

JANUS 2.0 – GOD OF FULLDOME

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Abstract/Zusammenfassung

This article discusses certain perceptual features of the 360° fulldome experience. In order to highlight these features, we will call upon a well known mythological witness: the Roman god Janus. Unlike earthly humans, Janus is equipped with two faces, one looking forward and the other backward. Whereas humans can only see half of their surroundings at a time, Janus perceives and processes all of it, at once, without turning his head. Being unable to not see what is going on behind him qualified Janus to be the guardian of transitions, doors and gateways in ancient Rome. With his two pairs of eyes looking in opposite directions, Janus watched who entered or left the domus, the templum or the pantheon. Janus was also said to be able to view past and future simultaneously. In a contemporary interpretation one might call Janus a symbol of multitasking. One might also say that Janus' life is one big fulldome festival.

In diesem Artikel werden bestimmte Wahrnehmungseigenschaften beim Erleben der 360°-Fulldome-Projektion diskutiert. Um diese zu beleuchten, rufen wir einen bekannten mythologischen Zeugen auf: den römischen Gott Janus. Anders als die Erdenmenschen besitzt Janus zwei Gesichter, von denen eines nach vorne, das andere nach hinten blickt. Von ihrer Umgebung sehen die Menschen jeweils nur die Hälfte, Janus hingegen ist in der Lage, die Gesamtheit rundum zu erfassen und zu verarbeiten, ohne den Kopf zu drehen. Seine Unfähigkeit, nicht übersehen zu können, was hinter seinem Rücken geschieht, qualifizierte ihn im alten Rom zum Gott der Übergänge, Türen und Portale. Mit seinen in entgegengesetzte Richtungen schauenden zwei Augenpaaren wachte Janus über alle Ein- und Ausgänge im Haus, im Tempel und im Pantheon. Man sagt, er könne auch gleichzeitig in die Vergangenheit und in die Zukunft schauen. Zeitgenössisch interpretiert, ließe sich Janus als Gott des Multitaskings beschreiben. Man könnte auch sagen, sein Leben sei ein einziges, großes Fulldome Festival.



1 The personified Janus. (© Andrea Ludwig 2012)

Jena im internationalen Sternenglanz

Am Jenaer Zeiss-Planetarium treffen sich Produzenten aus elf Ländern, um ihre Programme vorzuführen

VON TINO ZIPPEL

Jena. Patrick Geiss nimmt eine wichtige Aufgabe beim Full-Dome-Festival im Zeiss-Planetarium Jena ein. Der Student der Bauhaus-Universität Weimar verwandelt sich in Gott Janus, der zwei Gesichter hat: So wahr er den Durchblick unter der Planetariumskuppel, was ihn zum Schutzheiligen fürs Festival qualifiziert.

Hinter den Kulissen laufen die Vorbereitungen für auf Hochtouren. Planetariumskünstler aus elf Nationen beteiligen sich nächste Woche von Dienstag bis Sonnabend am Wettbewerb. Besucher kommen in den Genuss spektakulärer Planetariumsprogramme aus aller Welt. „Diese werden nur einmal hier gezeigt, sind aber zumeist in englischer Sprache gehalten“, sagt Geschäftsführer Jürgen Hellwig.

Er hofft darauf, dass nicht nur Fachleute zu den Vorstellungen kommen, sondern auch mehr Besucher aus der Region als in

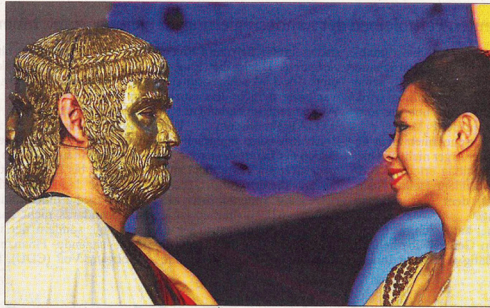
den vergangenen Jahren. Insgesamt hoffen die Veranstalter auf 1000 Gäste an den fünf Tagen.

