Fantastical Flora:

Cryptobotanical Imaginaries in Victorian *Fin-de-Siècle* Literature

Submitted by Marc Xavier Ricard to the University of Exeter

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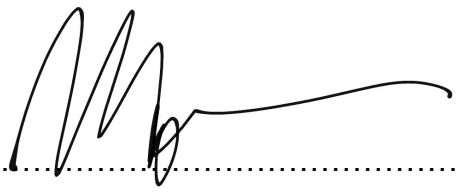
I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

Signature: ……  ……..

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Abstract

This study examines instances of imaginary plant life, or 'cryptobotany', in the late- nineteenth and early twentieth-century. It draws on a diverse range of sources from Transatlantic literary and visual culture – including fictional and non-fictional prose, poetry, newspapers and periodical culture, drawing manuals, horticultural guides and advertisements – in order to examine the significant and pervasive way in which visions of new, fantastical vegetable kingdoms, containing a seemingly limitless variety of weird and wonderful plants, gripped late Victorian and Edwardian culture and society**.** By contextualising these visions with relation to contemporary aesthetic, economic, scientific and socio-political discourses, the thesis considers why and how such imaginative representations of plant-life proliferated, with a particular focus on the capacity of these representations to articulate and sustain expectations, hopes and fears concerning the ongoing planetary impact of industrializing, globalizing modernity. As such, the study contributes to the emergent strand of scholarship that recognises plants as worthy of critical attention, providing as it does so an ecologically- informed frame through which to re-examine speculative narratives of the late- Victorian period.

The thesis is presented as six chapters arranged around three thematic concerns: cryptobotanical commodification, progress and aberration. The first two chapters concern plants that were imagined to have enormous social benefit to modern, metropolitan civilization. Focusing on discourses of energy and hygiene, the chapters unpick how beneficial qualities of plants were used to address fears of entropy and contamination that proliferated at the *fin-de-siècle*. Chapters three and four are interested in the phenomena of 'improving plants'; from aesthetics to horticulture, these chapters examine the various ways that plants were being transformed and idealised in the period, and the impact these new ideas had on conceptions of the natural world and the human subject. Finally, chapters five and six detail queer or otherwise deviant plant imaginaries. Drawing from gothic fiction, imperial romance and decadent literature, the chapters explore how these entanglements with imagined plants were used to expand the limits of perception, from interrogating possible hybridity between flora and fauna, to the ability for plants to resist the systems of knowledge and control discussed in earlier chapters. Together, these case

studies make manifest the imaginative plasticity of vegetable life in the period, offering insight into how plants were employed to confront issues as diverse as sustainability, evolutionary lineage and aesthetic self-expression.

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Introduction

The nature writer Richard Mabey's *The Cabaret of Plants: Botany and the Imagination* (2015), describes the Victorian era as the period in which we had been most enchanted by the wonder of plants, when "the general public had been agog, astounded by one botanical revelation after another" and that "respect for [plants] as complex and adventurous organisms reached its zenith in the late nineteenth century" (Mabey 3). Great advances in both the organisation and dissemination of knowledge through the professionalization of botany and taxonomy, along with the unprecedented influx of new species discovered and cultivated as a result of imperial and commercial globalisation converged to create a moment of unprecedented change. By the end of the century, trade and exploration had ensured that Britain was a nation that positively respired exotic flora, as an abundance of recently discovered plant products circulated through the Empire: spices and chocolate filled its pantries, rubber lined its industries and quinine coursed the veins of imperial commanders in malarial climes. At the same time that these strange new plants were becoming household names, the influx of botanical wonders also heightened interest for even greater vegetable wonders. Indeed, credulity and intrigue had risen to such a pitch that tales of fantastical flora, which at another time would seem miraculous or beyond belief, were increasingly being seen as not only possible, but imminently attainable by the same channels that brought the world tea, orchids and coca.

