

APPENDIX:

Some Notes on the Camera Obscura of Knowledge.

A camera obscura is an enclosed space which has shut out the light except for a single aperture, a small hole, fashioned, cut or drilled into one of the sides. The room or 'box' must have at least 6 sides, one of which is punctured by the hole and another which displays the light beam that enters the box.¹ We will not discuss, any more than necessary here, the form of the camera obscura as an apparatus, because this is so varied. Some cameras are fitted with screens of ground glass in direct alignment with the light 'hole' and that display in a different way from other kinds of cameras where, for example, the hole drops the light onto the floor of the chamber. All these produce changing variants on the camera obscura, but all share the same principle: that when light is compressed through a narrow aperture into a dark space it is given to representation of the source of that light in Realtime, that is, in colour and in movement.

The camera obscura is often given as the origin of photography, and this would be true. But in some way, this is also erroneous, because the camera obscura is real time capture and not a reprographic one. Thus, the camera obscura is a complex and variable apparatus, which has been through many changes from its first applications.

By the 17th century, camera obscuras were being designed and made to fit various requirements. These apparatuses were much more complex than the dark room with a hole in it. Some were portable and fitted with periscope mirrors that directed the image onto a ground glass screen. By the periscope method, the resulting image appeared in correct alignment; there was no longer the problem associated with the 'inversion' of the image, as in the natural way of the human eye, where

¹ The six sided box/room can have variations in it. It could be a polygon and each of the facets is holed, somewhat in the manner of a kaleidoscope. Provided the light is restricted the phenomena could be made to appear on each interior facet or, more speculatively, on an internal structure independent of the polygon.

the image on the retina is upside down and with right and left reversed. With the ability to correct this inversion by the use of mirrors, acting in the manner of the brain, which corrects the inversion in the eye, the camera obscura became a projector. The image generated by the aperture, the dark interior and the system of mirrors meant that an image was presented to the operator of the apparatus which could be traced from the ground glass upon which it was projected onto another surface such as a document, panel or artist's canvas.

We will assume that the camera obscura became known by the construction of a chamber. To experience the phenomena in a cave might also be possible but unlikely. Thus, to think of the camera obscura is to think of something as dependent upon the origin of architectural space, the architectural ur-forms of the temple, the 'hut' and the tomb. This demand is sufficient to dismiss any similarity of the camera obscura with 'Plato's cave', as the camera obscura is not a shadow space, but a blacked out space darker than the natural world outside of subterranean tunnels.² When the ancient architects began to construct corridors separating rooms and even construct private chambers within larger halls, the camera obscura effect became known by the experience of the builders. It was they who were in the blackout space when an aperture was created either by design (tombs were often pierced by small holes), or by the actual process of building when chinks in the walls occurred during the laying of stones allowed the light to penetrate the spaces.³ This hole captures, invites-in, the light and directs it toward its opposite surface where it forms an image. The hole sees via the light source which is outside of it. When the aperture forms the image on the other wall, the screen-image, it reveals the outer world as a 'picture' but inverted, that is upside

² With regard to subterranean caves and tunnels, the camera obscura really has no relation to them. The camera obscura is not devoid of light, but a dark space in which to 'see the light'. In this sense the camera obscura has never been a natural object, but a scientific one.

³ There is an interesting reference in one of Federico Fellini's films, *Roma* (1972). A concealed room in a Roman villa, was discovered and archaeologists were able to enter it. What they saw in the darkened room as they shone their torches on the walls was a whole series of marvellous frescos. They decided that they must have more light and widened the entrance to the chamber. Daylight flooded the room and as it did the archaeologists watched in horror as the frescos, over a period of a few minutes, were dissolved by the light.

down and back to front, but inside in a space which is dark and is only penetrated by this one light. In a sense we are in a sealed tomb. But someone has drilled a small hole into the tomb. This was the practise of the ancient Egyptians. The pyramids contained these dark chambers equipped with small holes so the spirit of the dead could come in and out. But of course, they discovered at the same time that the hole of escape was also to reveal the world to whoever was able to look or to study it. The camera obscura was to provide a machine for observation and this knowledge and, if knowledge, then power. It could be argued that the historical significance of this is rather underrated. That the image projected on the wall or screen in a dark space, was forced to give way to the over bearing logos of language and this the whole theory of the image became somewhat neglected by the need for instruction.

