A Conversation between Melanie Jackson and Marcus Verhagen on *The Urpflanze (Part 1)*.
Transcribed by Matthew Bowman

Marcus Verhagen: Can we begin by talking just a little bit about drawing? What role does drawing play in this show and in your practice?

Melanie Jackson: My starting point was thinking about the imaging and drawing available to me as opposed to the complex imaging technologies used in science and industry. I was intrigued by the things they can see and construct with those tools - and attempted to bridge that space.

MV: Drawing has often bridged that gap, hasn't it? I'm thinking Albrecht Dürer, for instance, and all the drawings he made after nature. And of course, drawing has a special place in scientific inquiry. Drawing is the medium of notation, and is very close to the diagram. So I was wondering how we can talk about your drawing of a pollen grain which is perhaps the first thing people see as they walk into the room. Can we speak of this drawing in those terms? (drop in image)

MJ: All the scientists I spoke to were using very sophisticated microscopy techniques which show minute particles in great detail. I wanted to try and 'output' these images from their screens, to get some material evidence of the imagery with the means I had available at the time. I was also interested in the time taken and the intensity of the looking involved with close observational drawing. I wanted to see how accurate I could possibly be with a really basic tool and liked the idea that there was a physical mark of the time taken to try and apprehend the structure of this form. The only alternative available would have been a low quality digital print – with all it's inkjet approximation of what was visible on screen. It also seemed apropriate to

have it there as an object lesson, as a reference to the historical position that hailed observational drawing as the primary starting point for a line of enquiry.

MV: Your talking about a microscope in relation to a drawing reminds me a little bit of that object over there which is modelled on a gold microcarrier. I want to ask about the way you present it; it looks as if it's on a pedestal, a little like a sculpture on a pedestal. But the pedestal and the lights together also look vaguely like a magnifying glass without the glass, as it were. And again, it seems that the work faces two ways: it looks like an art object on a pedestal but it also looks like a scientific instrument.

MJ: Yes, I was really interested in my position between those two forms of knowledge. I wanted to find out more about the form by re-forming it, mimicking this strange disembodied particle. Working with particles at the nanoscale simultaenously evokes the vast and minute, and images hover in a strange place, oscillating between imperceptiblity and incredible detail. At that scale and with that equipment the nanoparticle appears monochrome and never quite satisfying to the imagists who identify them. They often dress the images like this with gold, digitally rendered surfaces. I was interested in that. So I used gold leaf.

MV: So it wouldn't actually have looked like this. . .

MJ: Well, it may well like that if we were able to see it as it actually appears, bathed in light. Images viewed at that scale are translated from an atomic force microscope – which actually 'feels' its shape, and software translates into a monochrome 3D digital model. Renders are subsequently added - especially when presented to non-scientists to make it more beautiful, more seductive, more golden.

MV: That's interesting, in fact there are a lot of things in the show that you can't really see with the naked eye—there are some you can barely see even

with technological aids, like these pollen grains here. I was wondering about that—about your interest in things that partially elude sight. Can you speak to that? It also occurred to me that as you walk around the show you keep thinking about the textures of objects, and conceivably the smell of objects, the sound of objects. In the case of the animation, we hear the sound of plants growing. And it struck me that possibly, given your interest in things that are difficult to see, you are directly or indirectly encouraging us to think about other senses, mainly the sense of touch.

MJ: I'm fascinated by 'things' that are imageable and things that are not and things that have complex tactile surfaces but at an almost imperceivably small scale. Scientists know so much about materiality at that scale now and it is where most scientific research is focused. Aaption of particles, genes, and electronics at that scale is accelerating and will guide our future, but is hard to engage with because partly of its imperceptability. I'm interested in figuring out how to translate that into something haptic and within human scale. Trying to make fairly precise explorations of difficult ideas with crude , really very crude material is part of the fun.

MV: Let's talk about that, about materials. When we met a couple of weeks ago and had our first chat about the show you explained that these gourds are made from pulped copies of the Financial Times—is that right?

MJ: Yes – the gourd is the *Financial Times*, the pumpkin *The Guardian*, and the one thats bursting out of it's frame is actually a hybrid of tabloids.

MV: It seems there's a certain humour in your choice of materials. Can you tell me more about some of these materials—the wood, for example, or the market clips? There are all these allusions in your work to very advanced technologies, to the kind of technology that allows us to picture these objects in the first place. And yet some of the materials you use are deliberately very crude, very simple.