A sense of the degree to which people had become accustomed to the fantastical in tales of plant life can be seen in accounts of popular hoaxes related to plant discoveries. The example below, tucked away in a short article on insect-catching plants published in an 1891 edition of *The Royal Horticultural Society Journal,* attempts to sort fact from fiction when it comes to these unusual species:

> certain plants […] are specially adapted for catching and retaining many small insects, the decomposition of which is beneficial to the plants […] and this is where so much misconception has arisen, for popular writers have seized on the subject as one exactly suited to the fluent pens and prolific imaginations of contributors to daily and weekly papers. Exaggeration has crept in, and most extravagant notions have been

> formed on the subject. People have come to regard the so-called "carnivorous plants" as vegetable monsters, constantly lying in wait for their prey […] To such a length has this gone that when the shelves in the porch of the Orchid-house at Kew were railed off, and the poor plants were protected from the too attentive visitors anxious to test the meat-consuming abilities of the *Dionaeas* and *Droseras*, a report was spread (and it was gravely repeated in a widely circulating paper) that the railing was intended to preserve the onlookers from any possible accidents which might befall them if the plants were in an especially famished condition (Castle, 407)

The excerpt provides a vividly detailed picture of an intersection of imaginative, print and material worlds in the late nineteenth century, from which a number of deductions can be made. From Castle's account, there seems to have been an outbreak of "vegetable monsters" in popular media in the 1890s and these fantastical plants were deemed to be a "subject […] exactly suited to the fluent pens and prolific imaginations" of writers in periodicals. What's more, these stories were met with sufficient credulity that they spilled over from the pages of said periodicals into the real world, with readers wanting to see the meat-eating powers of these plants with their own eyes. Yet in spite of these enlightening inferences, to the uninitiated modern reader the same passage must also lead to number of perplexing questions: Why is this appearing in the RHS journal? How many stories repeated this hoax? Just how many visitors attempted to feed plants slices of beef and mutton before the directors at Kew erected the bar?

> But the query which sticks the longest in mind is, why should anybody take the trouble to make up such preposterous stories when a multitude of the wonders of the plant world are still to be adequately described? (Clute, 91)

The above question is taken from an editorial of *The American Botanist* from 1912, in which the editor of the magazine, Willard Nelson Clute, complains to his readership of the spate of fantastical stories about plant-life that have appeared in other journals, pamphlets and novels over the last few years. Giving reference to an account of a "Death Orchid", he describes the narrative and those like it as an ulterior, "pseudo-science of botany" - one that in its

base “appeal to the credulity of the general reader and [...] catering to this belief in the marvellous” risks spoiling genuine appreciation for bona fide plants in favour of the ascientific blooms that could hunt cattle, grant eternal youth or generate enough electricity to power a home. From the perspective of this thesis, these grumblings from botanists can offer a number of interesting insights of the period: one, the influence of such tales was widespread enough to frustrate the editor of a national botanical science journal another is the expression of concern over what the future of the botanical sciences could look like if these stories of misinformation supplant true botany in the popular imagination. But most fundamentally, it is the question that “sticks the longest” in the mind of Clute the botanist: why are people writing and reading “such preposterous stories” about plants in a supposedly rational age that should know better?

The why and the how of this question forms the core of my thesis. Examining the imaginative excess that resulted from this saturation of novel and wondrous plant life, collected in this thesis under the umbrella term of ‘Cryptobotany’, it seeks to explore the late nineteenth and early twentieth centuries’ penchant for fantastical fiction involving plants; unpicking what it meant to imagine with plants in this way and how it relates to wider social, economic and literary contexts. In its course, the work aims to show the deep, wide-reaching and yet often overlooked influence of a ‘cryptobotanical imagination’ in the period, tracing its appearance through a range of period texts and examining the fecund imaginative interplay between botanical sciences and literary imaginings, while drawing upon recent turns in scholarship that have been reappraising the role and impact of speculative fiction and plant life respectively.

Before addressing the main methodology and structure of the thesis, the term mentioned above, ‘cryptobotany’, will require further clarification. However I venture to do so tentatively, for there is, as of writing, no pre-existing definition either within critical works or even dictionary entries. The word is a portmanteau and derivative of ‘cryptozoology’, the pursuit of animals that are purported, or imagined, to exist but for which have no substantial proof has ever been produced and therefore exist in the realm of folklore, myth or science fiction; Big Foot and the Loch Ness Monster are perhaps the most

famous examples. Cryptobotany by extension is the vegetable equivalent, sharing the same origin ‘crypto-‘ meaning ‘hidden or secret’ and botany, which of course refers to the discipline of plant science, together connoting the study of ‘hidden plants’. Beyond the cult pursuits of cryptid circles in the uncovering of hidden species, cryptobotany can also be used as a descriptive term for works of speculative or science fiction that prominently feature fantastical plant life and there have been a number of small edited collections that group together ‘cryptobotanical tales’ (see collections edited by Chad Arment and Daisy Butcher).

