Botanical illustration and flower painting are regularly designated as separate genres, one scientific, the other art historical, distinctions that are challenged here as problematic given that the art forms share and interrelate in ways that have not been sufficiently considered. As a form of scientific representation, botanical illustration assists in plant classification, conservation and exploitation, and has avoided critique due to its protection within the privileged discipline of science. However, botanical illustration has a long genealogy that participated in developing cultural concepts of aesthetics, religion, and society long before Linnaean classificatory systems brought about a proliferation of plant illustration in the eighteenth century. Botanical illustration became a tool recording imperialist endeavours to tame and utilise nature through processes of documentation and collection, and was intimately associated with medical, social, economic and racial practices during the eighteenth and nineteenth centuries. Botanical illustration cannot exist in scientific isolation outside of its historical connections, since even the most basic depiction exists within a broad socio-cultural perspective.

The British author and naturalist, Wilfrid Blunt, in his much-cited *Art of Botanical Illustration* claimed that "the flower painter has been tossed like a shuttle-cock between the scientist on the one hand and the lover of the beautiful on the other." Blunt's dualistic (duelistic?) metaphor depicting the "flower painter" as an innocent tool in a contest between science and art failed to acknowledge the cultural values both disciplines shared. In fact, flower illustration flouts easy categorisation, existing in a nomadological state by becoming whatever it is required to be, whether a scientific diagram, historic document, horticultural image or work of fine art. Botanical art's ability to permeate borders was demonstrated by the successful exhibition of Celia Rosser's banksia paintings, produced by Rosser as Science Faculty Artist at Monash University. Managed by the university gallery, Rosser's banksias have appeared in both art galleries and display spaces attached to botanical gardens. Such venues demonstrate the ability of botanical illustration to subvert easy categorisation by moving between and sharing academic disciplines.

The Impossibility of Objective Science in a Social, Subjective World.

Conventions used in scientific documentation, both written and visual, have acted to distance the subjective investigator from the matter under examination through an assertion of objectivity that attempted to remove the discipline from the socio-cultural milieu that produced it. The investiture of the scientist with objectivity, authority and status disguised the actuality of personal engagement with subject matter, in either emotional or social contexts. Given that human interaction with the 'natural' world is often expressed in emotional or cultural terms, botanical illustrators became intimately involved with their models in relationships that defied scientific detachment.

The psychological processes of repression and sublimation, which Michel Foucault associated with the rise of the bourgeois in the seventeenth century, may explain certain repetitive characteristics that appeared in botanical collection and illustration, while dispelling the aura of objective possibility. According to Freud, repression enabled primal instincts to be modified for social acceptability, but surfaced in compulsive habits and obsessions, while sublimation "was consistently associated with the desire to know." As forms of sexual displacement, repression and sublimation were methods of both controlling and liberating sexual energy, an energy that might explain the devotion and diligence applied to producing monumental bodies of work.

The botanist Carl Linnaeus was described as "depressive, neurotic and secretive", a man with a "curious passion for systematising everything that came to hand", a man exhibiting "obsessive-compulsive tendencies and paranoid anxieties.” Ferdinand Bauer's work for Joseph Banks was so detailed that, in Banks's opinion, it "rendered any text superfluous, each drawing being 'intended to answer of itself any
question a botanist can wish to ask." [10] Bauer's obsession with accuracy extended to the invention of a four-digit colour code that enabled him to later complete the works in their exact tones. [11] Walter Fitch's artistic output was described as "all but incredible in quantity," since Fitch published 9960 drawings, an average of four plates weekly over fifty years. [12] Biographers often expressed amazement at the obsessive dedication and all-embracing need many illustrators applied to their tasks, as Celia Rossa and Stanley Kelly demonstrated in their representations of complete banksia and eucalyptus genera. [13] Freud's association of sublimation with intellectual activity, art and scientific investigation offered a means of understanding the sensuality and sexuality of much botanical illustration, while calling its objectivity into question. [14]