„Wir sind das weltweit größte Festival für Ganzkuppelprojektionen“, sagt Micky Remann, Dozent der Bauhaus-Univer-

sität Weimar. Entsprechend groß sei das Interesse von Produzenten aus aller Welt, ihre Shows in Jena vorzustellen.

Das stellt das Planetarium vor enorme technische Herausforderungen, laufen doch extrem

viele Bilddaten bei solchen Ganzkuppelprogrammen auf. Die Jenaer haben extra 15 Terabyte Speicher in Dienst gestellt. Zum Vergleich: Die Festplatten bieten Platz für 3200 herkömmliche DVD. Die Dar-



Schutzheilige: Gott Janus (Patrick Geiss) mit Venus (Yang Jiang). Foto: Tino Zippel

stellung an einer Kuppel bietet andere Möglichkeiten als eine Kinoleinwand. „Wir sehen das Festival als Experimentierfeld, was möglich ist und wo die Grenzen liegen“, sagt Volkmar Schorch von Carl Zeiss.

Das Unternehmen hat nicht nur die technischen Anlagen des Jenaer Planetariums gebaut, sondern tritt zusätzlich auch als Sponsor für den Wettbewerb auf. Dieser bietet jungen Künstlern eine Plattform, sagt Schorch. Zeiss schreibt Preise für den studentischen Nachwuchswettbewerb aus, für den 29 Beiträge gemeldet sind.

Neben einem Preis für die kreative Leistung gibt es einen für stimmungsvolle Produktion. Zudem winken dem Gewinner des Publikumspreises 500 Euro.

Hellwig kündigt noch für diesen Monat zwei Premieren an. Neben der Musikshow „Cirque de Sphere“, die ab 18. Mai starten soll, wird am 31. Mai das allgemeinbildende Programm „Entdecker des Himmels“ uraufgeführt.

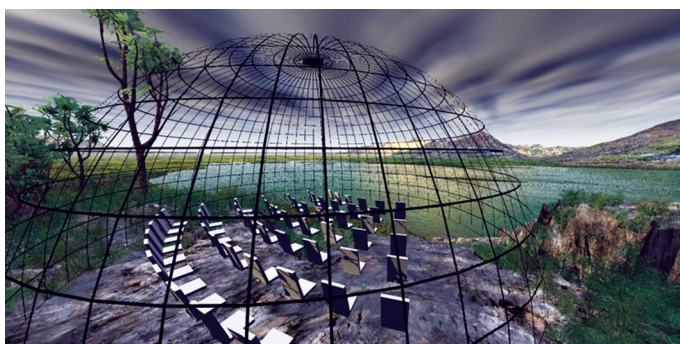
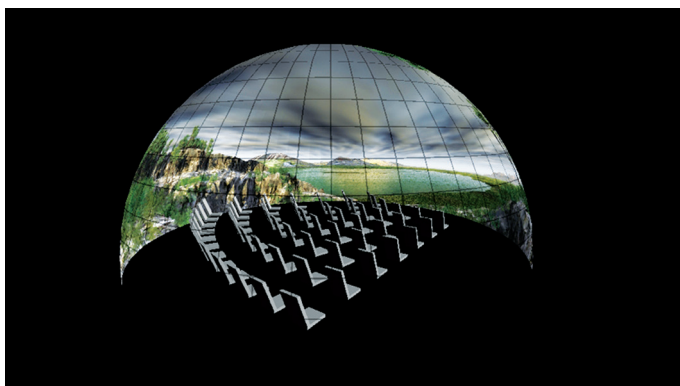
2 Janus and Venus article. (Source: Thüringer Allgemeine 04.05.2012)

The distinction between ordinary human sight and Janus' godly vision is obvious. Can this distinction help to accentuate what is special about the fulldome experience? The question was explored conceptually at the Bauhaus-University in Weimar and was put to a practical test at the FullDome-Festival in Jena in May 2012. On that occasion, a new Janus came to life with student Patrick Geiss dressed in a costume lent from the Deutsche National Theater Weimar (Fig. 1). He was accompanied by student Jiang Yang, representing Venus, the goddess of beauty. Why it had to be her will be explained below. The deities made their first public appearance at the press conference for the FullDome-Festival at the Zeiss-Planetarium in Jena. Their semi-theatrical, semi-ceremonial entrance was applauded and widely published. Both the media and the festival audience responded favourably to Janus's and Venus's graphic personification of the notion of expanded media, mind and beauty in the dome. The immediate task was to draw attention to the festival and its themes (Fig. 2). But this live performance was just the culmination of a preceding in-depth examination of what it means to juxtapose ancient myths and contemporary media.