Beyond this descriptive usage however, I believe the term ‘cryptobotany’ and its notion of ‘hidden plants’ can be of especial interest as a means of thinking critically about the kind of strange plant life it encapsulates. The very study of ‘cryptids’ is a speculative endeavour and a rumination on the possible; if we expand the notion of hidden plants from a visual medium to a temporal one we get: ‘plants that are yet to be proven’, or simply, ‘plants that are yet to be’. Conceived of in this way, cryptobotany becomes a powerful unifying terminology for drawing together the varying ways people have created alternative configurations of being through the medium of plant life, using the already wondrous products of the vegetable kingdom as material to create new speculative forms to populate imagined worlds and futures. As such, cryptobotany is a rendition of plant life that is more than mere naturalism and shows characteristics of plants that are not strictly substantiated by scientific evidence. Instead, the cryptobotanical subject acts as a repository of fantastical organic characteristics that could be teased out, manipulated, propagated or repressed by human hands and, in doing so, the history of cryptobotany becomes the history of humanity’s desires and fears surrounding plant-life; ranging from pastoral idylls of Edenic abundance to wastelands of diabolically poisonous weeds. This thesis will track multiple iterations of cryptobotany as they appeared throughout print media in the late nineteenth century, plotting the various speculative ends to which they were conceived and attempting to understand what made ‘imagining with plants’ such a prevalent phenomenon in the period.

Fig. 0.1, Engraving of 'Barnacle Geese' from the *Cosmographia* of Sebastian Münster (1552). Fig. 0.2 Engraving of the 'Vegetable Lambs of Tartary' from *The Travels of Sir John Mandeville* (1357). Both images taken from Wikimedia commons.

Armed with a working definition of cryptobotany, it next becomes necessary to pinpoint the origins and contexts that led up to its proliferation in the late nineteenth century. Certainly, the imaginative creation of mythic and otherworldly plants did not start with the Victorian era; it has a long cross-cultural history that spans myths and legends from ancient and medieval sources such as the Norse Yggdrasil tree, the Mayan Yaxche or cases of early European folklore such as the Vegetable Lamb of Tartary or the Barnacle Goose Tree. These mythic plants sit comfortably with our understandings of pre-modern cosmology and its proto-scientific understanding of the world that allowed for imaginative licence to fill in gaps of knowledge where no empirical answer could be given, for instance the origin of geese and cotton. What is perhaps more difficult to grasp is the persistence, renaissance even, of unseen mythic plants in the latter half of the nineteenth century, a period well advanced into the project of Enlightenment and its privileging of reason and evidence over myth and superstition.

Described by Foucault in his 'Archaeology of the Human Sciences', *The Order of Things*, modernity is a period in which "sight [has] an almost exclusive privilege, being the sense by which we perceive extent and establish proof, and, in consequence, the means to an analysis" (Foucault 133). The

cryptic plant therefore cannot be admitted as a scientific subject, as it cannot be verified or given a taxonomic classification. This is further corroborated elsewhere in *The Order of Things* where Foucault explicitly rules out the infringing of the ascientific into modernity, taking it as a given that “Hearsay is excluded, that goes without saying” (Foucault 132). By privileging sight, it was possible to organise specimens based on discrete physical characteristics and preclude conflicting knowledge based on other sources, such as the oral accounts that birthed the ‘natural wonders’ of the early modern period like barnacle geese hatching from a tree or cotton bushels that sprouted baby lambs. This is why cryptobotany would appear to be a relic of the distant past - its very definition, plants that are unseen, seems to position it as anachronistic with conventional understanding of modernity, which takes as its mission to document and record all phenomena, privileging the seen, the demonstrable and the proven.