The claim of scientific language, both written and visual, to objectivity and emotional disengagement ignored the cultural and sexual implications it embodied. The seventeenth century philosopher Francis Bacon advocated inductive reasoning which appeared to be logical and structured; however, Bacon wrote in gendered terms, where mastery and domination were to be exercised over a feminine natural world. He invited scientific minds to bind "Nature with all her children … to your service and make her your slave." [15] He asked all true sons of knowledge to join him "that passing by the outer courts of nature, which numbers have trodden, we may find at length a way into her inner chambers." [16] Such a forceful return to the womb by "sons" implied rape in addition to the forbidden taboo of incest. Luce Irigaray described how masculine sexuality (often expressed in penile competition and rivalry) also found "imperatives dictated by the enactment of sado-masochistic fantasies, these in turn governed by man's relation to his mother: the desire to force entry, to penetrate, to appropriate for himself the mystery of this womb where he has been conceived, the secret of his begetting, of his 'origin'." [17]

Brian Easlea, in *Fathering the Unthinkable*, examined the sexed language of nuclear science, concluding that it demonstrated a masculine desire to appropriate female reproductive ability. [18] His argument recalls Irigaray's suggestion that competition for the "biggest" and most powerful instrument is intricately associated with the minute manipulation of the particles of life...that nature's secrets are certainly being penetrated. Genetic engineering, as a project continuing in the tradition of gaining knowledge through the visual penetration of nature, must also be considered for the language of objectivity it assumes. Through intricate and intrusive manipulation of codes and patterns of botanical and animal embodiment, genetic engineering can also be seen as a means of creating and controlling nature - traditionally described as feminine and out of control. Of concern, as both Donna Haraway and Richard Bateman indicate, is the continued pretence of objectivity by scientific supporters of genetic engineering projects, and their reluctance to recognise inherent biases in the program or to sufficiently address public and academic concerns regarding that program. [19] The myth of scientific objectivity in both written and visual language has been exposed, but reluctance to admit to scientific prejudice remains.

The Flower as Metaphor

The long tradition that associated women with flowers and nature requires careful consideration for the social and cultural values it embodied. Female sexuality and morality were endowed with floral metaphors in a manner that masculine qualities were not. As a result, botanical, horticultural and scientific technologies such as genetic manipulation were embedded in explorations of particularly female reproductive sexuality. Such metaphors limited a broader understanding of human relationships with flowers and plants that defied gender boundaries, offering a more integrative means of comprehending human existence.

In science, botany placed female sexuality on a hierarchical scale based on traditional gender and social structures. In her book *Nature's Body: Gender and the Making of Modern Science*, Londa Schiebinger drew attention to the manner in which Linnaeus in *Systema naturae* (1735) structured his taxonomical system as a kingdom, placing classes (based on male parts) above orders (based on female parts). [20] In his kingdom Linnaeus described plant sexuality in terms of marriage, an additional social context. As Schiebinger noted, for Linnaeus "sexuality in plants was romantic, erotic, sometimes illicit, and sometimes the sanctified expression of love between husband and wife." [21] William Smellie, a naturalist writing in the first edition of *Encyclopaedia Britannica* (1768-71), proclaimed that Linnaeus's system was based on obscenity, and, after initially writing in English, Smellie finally resorted to quotation of the Latin original (interspersed with the terms cunnum, Labia, vasa spermatica and vulva). Did Smellie censor the content to protect delicate sensibilities, or were they reserved for the titillation of a small, elite brotherhood? [22] The use of Latin raised issues of both class and gender. As a language limited to educated gentlemen, Latin facilitated Linnaeus's ability to communicate beyond national boundaries, but
it also effectively excluded both women and the classically uneducated. [23] Thus, while Latin might be seen as a means of censoring readership and protecting the linguistically or morally unfit, it might correspondingly be seen as a sexually explicit form of voyeurism reserved for a small, powerful, masculine, elite. [24]

For centuries in art the floral motif has provided an acceptable metaphor whereby women and men have been able to express a sense of their sexual embodiment through the depiction of flowers. While diverging from strictly scientific illustration, I believe that floral painting deserves a brief analysis for comparison of shared aesthetics and sexuality. The sensual aspects of plant illustration have long been recognised and discussed in art history, whereas botanical illustration has been protected from equal analysis by its scientific categorisation. [25] Georgia O'Keefe's voluptuous floral imagery, painted in the 1920s and 30s incited emotive responses. In *The Art and Life of Georgia O'Keefe*, Jan Garden Castro described how "One woman removed a flower painting by O'Keefe from her living room when she found her husband using it to illustrate a sex education lesson to her child. After she relocated the painting in the bedroom, a friend remarked, "I'm so glad you took that vagina off the wall." [26] O'Keefe was quoted as saying "Eroticism! That's something people themselves put in the paintings. They've found things that never entered my mind." [27] O'Keefe's response might indicate modesty or perhaps a repressed or unconscious artistic expression.