MJ: They are ubiquitous, and very familiar but not usually used to explain difficult ideas or forms. I started to work with a pile of newspaper and some sticks cut to random lengths from the by processes of manufacture from my local woodyard, clips, and cable. I wanted to restrict the materials to test the limits of their own form, partly as a slightly tongue-in-cheek reference to modernist sculpture, and partly as a nod to the way DNA pulls in simple cells to build complex structures, forging ligaments or joints or bones—finding those provisional local solutions to growth and development. I was interested in how very simple things become very complex.

MV: So adaptation on a genetic or biological level might also serve as a parallel for other kinds of adaptation, the kind of ad hoc solutions you might find to technical problems in the studio… ?

MJ: Yes, absolutely. For instance I love market clips, they're used in markets and building sites, with tarpaulins and stands to quickly draw or redraw the space in which you need to operate; there is something quite nice about that relationship.

MV: Can you talk about the animation piece? My first question is around pacing: the images go by very fast, though the speed varies, doesn't it? Certainly, there are moments when images flash up very fast. That strikes me as interesting, partly because it seems to short-circuit a certain romantic perspective on nature, one which has a very long tradition and which is still alive and well—particularly in England: the idea of nature as an object of contemplation, the idea that, to apprehend nature, you have to take time, you have to sit before it and meditate, like Caspar David Friedrich's *Monk by the Sea*. Here you can't possibly do that because the images flash by so fast. Can you talk about the pace here?

MJ: All of them are approximately 20 frames per second, approaching the frame rate of conventional animation, which is also approximately the speed that DNA replicates in plants. I cycled them in short series of 'forms' and

extended the last frame of each to punctuate them. I was interested in that notion of frenetic activity within something where its exterior seemed still.

I collected images over a year of every type of plant I encountered. I worked from memory - " I havent seen that plant form before, or I havent seen in that state before, so I take a picture." It was a quasi scientific subjective index, I guess, but within that I became quite fascinated in the great variety of plants were to be found in the suburban and city space. Some of them were 'natural' or indiginous; a lot would have been bought into the city and the marketplace from some kind of colonial venturing such as the tulip and daffodil and cacti, but I was also struck by the endless varieties were bred with extreme technicolour hues in order to satisfy a consumer desire for different colours and forms a - niche market of suburban excess. I found that quite playful, quite funny, and some of the colours seemed so digital and extreme. They matched the digital playback and the acid brightness of the digital palette.

MV: You seem to be talking about time on different levels. You spoke about the import of certain flowers or seeds in colonial times, so the work seems to refer to both the time of history and the time of natural cycles (meaning slow cycles, as in the lifetime of the tree, for instance, but also the very fast time of DNA replication). And the show as a whole invites us to think about the cycles of art production—how slowly the animation must have been made, for instance, as opposed to the camera's shutter speed. Instead of encouraging us to think about time not as the Romantics did, the show pushes to think about our various experiences of time in a technologically advanced society. What about the organization of the plants in the animation? It seems there are definite categories and cycles in the animation. I was wondering if you were playing on the taxonomic organization of the traditional museum display.

MJ: I was referring to museum display, and also playing with structuralist film, and the idea of the additional frame, the additional space—the limits of the frame, the limits of the image—so I started organizing them through colours, then through forms, and through series of forms. There are distinct sequences

and also cycles where series are repeated and extended by an additional image with each playback. The original Goethen idea (of The Urpflanze) really chimed with me, the primordial revealing something of the future, and an endless potential of form. In the same way I was also interested in the way a newspaper becomes redundant/worthless the day after it is printed. Yet they can become incredibly important in the future –the origins of the present are reveled in the past, and they become significant once again. Im interested in the ways newspapers also take on the aura of othe oracle ; its residual in tabloid titles like The Star and The News of the World, where the cosmic gravitas always amused me. I do enjoy these concurrent cycles that run at very different speeds.

MV: Is that why you decided to produce a newspaper instead of a catalogue?

MJ: Partly that and partly because we keep being told that newspapers will imminintly become redundant, about to become an historical form. They say the only viable kind of newspaper is a free one. The scale of distribution of those though is phenomenal, For instance, the Metro newspaper prints 750,000 copies per day in London alone. I was fascinated by the scale of of the newspaper printworks and the speed of its production lines. I was interested in it as a medium as well – as matter, as pulp, as cellulose.

MV: There's another humorous side there in the circularity—in the idea of having a show about plant forms in which some of the works are made out of pulped trees. I also wanted to know a bit about how the newspaper functions in relation to the sculptures and the animation. It conveys a lot of information. You and Esther Leslie cover a range of topics from guerilla planting to how to insert the DNA of one plant into another. Can you talk about that? Can you talk about how, after all the research you've done, you convey exactly what it is you're showing to an audience that might be less scientifically literate than you are?