Evidently, were this the case, there would be no material with which to discuss cryptobotany in the nineteenth century and therefore the persistence of hearsay, both in professional scientific and popular discourses of plants, warrants some explanation. While the specifics of ‘why cryptobotany thrived in the nineteenth century’ will be dealt with in far greater detail in the following chapters, one of the central points can be best summarised by the popular science author John Ellor Taylor in his work *The Sagacity and Morality of Plants* (1884) where he states that “It is only within the last few years, since botany has been studied from its biological side, that we have wakened up to understand what wonderful objects plants are” (Taylor, *Sagacity* 12). The book itself makes the case for extending sentience from animals to vegetables, arguing that plants demonstrate a high enough functioning intelligence to possess discernable morals and consciousness and the above quotation is the foundation for his thesis; that only through scientific awareness can we fully appreciate the wonders that are and that could be. The result is a seeming paradox whereby greater and more sophisticated levels of knowledge of a subject, rather than precluding hearsay as Foucault suggests, results in even more outlandish and extravagant notions regarding plant life.

It is precisely this persistently perverse and amorphous quality of ‘hidden plants’: their cryptic, imaginative illusiveness in the face of demands

for proof and realism, that forms the locus of this work's methodology. In doing so I am following in the footsteps of other contemporary critical texts that are receptive to these more speculative subjects include Steven Connor's *Dream Machines* (2017), Helen Anne Curry's *Evolution Made to Order* (2016) and most recently Natania Meeker and Antónia Szabari's *Radical Botany: Plants and Speculative Fiction* (2020). In each of these cases, the methodological praxis is concerned with an interrogation of fictive universes and concepts. By analysing imagined alternatives and futures it is possible to take stock of, and fully realise, the kinds of motivations that went on to shape worldviews and by extension the material world itself. The genre best suited to these concerns is, as Meeker and Szabari note, speculative fiction, with its encompassing range of early fantastical, science, fiction and horror. It is in "these […] forms of writing in which we find a concerted effort to imagine a vegetality that remains inaccessible to realism" (16), and as such speculative narratives form the bulk of the material for this thesis, particularly the future-oriented fictions of H.G. Wells, perhaps the most prolific writer of early speculative fiction and certainly the most well-known today.

That being said, cryptobotany is by no means limited to works of speculative fiction and imagined plants have worked their way into a wide array of genres and forms. Elizabeth Chang touches on this permeability of vegetable subjects across genres in *Novel Cultivations* (2019), stating "plants in books are a buttonhole between fiction and reality [… they] make the realist novel more real, but they also make the genre novel more fantastic" (Chang *Novel* 2). As Chang asserts, it is the often-maligned propensity of plants to be viewed as background or scenery that enables them to perform this augmenting function, with authors assigning them a supporting role in fictions to deepen their sense of immersion or authenticity. As suggested by her fastening metaphor, plants, even patently fantastical ones, offer a sense of tangibility when they are invoked, an imaginative foothold that serves as a point of reference and helps ground the reader in whatever world is being conjured up, from travelogues to inter-stellar fantasies. It is when these sometimes marginal depictions are grouped together that the full extent of the influence, variety and ubiquity of cryptobotanical fictions can be best appreciated. This has been my aim with this thesis.

Indeed, one of the benefits of organising my thesis around this term of ‘cryptobotany’ has been that it has enabled me to include some works of prose that do not conventionally fall under the purview of literary analysis. By focusing particularly on plant narratives and subjectivities it opens up ulterior forms of storytelling and fiction outside of the [human] character-driven action and melodrama of conventional forms such as the novel. Instead, some of the ‘fictions’ seen in this thesis include bills of advertisement, essays in plant husbandry, drawing manuals, parenting guides and occult handbooks. Each invariably deploys techniques of fiction and fancy in concord with examples from natural history to conjure in the reader’s mind a speculative plant, one that could be more perfect, or more valuable, or more terrifying, than any living specimen. This imaginative process is the essence of cryptobotanical fictions.

By grouping together works of literature with these other forms of visual and textual sources the thesis is fundamentally grounded in the theoretical approach of new historicism. In so doing it follows the precedent of works by Chang, Lynn Voskuil and Amy King, who have each stressed in various ways the necessity of building a knowledge of plants in fiction that extends beyond the bounds of conventional literary sources. King’s work on florally-inflected “bloom narratives” in particular has been invaluable in its methodology for negotiating literary and non-literary sources:

> By historicizing the novelistic vocabulary of bloom, we begin to return the text to its cultural moment: an act that does not seek a delimited scientific source for a figurative system of the novel but rather reopens the text to a historically specific, if diffused, cultural language – what I call the “botanical vernacular” (King 6).