In her provocative *Through the Flower* series, Judy Chicago's floral motif was stylised rather than realistic, representing female sexuality in a vaginal iconography as an essential source of dignity rather than shame. [28] Men, too, responded sexually to the natural world. In *The Art of the Flower*, Rolf Sachsse discussed comments the photographer, Edward Weston, made in his diary, in which Weston explained that "he felt more sexually stimulated when photographing cabbages and paprika than when doing his nudes." [29] According to the footnote, Sachsse abridged Weston's entry, "to eliminate excessively overt sexual references", which he left to the reader's imagination. [30]

Robert Mapplethorpe expressed his sexuality in sublime floral portraits where folds and upstanding elements allowed his audience to translate the metaphors to suit their individual sexual personae. Edmund White emphasised that "far from being an escape into the natural or the decorative, (Mapplethorpe's flowers) are meticulously posed sexual organs." [31] Scientific botanical illustration has long resisted such analysis, a situation that may change given Shirley Sherwood's recognition in *A Passion for Plants* of the subjective artistic input by artist's who "usually fall in love with the plant they are drawing and this shows in their work." [32] It is worth considering the role botanical illustration played for eighteenth and nineteenth century women and men, many of whom remained unmarried, or travelled widely, and who may have found a means of articulating subconscious and repressed urges through the mediated erotic experience of art.

Floral imagery was additionally burdened with moral, social and racial values, at a time when exploration and imperial ambition revealed new worlds to be brought under surveillance and control. Purity, virtue and whiteness were positioned in opposition to disease, immorality and non-whiteness, remembering too, the role medical discourse played in constructions of race while acting simultaneously in botanical collection and illustration. [33] For example, it was suggested by John Ruskin that the wildflower retained a 'truth' that cultivated flowers lacked, characterising the flower garden as "an assembly of unfortunate beings, pampered and bloated above their natural size, stewed and heated into diseased growth; corrupted by evil communication into speckled and inharmonious colours..." [34] Many botanical illustrators similarly avoid cultivated varieties, as they do the mixing of species in a single illustration. The famous Australian illustrator, Margaret Stones, chose never to depict cultivated novelties, but only species plants found in the wild, an accepted scientific practice. [35] However, there is a disturbing element here, an echoing fear of miscegenation, as though hybrids somehow represented the mixed race offspring of colonial sexual activity. The horror of collapsing boundaries was expressed socially in rhetoric of purity/virtue and disease/excess, a vocabulary intimated in floral imagery.

The critic Sander L. Gilman has disclosed how, in the nineteenth century, the sexualised woman was represented by the prostitute and the black female, a sexualisation associated with the tropics, excessive, gaudy flowers and fecund vegetation, out of control and harbouring life-threatening disease. [36] Native women were considered as both sexual and available, as demonstrated in a book published by the British Museum (Natural History) in conjunction with the Australian National University in 1983. Beneath the scientific introduction accompanying Sydney Parkinson's illustration of *Hibiscus rosa-sinesis* we are told that "Its flower, worn over the ear of an attractive Polynesian maiden, is perhaps the most widely known symbol of the south pacific." [37] Such comment in an academic publication demonstrates
the naturalness accorded to women and flowers as signs, conflating notions of tourism, consumption, and sexual availability in motifs that have been obvious and inescapable since Gauguin painted his thirteen year old Tahitian wife lying nude on her bed. [38] Wilfrid Blunt wrote of Joseph Banks in Tahiti that "In a country where 'women's lib' already flourished, (Banks) led a rich and uninhibited sex-life. And, needless to add, he collected plants indefatigably."

[39] Disregarding Blunt's perception of 'women's lib', it is interesting to note the way the indefatigable collection of conquests seemed to embrace both the female and the botanical, not to mention its unproblematic inclusion in a scientific/academic volume in 1983.