As human beings, we are conscious of living in a 360° reality, although our eyes can only see a 180° segment at a time. Like other primates,

we have adapted to this view of the world quite successfully so that it does not preoccupy us too much. When we go hunting in the forest, or shopping in the city, we have learned to turn our head from time to time to see who and what is there. When we drive a car, the rear view mirror offers sufficient information about any unwanted encounter from behind. When we go to the movies, or work with the computer, the screens in front of us do not usually overstretch the limits of our forward facing field of vision. We are trained to assume that media events take place strictly inside our visual comfort zone. Producers of all genres and gadgets make sure that these habits are rarely questioned.

However, as soon as we enter a fulldome theatre with sensory projection fully surrounding us, life appears in a different light, and we are required to rethink how we should approach and interpret such expanded perceptual experiences more fully. A new visual space has been opened, but a common ground for conceptualizing the medium has yet to be expressed (Fig. 3). The thrill of altering the reference points of our normal visual reality, or temporarily even losing them, was courageously illustrated by Warik Lawrance, Digital Production Designer for the Melbourne planetarium, when he stated in a workshop presentation at the Jena



➡ 3 Two ways of interpreting the visual space of the dome.
(© Warik Lawrance; presentation slides FullDome-Festival 2010)

FullDome-Festival 2010: «Full-dome is not a projection on a curved screen but a device for travelling to other times and spaces.»

Dome-space and head-space

Many people, probably most readers of this publication, could feel exhilarated when immersed in a flood of moving images all around them. With the initial excitement, one might not question why in a full-dome show there is always more happening than the eye can actually see. However, observing various audiences reacting differently at different times, one might notice that not everybody shares the same level of appreciation. Some people feel quite uneasy, uncomfortable, or even upset when exposed to a media environment which they cannot grasp in its totality. Ironically, the fact that some aspects of the show are always outside one's immediate field of vision seems to be more bothersome than not knowing who is sitting behind your back. It would be imprudent to brush aside such a response and dismiss it as unenlightened.

The technology of digital full-dome projection has made rapid progress in the past decade, constantly improving resolution, brilliance, contrast and colour accuracy. But these welcome improvements say nothing about the individual viewer's ability to absorb the 360°-flood of media events, nor does the technology in and of itself address the psychological, aesthetic and cultural ramifications of entering this new realm.

Paradoxical as it may seem, the success of projecting more content in the dome than the human eye can see is a key characteristic of the genre. Many full-dome shows try to camouflage it by reducing the action of the show to an assumed 'area of interest' in front of the audience, while filling up the rest of the dome with visual fluff, luring the audience into thinking that nothing worthwhile is happening back there. This may seem a pragmatic compromise, given the fact that seating in most planetariums compels the audience to look only in one direction. However, limiting the actual show to a small segment in the front undercuts the potential, and the challenge, of utilizing the hemispheric dome in its totality.

Some experimental fulldome productions have indicated that there are ways out of the dilemma: one option is to place visual clues at different times in different areas of the dome, thus inviting the audience to turn their heads and follow the action, right, left, up, back and front. Another one is the use of sound. Fortunately, our ears can hear in the same way Janus' eyes can see: in 360°. A careful choreography of visual and auditory events will guide the focus of the audience to where things are going on in the dome, opening up the whole space as a stage and playground for media adventures.