While King’s focus on marriage plots in early nineteenth century fiction is very different from the content of this thesis, the diffuse idea of a permeating “botanical vernacular” mirrors perfectly the idea of a shared cultural imagination of cryptobotany in its nuanced reading of botanical influence in texts. Also like King, the goal here is not a diagnosis of ‘what these strange plants mean’ in relation to their texts, but to reacquaint these dispersed instances of hidden plant life with the cultural forces that gave rise to them, whilst questioning the ends to which these imagined plants were deployed.

Following on further in terms of critical approaches, the dissertation's focus on 'green', non-human natures and environments naturally aligns it with the work of ecological theory; however, this must be qualified with the admission of the ambiguous nature of imagined or otherwise meddled-with plant life, complicating this engagement with the eco-humanities. Despite over a decade of critiques by figures like Slavoj Žižek and Timothy Morton over ecological theory's overly simplistic or sentimentalised conception of 'Nature', eco-criticism nevertheless retains an exclusionary differentiation between the man-made and the natural. This binary endures because of its fundamental significance to the political aims and ideals of ecological movements, to protect and hopefully reverse the profound harm caused by human invention and intervention in natural systems. It is therefore with acknowledgement and reverence towards these goals that this thesis cannot rightfully lay full claim to the mantle of ecological theory, in that it deals expressly with plants, both fictional and real, that have been manipulated and changed by human-made fictional, horticultural and genetic techniques. The result is cryptobotany occupies a somewhat paradoxical theoretical position, encompassing subjects that are constituted of green, 'natural' material, but rendered artificial by their complex and deeply embedded relationship with humanity.

Whereas Morton in *Ecology Without Nature* (2007) "systemically attempts to theorize this complication" (2), this thesis rather embraces the inter-species complexity, or to paraphrase Donna Haraway, "the trouble", which envelops cryptobotanical subjects. In this way its aims and methodology most closely resemble the queering of forms and subjects through the non-normative discourses of queer theory. This combination is not without precedent, indeed, queer theory has been an integral part of the discipline of 'critical plant studies[1]' from its earliest formations[2] and key theorists such as Catriona Sandilands routinely situate their work at the intersection of ecological and queer theories. By combining the attentiveness to non-human subjects and narratives found in eco-criticism, with the malleable praxis of

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[1] The academic study of plants as cultural objects, an offshoot of critical animal studies that has gained traction over the last decade.

[2] One of the first works organised around critical plants was the 2010 collection *Queer Ecologies: Sex, Nature, Politics, Desire*, edited by Sandilands and Bruce Erikson.

[3] [illegible]
One of the first works organised around critical plants was the 2010 collection *Queer Ecologies: Sex, Nature, Politics, Desire*, edited by Sandilands and Bruce Erikson.

queer theory and its ability to encompass the deviant, unknown, or otherwise strange, we arrive at a critical methodology that is able to make the most out of the often marginalised works of cryptobotany found in this thesis.

Beyond these formative theories and approaches, this thesis is also indebted to the combined efforts of those bringing about the current disciplinary shift towards the botanical in literary studies. Since this project's inception in 2016, there has been a wave of botanically-engaged work within the humanities that has gone on to inform the shape and direction of this study. Some of the most galvanising and influential work has taken place in Gothic Studies, which has seen the codification of plants within the 'ecogothic' with *Plant Horror: Approaches to the Monstrous Vegetal in Fiction and Film* by Dawn Keetley and Angela Tenga and just this year Elizabeth Parker's *The Forest and the EcoGothic: The Deep Dark Woods in the Popular Imagination* (2020), which both pursue paths of 'Plant Horror' laid open by the rise of eco-criticism in literary studies. Further afield in the humanities as a whole, the last decade has seen the emergence of the previously mentioned 'critical plant studies' as a discrete and solvent area of academic enquiry with figures like Michael Marder and Catriona Sandilands putting in place the theoretical frameworks to consider plants as subjects of critical inquiry. Their work and its wider influence has resulted in a recent re-focusing of plants as subjects worthy of their own studies, such as *The Cabaret of Plants* by Richard Mabey, *Monsters Under Glass* by Jane Desmarais (2018) and *Novel Cultivations* by Elizabeth Chang (2019) to name but a few. Within these texts and many others dealing with 'plant studies', there has been a continual refrain that the practices of treating plants as a subject of critical enquiry is an emergent field. A critical turn can only be nascent for so long and by 2020 it is safe to assert that the 'turn' to plants has commenced in earnest, as Natania Meeker and Antónia Szabari express in *Radical Botany* (2020), the most recent [at the time of writing] contribution to the field of literary plant studies: "the plant has moved front and center in a particular critical discourse, and has even become an object of academic fashion" (ix). This thesis is very much a continuation of the efforts of these recent works of plant studies, particularly that of Meeker and Szabari with its focus on speculative fiction, taking the opportunity of the

specificity afforded in a PhD to focus in on the nuances particular to the late-Victorian period's use of cryptobotany within works of fiction.