The Flower Dissected

In the eighteenth and nineteenth centuries, dissection became increasingly common in both botanical illustration and medical studies, especially in regard to reproductivity and sexuality. In botany, the cutting and splaying of floral sexual organs and parts assisted in identification procedures. However, as a scientific practice, such representations were part of a wider impetus that depicted information in highly problematical forms. Consider the case of Sarah Bartmann, (the so-called Hottentot Venus), a Bushman woman who was collected, exhibited, and illustratively documented, and whose genitals, on her death, were minutely dissected and preserved in formalin at the Musee de l'homme in Paris. [40] Bartmann's genitalia had proved a source of prurient interest for the European male scientific community, supposedly demonstrating racial (and according to some, bestial) characteristics.

Medical interest in reproduction in humans resulted in the creation of wax models designed for student anatomical instruction, that, as Ludmilla Jordanova revealed, were significantly called "venuses"; clad in pearls and reclining on "velvet or silk cushions" in passive, "almost sexually inviting" poses, possessing long tresses of flowing hair. [41] Jordanova additionally described a statue in the Paris medical faculty "of a young woman, her breasts bare, her head slightly bowed beneath the veil she is taking off, which bears the inscription: 'Nature unveils herself before Science'.” [42] Such a reference made explicit the gendering inherent in scientific representation that also appeared in much botanical illustration, despite its concealment beneath discourses of scientific "procedure" and technique, and its fascination with reproduction.

In How to Draw Plants: The Techniques of Botanical Illustration, many diagrams and illustrations were only marginally less explicit than Georgia O'Keefe's floral beauties, for example the clitoral delicacy of Pierre-Joseph Redoute's pea flowers and the gaudy vivacity of Walter Hood Fitch's Selenicerus with its pendulous stigma. [43] Certainly this technical book was not devoid of sensual and voluptuous imagery. The botanical illustrations of both Francis and Ferdinand Bauer similarly demonstrated the presence of sensuality in scientific representation.

However, it was the image of fruiting plants cruelly sliced open that was disturbing, their depiction dependent on the death of their contents. The cross sections of seed pods and plant ovaries were scrutinised with a care that recalls present-day micro-machinations performed in genetic manipulations, while the petals were incisively parted, and splayed to reveal the sexual interior. Perhaps we should remember how Linnaeus humanised the floral, taking, for example, a word like *corolla* that, "in classical Latin meant 'a little crown or garland', and applying it exclusively to the showy inner envelope of the flower surrounding the sexual organs." [44]

It was not coincidental that in anatomical drawings, the female body was usually represented in the state of pregnancy, as though pregnancy was the condition of womanhood. [45] Such interest in the ability of the female to generate life is an ongoing concern in science, resulting in technologies that have been pursued at the cost of other, less lucrative studies. [46] Can we surmise that there is some link between the body designing procedures in genetic engineering and those practised in cosmetic surgery, where beauty, novelty and commodities are produced through intrusive surgical actions? Issues surrounding gynaecological procedures and unnecessarily intrusive practices on women's bodies have been exposed by Naomi Wolf in The Beauty Myth in relation to violence, consumption and misogyny. [47] With these things in mind it is worth considering the interrelationship between botanical illustrations and medical technology.

Botanical illustration is an art form deserving of more complex readings than it has so far received. Botanical illustration's designation as scientifically orientated is not questioned; however its participation in a wider cultural field cannot be ignored, while the belief that botanical illustration is a neatly bordered genre must also be dispelled. As a cultural text, botanical illustration requires further research and
analysis to tease out the complex interactions between botanical illustration, social and medical discourses concerning sexuality, race, and psychology as associated forms of knowledge.


[4] Rosser's banksias have been displayed in both Australia and the United Kingdom.


[22] William Smellie, *Encyclopedia Britannica* (London: Donaldson, 1768-71), vol.1, p. 653. It must be remembered that botany was originally a branch of medicine and that most early plant collectors had either medical or religious affiliations. However, it seems that Smellie used Latin only in parts of his
discussion, as a form of censorship or as a means of excluding those not literate in Latin.


[28] Lucy Lippard, "Judy Chicago Talking to Lucy R. Lippard", in From the Centre, pp. 214-30.