The more such experiments are tried out – as many students and fulldome artists actively do – the more one can learn about the interplay between dome-space and head-space, the more one can correlate the technology of surround projection with the subjective mindset of the observer. These aspects are relevant not only for artistic reasons, they also touch upon the practical issues many fulldome aficionados are grappling with, namely the task of defining – and subsequently marketing – the distinguishing features of the experience. What makes immersive media worthwhile? Why should research in fulldome technology, art, education and entertainment be supported?

If fulldome is just another hype that comes and goes then this discussion will have to end soon. If, as the author and others believe, it is more than that and the unfolding of spherical, space-dissolving surround realities can be seen as a stimulus for a larger paradigm shift that involves both, media technology and human consciousness, then fulldome faces a greater problem than just lack of marketing. The problem is shared by any genuinely new medium: the fact that it cannot be adequately described or understood by the means of the old medium that it evolved out of. A stage play differs from a movie. Fulldome is not an oversized film blown up for the planetarium, nor is it the same as stereoscopic 3-D or Imax-cinema, to cite just two misleading comparisons. To label Fulldome «new» is not enough, the challenge then is to appreciate its singular qualities and to help find its place in the evolution of art and the integration of consciousness.¹

¹ Art historian and philosopher Jean Gebser offers a fascinating study of the interrelated evolution of art and consciousness in his monumental work *The Ever-Present Origin*, first published as *Ursprung und Gegenwart* in German in 1949 (see Barstad & Mickunas 1985).

Harbingers of the fulldome evolution

The question of how to address the challenge and at the same time strengthen confidence in the virtues of experimentation was discussed in the course «From Janus to Fulldome» at the media faculty of the Bauhaus-University Weimar in the winter semester of 2011/2012. In a parallel course, Hannes Wagner and André Wünsch taught the *modus operandi* of producing fulldome shows. Students could join both or either of the courses, while some teaching sessions and workshops were held for both groups and were also open for students from other universities, such as the HfG Offenbach.

The students were asked to explore myths, stories and ideas that could dramatize, popularize and even simplify the fulldome experience. This brought into focus the Roman god Janus. For more than 2.500 years, Janus has been well and alive in the western mythological tradition; his strange double-faced appearance is present in art, sculpture, design and film, and also in the German expression *janusköpfig*, used to describe ambiguity with a rather negative connotation. In all of his representations, Janus appears better equipped to enjoy fulldome shows than any human being.

In contrast to the ongoing popularity of his image, Janus lacks a coherent mythological story of his own. Rabun Taylor points this out when he writes: «Janus, like so many ancient gods who lacked the grace of a story, was a messy confluence of scraps fallen from the table of memory. His incoherence was the cause of some puzzlement in the Roman Imperial era, and so he was periodically subjected to reassessments by master yarn-spinners like Ovid or by cosmologists and philosophers seeking to find profound symbolism in his duality» (2000: 1).

Scholarly acknowledgment of classical Janus's rather dubious symbolism provided a welcome opening for the students to employ their own imagination and spin their own yarn, in order to involve Janus in a contemporary discourse. This process and method we coined «myth management». Inviting Janus and Venus to show up live at the Jena FullDome-Festival in Jena was one such project. Other students went from art to technology to mythology, or a mix of all, to close ranks with Janus as modern harbingers of the fulldome evolution.

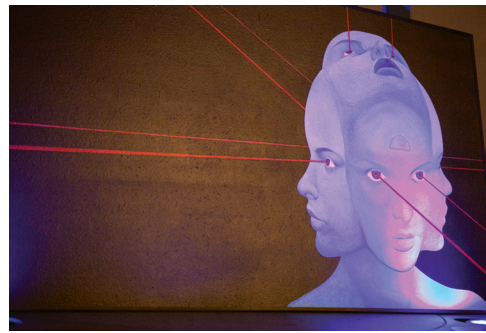
In this context Tony Wulfert created a painting of a modern, multi-eyed Janus that was displayed

in the Zeiss-Planetarium Jena during the FullDome-Festival (Fig. 4).