Six Theses of Plant Imaginings

It is with direct reference to Dawn Keetley's introduction to the above cited *Plant Horror* (2017) titled 'Six Theses on Plant Horror; Or, Why Are Plants Horrifying?'[3] that I propose my own iteration: 'Six theses on Cryptobotany' or 'Why Are Plants Fantastical?'. These are the six key qualities of plants that recur most consistently in the nineteenth century sources of cryptobotany, suggesting it is these qualities that particularly excited the Late Victorian cryptobotanical imagination. These six traits of plants will be properly explored and articulated over the course of the six chapters of this study, however, given the scope of this introductory framing of cryptobotany, their inclusion here will set the groundwork for further analysis.

Thesis 1: Plants are generative.

The ability for plants to transform air, water, effluence and sunlight into complex and often incredibly valuable organisms has provoked veneration from the even earliest civilisations. By the Victorian period, awareness of modern economies' increasing reliance on the essential productive power of plants lead to waves of paranoia that the output of plant life could not meet modern needs. The agrarian nightmare of Malthus' famine, the trade wars over supplies of wheat, quinine and rubber, and the literal wars over the circulation of opium all dominated the political and imaginative landscape of the Victorian era, each serving as a constant reminder of the vegetable labour and resources that underpinned modern life. The productive powers of plants were marvelled at and experimented with throughout the period, as will be shown in later chapters, though this is not to say plants were generative solely from a material standpoint of economic output of fruits and grains; they also provided stimulation for literary outpourings too. From a 1901 article profiling a so-called 'Wizard of the Garden', the American horticulturalist Charles Howard Shinn provides a view of horticulture at the end of the century:

> [H]orticulture is the great conservative force underlying our modern life, and keeping us from destruction [...] Acres of glass roofs, miles of hot-

[3] Itself a re-working of a formula established by Jeffrey Jerome Cohen's 1996 essay 'Monster Culture (Seven Theses).

> water pipes, countless gardens under semi-tropic suns, carry an ever-increasing wealth of blossom and fruitage, more and more feed and gladden the world, and expound a marvellous gospel of plant-evolution. Indeed, a new literature is springing up, fresh bright, helpful, more fascinating than any novel (Shinn 5)

Shinn's panegyric in praise of vegetable production is typical of many similar profiles of plant culture in periodicals of the time. There is, as mentioned above, the prefacing apocalyptic vision of the "destruction" that awaits modernity should plants fail to keep apace with our ever-increasing need of food, shelter and capital, but alongside these very practical concerns is another more fanciful one. Aside from crops of cotton and rice, plants are also "springing up […] a new literature […] more fascinating than any novel". Shinn seems to be referring to works of plant science that detail the mechanics of the productions that were so necessary for modern life; however, he could equally be referring to the wealth of fiction of the nineteenth and early twentieth centuries that likewise used mechanics of botanical growth as the basis of narrative structures and plotlines, such as Charles Kingsley's *Yeast* (1848), Emile Zola's *Germinal* (1885), Thomas Hardy's *The Woodlanders* (1887) and Knut Hamsun's *Growth of the Soil* (1917) to name but a few. The capacity for a cross-pollination of ideas between the study of plants and the craft of fiction, meant that as Shinn suggests, plants were [indirectly] responsible for a bountiful crop of literary works, as much as they were for stores of grain and fields of flowers. It is at the intersection of these twin generative powers of vegetable production and imaginative fantasy that cryptobotany takes shape, as writers began to conceive of worlds where the output of plants could be increased a thousandfold. Cryptobotany in the period thus functions like a nursery bed of sorts, a place of fertile imagination where new sprouts of ideas of plants are allowed to germinate. It is then up to the would-be gardeners, be they entrepreneurs, plant scientists, breeders or authors, to transplant these ideas into tangible products, be they stories, food supplements or new varieties of plants.