The camera obscura allows for the objective inspection of the outside from within the dark space. For philosophers such as Rene Descartes and John Locke (and others – the whole of the school of Enlightenment, for example) the camera obscura was a source of knowledge and a model of the ‘mind’. It is that the ‘thought’ can only exist in the private contemplation from inside the dark space which becomes something like the space of apprehension. Henceforth: knowledge of the illusions created by us, as they descend, as if from above into the apparatus, renders power to the observer and represents the power they, the observers (and ultimately the sovereign state), has.⁴

The camera chamber is not one source of light among others, but the very origin of the knowledge that the world is represented by light phenomena. Everything is dependent upon some kind of verification by that which is produced by nature. Philosophers and artists were able to visualize what the world ‘out there’ was actually ‘like’ and in agreement with each other. The camera obscura thus allowed for a *discourse* to develop. In this there is the idea of encoded vision, the encryption, of the sealed room, the ‘crypt’, the most sacred (and secret) part of the

⁴ Michel Foucault explained this in the chamber of Velasquez’ painting, Las Meninas. Foucault, *The Order of Things* Routledge, London, 2003 ps.3-18.

temple.⁵ The encryption of the camera obscura gives on to a meaning of the secret, and thus the requirement of interpretation. Only those who understood the encryption of the world in the hyperreal screen of the camera would be those able to pass judgment on it. In this sense all art museums where, of necessity, there are few windows, there are camera obscuras, cryptic rooms requiring expert interpretation.⁶ Those with the *knowledge* of the encryption are those with the power to judge. Hence the camera obscura is an important object, and, according to Sarah Kofman, fulfils a strong ideological function.⁷

Those who were able to look at the representation of nature had more convergence about what was observed than if they saw it 'in itself', which in fact as we understand from Kant, was the whole problem of the perception of phenomena. We are not able to understand things-in-themselves, only as they *appear* to us. That is some faculty in the mind automatically transfers these observations into the simulacra as recognisable objects of data. The camera obscura, much like a picture in painting, represents the world not as it is in itself, but as it appears to us via the encryption of the simulacra given by a medium. The camera obscura then is important philosophically. It allows us to view things as already representations and, in a sense, dispenses with actual reality in favour of a schematic *reading* of the world which is presented for study and thus, also for exploitation and control.

The science of cybernetics, when it arrived in 6th century BC (!) or thereabouts, developed systems of control, ways of steering things where you want them to go. This science ultimately relies of representations to map/diagram how this might be achieved. The images of the camera obscura, the darkened chamber, was at one time very secret and mysterious. Even up to the invention of photography, which

⁵ Jacques Derrida, *The Margins of Philosophy*, trans Alan Bass, Chicago University Press, 1982, p.85.

⁶ Edmund Husserl's enthusiasm for the galleries of paintings in the work of Teniers is explained by this necessity to interpret, see, Husserl, *ideas pertaining to a pure phenomenology and to a phenomenological philosophy 1st book*. Trans. F. Kersten, Martinus Nijhoff, The Hague 1983, p. 262.

⁷ Sarah Kofman, *The Camera Obscura of Ideology*, trans. Will Straw, Cornell University Press, 1999, ps. 75-97

then becomes the 'media' of the identity of things, objects, people and places. In this way the effects of the camera obscura provided for real-time observing systems, such as GPS, before such things were actually invented. Likewise, in extension from photography, the security camera with its CCTV video, harks back to the 'origin' of the light image as real-time projection in the darkened room. In architecture by the use of curtain walling (1950's-70's) and televisual security systems from the 1980's onward: the development of domestic televisual technologies which use electrically generated light (in the old days of TV, it was not unusual to turn out the lights and close the curtains when watching) and, more recently, the digital diode which is now the universal light matrix. It is only at this point can we safely assert that the camera obscura enters its own special role amongst political scientists, planners, architects, creative professionals and yes, the population at large. Yet here there is one crucial difference. This is the decline of 'natural' light under the conditions of the energy grid. CCTV is already 'dead'. There are other and more sophisticated ways of observing through satellites and tracking apps and even in the information economy (including cookies and all your online 'activity'). The powers know who and where you are without cameras.

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Camera Obscura Model, BCCAR, Borgholm.