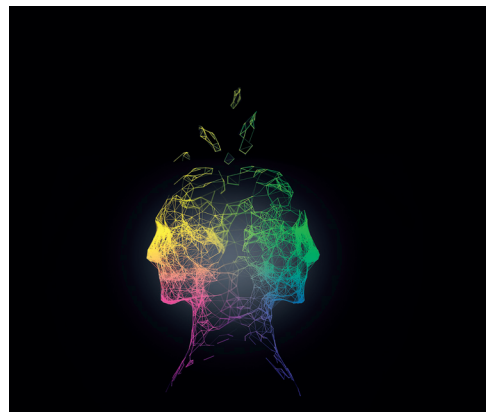
Jiang Yang and Florian Meyer teamed up to create an animated fulldome show, featuring an abstract, fragmented Janus-head whose parts are turning and tumbling across the dome in slow motion (Fig. 5). The meditative visuals accompany Jiang Yang's love story of Buddhist wisdom, *THE GHOST WITH TWO FACES* (Jiang Yang & Florian Meyer, D 2012). It ends with a surprising twist that needs the dome to unfold, so it cannot be summarized here.

Lydia Müller looked for expanded vision in other species and found it in the Chameleon. She presented a witty animated short-film called *JANUS 1.5* (D 2012) (Fig. 6), which she comments: «Nature features various animals with the ability to see almost everything that is around them. The chameleon is unique, because it can move its two eyes independently of each other, creating an almost panoramic image in its brain» (Müller 2012, p. 1).

Jiayao Chen redesigned Janus as a Cyborg-like being. Her version of Janus comes to life in a 30 sec. animation, merging biological and technological components (Fig. 7). She writes: «If Janus comes to the 21st. century, I imagine him to be like a mechanized God. His two heads are kept as attributes of the traditional Janus figure. To this, technical devices are added such as camera and projector system. As these parts are connected with the two heads, the new Cyborg-Janus manifests in the animation» (Chen 2012, p. 1).

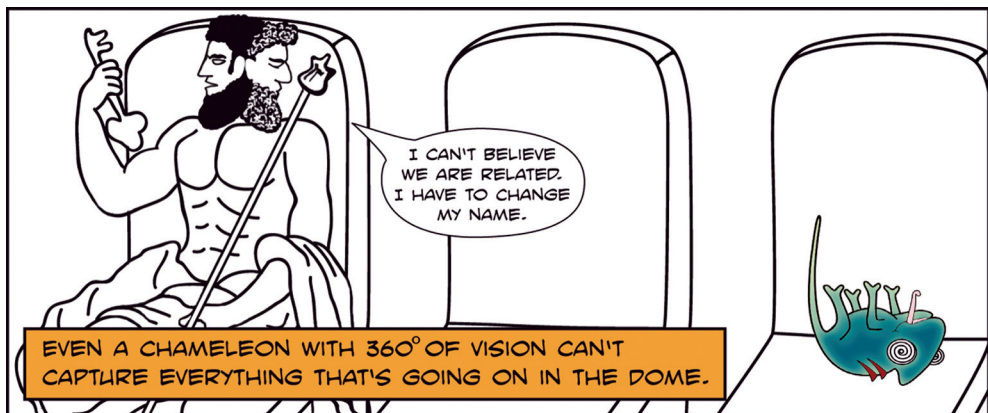


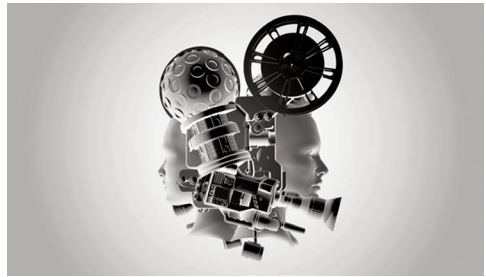
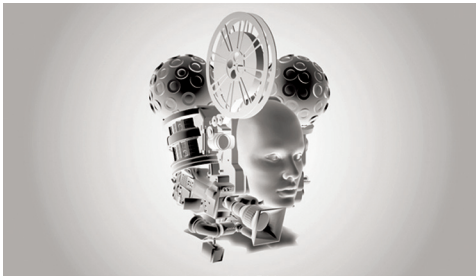
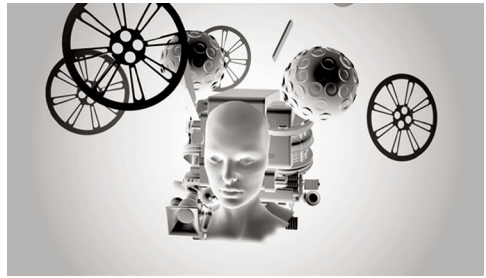
4 Tony Wulfert: Multi-eyed *Janus*, painting, 2012, displayed at Jena Planetarium. (© Andrea Ludwig 2012)