MJ: We were really interested in using that tabloid format to collate articles and snippets of information that might be unfamiliar but that would be quite

succint. We wanted introduce ideas that we felt had some important bearing on each other even though they were very disparate. We were interested in tthat arrangement, the way that they constellate in society and in the imagination. We were trying to draw out connections and meaning by leaving a space around ideas, rather than forcing them into a single essay. We imagine the paper laying around for awhile which you just snatch a snippet at a time, and make sense of it over time.

MV: Is it in any way structurally similar to the show itself?

MJ: Yes, I think so. I do see it as an ongoing set of questions, and this being the first stage. In this first part I wanted to set out some of the relations between drawing and sculpture, and between *things* and text, the central influence of science on aesthetics and everyday life – and lay it all out. I don't when there will be a concluding part two, (or if there needs to be?) but it seems important as a potential stage of inquiry.

MV: And in the newspaper you suggest there will be another edition tomorrow.

MJ: I was also interested in how software keeps doing that now with 1.1, 1.2, 1.3; it evolves and numbers itself until it reaches a new stage of evolution and is renamed.

MV: You mentioned Goethe's *Urpflanze* and you talk about it in the newspaper. This seems really fundamental to the show and to virually all the entries in the newspaper. What led you to work with this idea?

MJ: I was intrigued by his sense of infinite possibility, of endless potential for transformation. I found Goethes relationship with knowledge really fascinating and quite playful. It was about the thing, and the idea of a thing and, as importantly, how that understanding resonates with the imagination, where it sits in the imaginary. That was my starting point and I found out that one of

the actual plants that was the model for his thinking still exists and has been growing since 1585. It's still growing now.

MV: So he was referring to an actual plant?

MJ: He saw an actual plant in the botanical garden in Padua which he took a snippet from a and carried it with him on the rest of his 'Italian Journey' a bit like an amulet – one historian described it as a 'fetish'. It generated into a much bigger set of ideas about plants and nature and the natural. I went to see the actual palm and found that very exciting. The garden has got world heritage status by UNESCO as being the origin of exchange of between science and culture—which is a kind of overblown designation but nonetheless one it has been awarded. I'd been reading Esther Leslie's book Synthetic Worlds and I later found out that she also had been writing about the Urpflanze; a nice coincidence. So there began a dialogue which was exciting for us both because it pulled together many different sources and interests.

MV: I imagine your interest in the *Urpflanze* is rooted not just in the writings of Goethe but also in Walter Benjamin. I was wondering about the Urpflanze today: does it have a particular resonance for you today, now that we can map DNA for instance?

MJ: We can not only map it but actually build with it. The fact that we can actually construct invented structures from DNA now is a strange and extraordinary shift. Scientists believe we will converge engineering with biological function to design complex structures, machines and objects. Quite extraordinary.

MV: That is where the digital animation comes in. Can you talk about this piece? I'm not sure what the term is—but it's a biologically engineered structure that serves the kind of purpose that man-made structures have served in the past.

MJ: if you delve into this world of synthetic biology then one of things that keeps coming up is the idea of growing complex structures either from the ground or possibly from a 3D printer. Instead of growing a tree and cutting a table from it, we grow the table. We could grow a house, or other complex structures such as machines or gadgets. They will not be alive in the traditional sense but will maintain function through biological processes such as photosynthesis and other transformations. Its one way scientists or comissioners of research are try make the public feel involved by giving applying it to very familar or 'useful' objects as opposed to food or life forms or weaponry which have created a lot more anxiety. One of the ideas I keep returning to is an often quoted example; of growing a gourd big enough to live in; that amused me because chimed with fairy tales like "Jack and the Beanstalk." I spoke to an architect friend of mine who's also a very keen gardener and asked him to imagine how he might draw up the specifications if such a project were commissioned. We scanned in a gourd that he grew for the project and explored the inside and outside of the form. Architectural software is obviously designed to move between the scale of the model and the detail of the surface to vast built structures and landscapes and glide between them. The software is not designed to output the wireframe models as films for clients. Just like the science models – you are encouraged to render everything with a golden sheen, so we had some fun with at well.

MV: You gave it the gleam of the commodity, of the marketable house, didn't you?

MJ: Yes, a pure form. In actuality it would be a very complex and probably quite a undesireable form to occupy.

MV: The piece relates effectively to several of the works in the room, including, of course, the microcarrier, which is also golden. Actually, it creates a certain disorientation as you watch the animation here and then move towards this giant gourd. The plant in the animation looks a like a zepplin at one point, hovering in the air, just as the pollen scuptures, when taken together, look like planets as they might appear in a natural history museum,

in a display about the solar system. There are major disjunctions in scale throughout. The gourd also made me think of science fiction films, and I was wondering, what with the giant gourds and blown-up varieties of pollen, whether you're touching on a certain fear of nature gone wrong. This is a classsic topos of science fiction, isn't it? I meant the fear that through genetic modification, radiation, or other processes we're going to cause havoc and the natural world is going to develop monsterous forms. Is this something you're interested in?

