molecular structure of viruses, I

wonder to what extent the understanding of

human vision needs to be reconsidered at this

point. It therefore remains an urgent matter to

explore how software- and algorithm-supported

seeing is not only developed further by means of

engineering, but scrutinized in regards to what extend such ways of entangled human-machine seeing carry risks regarding technical fantasies,

Here, I start to wonder to what extend machineand software-aided vision at smallest scales bear potentials of hosting environments for fantasies, similarly to the purely imagined exotic worlds, painted around the beginning of the 20th century (Fig.1 ← Fig.12  $\checkmark$  ). At this point, I think, it is not the human interpretation of machine visualization that concerns me the most. Much more, it is what I consider an intra-active environment of covision that needs taking a closer look. A turbulent zone in

which the observed, the samples, the involved

servers, generate meaning through collaborative

5 The authors list the applied software and algorithms in

detail (Yao et al. 2020, e3, under "Data Processing").

6 Discussed in new materialist theories. For example in

Karen Barad's "agentic realism" (Barad 2012).

seeing and knowing<sup>6</sup>.

machines, software and algorithms, and the ob-

scientific prejudices, and cultural imprints.

Raman spectroscopy, or super-resolution microscopy (Lukose et al. 2021).

Welzow-Süd open pit lignite mining corporations (Beutlhauser 2023). In their historical documentation, Beutelhauser opens up on former economic strategies that enabled the growing of the company. In "Folge technique of instead of hard labour to company narrates the acquisition and recelling of the company in "Folge" to the company narrates the acquisition and recelling of the company. company narrates the acquisition and reselling of 300 horse-drawn mowers from the McCormik company in Chicago in the year 1908 (Beutlhauser 2021). "For agriculture, the machines were a small revolution" states the company and mentions that "at the beginning, however, the farmhands and maids were rather hostile to the new technology because they feared for their livelihood" (Beutlhauser 2021). Referring to the fear of losing existential livelihood, I started wondering, while reading their website, what kinds of fears in connection to non-human livelihoods the active Welzow-Süd pit evokes today.

Apart from reading and reflecting on the historical documents, and thinking of human and non-human fears, todays slogan "Mensch, Technik, Lösungen", translated to "People, Technology, Solutions", as seen on the the street sign, generated quite a bit of irritation. At first glance, the sign seemed to represent an operational philosophy by which, apart from humans mentioned in the byline, no other species seem to find place. But looking deeper, and turning to Gilbert Simondon's phenomenology of machines, like our colleague Georg Hausladen (2023) highlights in his doctoral thesis, I realize that the three terms "humans", "technology" and "solution" not necessarily exclude fauna and flora. Following Hausladen and his fieldwork he did in southern Germany, researching the population development of the endangered and red-listed green toad (Bufotes Viridis, Fig.  $8 \downarrow$  ), a close relationship of the technology of heavy construction machinery and the endangered species is revealed (Hausladen 2023). The toads preferably reproduce in the water-filled furrows, cut into the muddy ground by heavy mining equipment. The green toad, as of Hausladen, prefers building habitats on construction sites to living in human-defined wildlife reserves. In

this very case, it is thus highly expected and the subject of ongoing investigations, that the green toad - animal-machine could cohabitate the active lignite mine with Beutlhauser's machines. Remembering our excursion to the

renatured postmining area close to

Gut Geisendorf (Fig. 9 ↓ ), I question

further to what extend humans

team up with fauna and machines. Two interrelated processes come to mind, first the extraction of lignite in a seemingly hostile and animal free zone, and secondly the processes of the monochrome picture (Fig.  $7 \leftarrow$ ) and when considering the horses depicted, I observe a certain fact. Would Beutlhauser have been able to sell the then revolutionary device

by leaving the animals out of their marketing narrative? A question that deserves some thoughts from today's standpoint<sup>7</sup>. It does not seem that the local fauna is an integral harnessed to mower, original location unknown, part of Beutlhauser's marketing strategy anymore. In contrast, in context of the renaturation of the post-exploited landscape, the Lusatian energy company LEAG tells and shows in text and pictures, how "new old species"

the marketing of Beutlhauser's mower, as seen in Fig. 7 should not be measured by today's advertising standards. Marketing and public relations have changed conmagazines and on billboards was cor in 1900, and most probably live demons tions of farming equipment too, it was n until the year 1923 when Edward Bern laid the foundation for target group sp cific product marketing through adequa means of communication (Bernays 1923 An in-depth analysis of visual material i tions into account under which corpor narratives have been formulated.

Fig. 8 → Subadult Bufo Viridis, Gyögyösoroszi mine, Hungary (Adlassnig, Wolfram et al. 2013

Fig. 7 ↑ Photography, ca. 1908, two horses

found on Beutlhauser's website (2021).

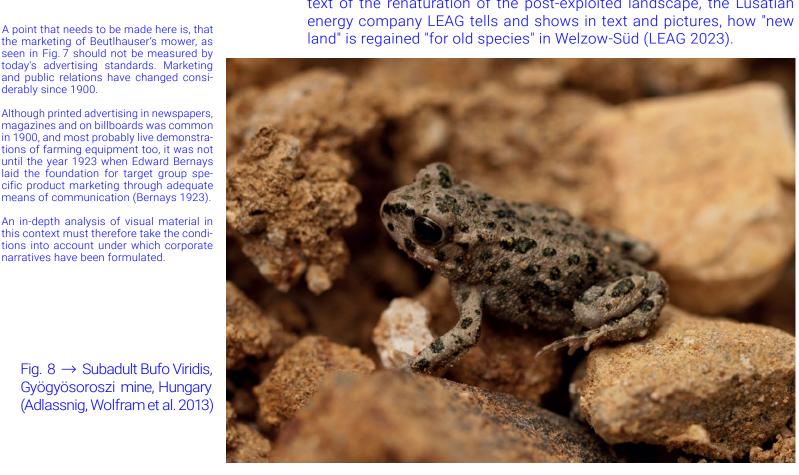


Fig. 9 ↑ Members of the conference relaxing on top of Geisendorfer Mountain, an artificially restored hill, located in the terminal moraine area of the Steinitz Alps. The hill was made accessible to the public in June 2020, after the excavated area was backfilled and renaturated by the mining company LEAG (2020). Photograph by the author, June 17th 2023.

Fig. 10 ← Members of the conference exploring the active opencast Welzow-Süd mine, in which the lignite seam is mined at a depth of 60 to 120 meters. Photograph shot by the author, June 17th 2023, while standing on the



second pre-cut, near a bucket-chain excavator.





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