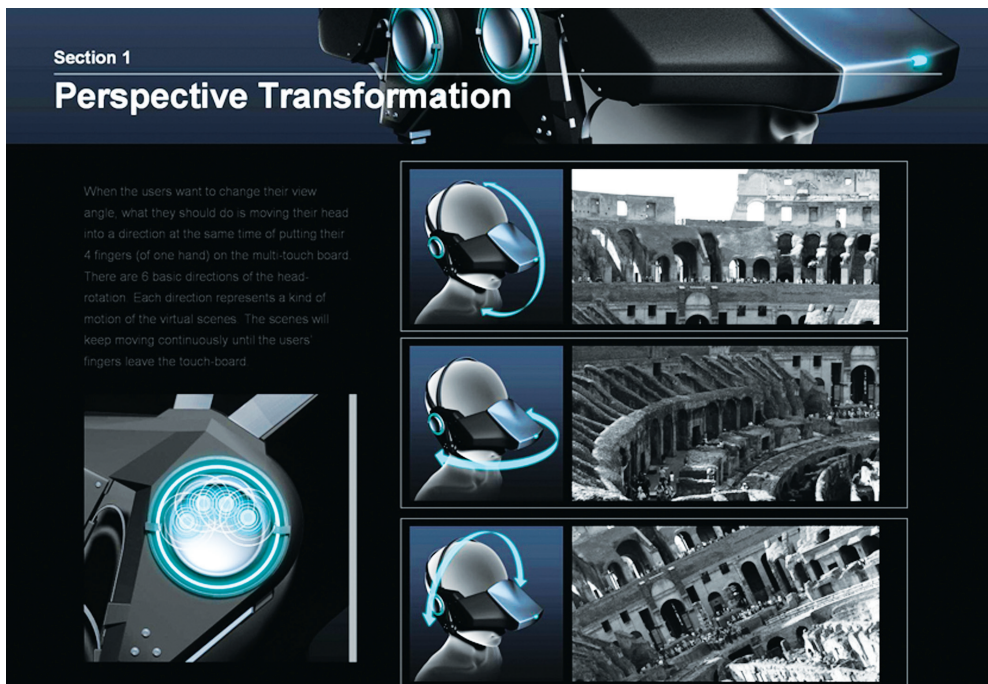
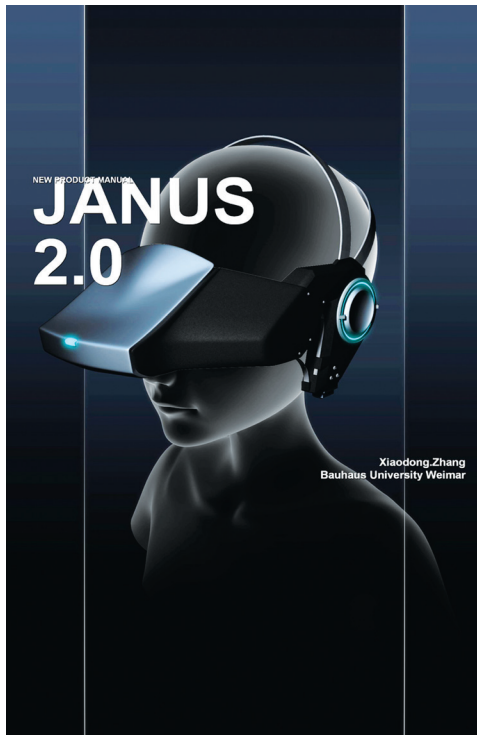
5 The fragmented Janus-head, illustrated by Florian Meyer. (Source: *THE GHOST WITH TWO FACES*)