MJ: I'm interested in the similair fears we have about artificial intelligence, biotechnology and something like *grey goo theory*. There are recurrant fantasies throughout history about the copious supply of labour free food, and the transformation of natural matter into gold. I did a lot of research in to the land of cockaygne and the land of plenty—of being surrounded by plenty, being satiated with bounty—and of disruptions in the scale of things –. All those fantasies of plenty seem to chime with some of the aspirations for biotechnology. We concuur so far with ideas of a labour free society and with copious quantities of free or effortless food, then a balance tips and suddenly theyre replaced with fears of being swamped or taken over, or disenfranchised. I was also interested in the parallel between the heavy regulation of seed and the regulation of people.

MV: In the newspaper there's a reproduction of a poster produced by the Eugenics Society which had me thinking about natural forms as ideologically loaded motifs. The idea of "good seed," which is there in the poster, is very disturbing, for instance. In one of the essays in the newspaper there's an wonderful passage about the Jolly Green Giant, about how plants are used in advertisments. Plants or other natural forms have been inserted into certain ideologically-inflected narratives; to what extent is that significant for you and relevant to the show?

MJ: I thinks it's really interesting. The plants in the botanic garden for instance were displayed and collated as examples for potential new imperial industries and investment; as much as examples of natural history, the botanical garden

was never about ‘pure’ knowedge. It originated as a catalogue of plants that might provide economic and scientific opportunity. Kew Gardens originated and still has an economic botany collection, and at times this has been it’s primary remit. In popular memory they have been mediated as spaces of leisure, observation, and Romantic contemplation. In contemporary times their role as seed bank is quite primary – as we anticipate not only a masssive loss of species due to change in habitat, climate etc but also an irevocable change inand adaption of seeds due to genetic modification and future developments in bioengineering. We need to keep the ‘natural’ ones in a gene bank incase they disapperar from ‘nature’.
I didn’t want to bring all the textual information into the show—it’s far too much—but I was interested in the possibility of sitting down to read around it on the way home.

MV: Having read the newspaper you come back to the show and see it in a slightly different light. I want to ask a couple of more general questions. I wanted to talk about the disruptions, about the sense of disorientation that the show provokes. It provokes it through dramatic shifts in scale and, as we said earlier, through allusions to radically different experiences of time. I think for most scientists the natural world is theoretically knowable, even if we don’t know it yet. And science concerns itself with the natural world to the extent that it is knowable. The disruptions in this show suggest to me that actually there are huge ruptures in our systems of knowledge, that you’re very wary of the view that the world is theoretically knowable. I should say this more tentatively: Are you wary of this view?

MJ: This sense of knowledge, this sense of knowing?

MV: Yes, that the world is knowable. Perhaps a more interesting way to formulate the question is to ask how you understand these epistemic ruptures in your work. How important are they—not so much to individual works—but to the show as a whole?

MJ: Something that fascinates me is extraordinary phenomenon like the Hadron Collider: the minute size of the particles they are seeking to observe and the vastness of the appartaus needed to create the conditions for it to exist. It is a huge 25 kilometer magnet created at a unprecedented cost and the product of complex international collaboration. Most scientists involved are interested furthering knowledge and are not able to enter into a dialogue about its application by the energy industry or the symbolic value it will lend to the power structures that fund it. I am interested in these disruptions in scale, in emerging discoveries on physical properties of matter, and how they interact with other systems of knowledge and belief. I really enjoy talking to scientists—I talk with scientists in my video who are are entirely focused in finding out at what point evolution branched or how plants perceive night or why new form evolved. I'm interested in how new scientific discoveries open up and disrupt systems of knowledge and representation, including art and the aesthetics of everyday life. A lot of funding is also tied to corporate investment so the applications of that knowledge may be directed, patented, applied industrially and politically and have ramifications as yet undreamt of by the scientist.
I am really concerned with how I, as a kind of generalist, or member of the public, as well as an artist - must interact with all these competing interests and systems of knowledge.

MV: What can artists contribute? Artists can learn from scientists, as you have, that's clear in the video—this is, it seems, fundamental to the unfolding of this show and your work in general. Do you think artists can contribute to scientific debates—or debates that extend beyond the sciences? Debates around cloning, for instance, or GM foods—and so on.

MJ: I think the most interesting thing artists can do exactly what you suggest – open up and explore these epimestic ruptures, gaps and overlaps.