6 Janus and the fulldome chameleon. (Source: *JANUS 1.5*)





7a-i Janus as a Cyborg-like being.
(Source: JANUS 2.0 DER FULDDOME-GOTT)



8a-d Instruction manual and technical details for the Janus 2.0.(Source: Zhang 2012, pp. 12)



9 Janus and Venus at the FullDome-Festival Gala. (© Torsten Hemke 2012)

Whereas Jiayao Chen is inspired by science fiction, Xiaodong Zhang designed a realistic consumer product to achieve 360° vision (Fig. 8). Based on a solid study of state-of-the-art augmented reality systems, goggles and head mounted displays, her Janus 2.0 kit comes complete with instruction manual and technical details for the expert: «There are 4 digital cameras on the head-mounted unit. Each camera has approximately 12.1 million effective pixels. The four cameras can move separately, so they can cover the whole range of the space. The display of the head-mounted unit is equipped with a high quality display panel. The unit is made of 7 OLED 0.7-inch panels. Each panel is not just a flat surface, but a curved surface, so it will cover the whole area of the eyes» (Zhang 2012, p. 9).

The device scans the real environment and rebuilds it in virtual surround vision: «The world can be viewed from any angle, even in 360° like in the fulldome theatre. Janus breaks the limits of the human field of vision» (Zhang 2012, p. 9).

How does it feel to wear such a device? Camilla Saloto Nogueira da Gama created fictional characters giving believable testimonials about the product in the style of a customers' reviews in an online shop. One «Daniel» gets excited about playing soccer with both teams putting on the Janus 2.0 device. «Julia» is happy that she can watch what her kids are doing behind her back.

In another story by Camilla Saloto, the «real» god Janus is using the 21st century device that is sold under his name. Evidently, this account had a strong influence on the Janus/Venus-performance described above: «I, Janus, the God, have tried out the Janus 2.0» device and I want to tell you what I think of it. You may wonder why I did this.

Recently I contracted conjunctivitis, and in my rear eyes at that! I was only able to look ahead. My rear eyes I could hardly open any more. It was not only the pain I felt; what distressed me even more was that I had lost my special divine attribute, the dual-faced head. With my useless, inflamed eyes at the back of my head, I was as ordinary as the other gods, or almost as the human race.

This embarrassed me also for another reason. Venus, the Goddess, had invited me to Jena to attend the FullDome Festival. It is no quotidian thing that a Goddess as attractive as Venus invites you to anything at all, let alone to such an event on the earth. Her invitation surprised me, as we rarely ever meet. She hardly knows me, though I know her quite well; but then, who doesn't? And then, of all times, that mishap with my eyes had to befall me!

I was sick and felt miserable. Venus, however, would not give up. And who could deny her a wish? And so I accompanied her, my rear face disfigured by ungainly eye patches. And then, at the festival, I came to see this product they called Janus 2.0.

To be quite honest, it saved me! With Janus 2.0 I can finally see again what happens behind me – a faculty that ought to be a matter of course for me. What's still better is that I can influence what happens around me. For a god, to see what others cannot see, to design new realities or decorate existing ones is no big deal, though, but with Janus 2.0 it's real fun. The festival is not bad either. And I can see perfectly well how all the men in the rows behind me are staring at Venus. For many, she seems to be much more attractive than the fulldome shows...» (da Gama 2012, p. 1).

Enthroning Janus as the God of Fulldome is understood as an act of encouragement to move from screen to sphere, from the flat, forward facing media world to an expanded, immersive 360° fulldome habitat. The metaphorical Janus enters the stage with a suggestion for a smooth, but conscious transition: Imagine you can look around without turning your head. Imagine you can move inside the image as opposed to looking at it. Obviously, the human imagination needs to be stretched in more ways than one, before it can indulge in surround vision. As another traveller of the heavens put it: «...it's a big step for mankind.» May Janus and Venus continue to grace our progress with their company (Fig. 9).

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