Thesis 2: Plants are Plastic

The fact that scientists, breeders and writers alike were able to stretch and expand the productive capacity of plant life throughout the nineteenth century speaks to the second quality of plant life that made them such compelling imaginative subjects: their plasticity. The selective breeding of plants for specific characteristics is a millennia-old practice, however by the Victorian age horticulture had almost been elevated to an art form, with capitalistic 'nurserymen' intersecting with institutions such as the Royal Horticultural Society (founded 1804), Kew Gardens (opened to the public in 1840) and private hobbyists and collectors. Between them there were near-infinite combinations and varieties of plants being produced during the period, at a rate that only quickened as the century progressed. Such a wealth of variety and plasticity in plants was often lauded as one of the great achievements of the age. Emily Pawley, writing on the first half of the nineteenth century, notes the providential view many horticulturalist held regarding the apparent malleability of plants, asserting that ideas such as these "made domesticated […] plants gloriously subject to progressive development" (164). The belief reflected in countless periodicals, handbooks and speeches was that the vegetable kingdom had been placed at the disposal of the Victorians, to do with what they will.

The ability to imaginatively remake plants was seized by practitioners far beyond the greenhouse, for instance, critics such as Elizabeth Chang have noted how the plastic forms of cryptobotanical plants contributed to the rise of "malleable generic forms of the romance" (Chang, 'Hollow Earth') during the period. By remaking 'natural' landscapes and populating them with strange new plants, authors were able to "reject[…] premises of realism" (Chang), giving them licence to imagine a world where the natural order of things looked very different, thus creating scope for an array of ecological and social uto/dys-topias. Examples of these early plant-framed genre pieces include the drastically altered environments of Charlotte Perkins Gillman's *Herland* (1915) and the Eloi's garden world in H.G. Wells's *The Time Machine* (1895) – both of which explore the monumental social revolutions that can occur when plant life is fully domesticated and brought under control. Such cases reveal a dawning awareness of the dualistic nature of plasticity and plants in that, not only are they easy to manipulate, but in altering vegetable life one also effects great

change in wider ecological and human networks. Plants thus had the power to change and be changed.

Thesis 3: Plants are Legible

The malleability of plants in the hands of experts was predicated on an intimate knowledge of their morphology and mechanics of heredity and as such they occupy a unique place in the history of science and culture. Sitting between the messy and murky studies into human and animal anatomy and the dusty and superannuated strata of geology, the plant kingdom offered a Goldilocks-like 'perfect balance' in the emergent natural sciences as they were professionalised in the seventeenth and eighteenth centuries. Plants' bodies were far more "transparent" than their zoological counterparts, to use Foucault's parlance from *The Birth of the Clinic* (xiii), in that they could be pulled apart, looked inside of and experimented on with ease; while their status as living beings meant they could be made to grow and develop in novel ways for the sake of experimentation and observation, as opposed to the inertia of rocks for instance. As a result, botany garnered a reputation as a testament of modern scientific achievement and a mark of gentility and refinement, with Jean-Jacques Rousseau, one of plant study's most vocal adherents, citing it as the perfect model for an enlightened science, showing nature and humanity working in a mutually edifying harmony.

These views were reflected in more practical terms by the fact that, due to their easily observable and accessible corporeality, plants often served as the ideal test subjects for new theories or nomenclatures for biological science. Writing of early modern scientific praxis, Meeker and Szabari describe how "Vegetal bodies become a kind of experimental laboratory through which atoms, corpuscles, 'cylinders,' and other invisible particles in motion might be imagined, studied, and perhaps understood" (3), highlighting how plants' 'transparent bodies' could serve as the ideal bridge when trying to translate hypotheses from abstraction into material proof. In the eighteenth century, the Linnaean system of classification famously began with the plant kingdom before it was expanded to include all other organic phenomena[4].

[4] Interestingly, Linnaeus also attempted to create a taxonomy of minerals as well, which was also to be organised around the principles of heterosexual reproduction, he believed rocks were formed in the earth's mantle by the combination "of various salty fluids" mixing with sediment in manner similar to male/female gametes in plants and animals. Needless to say it

While in the nineteenth century the key evolutionary discoveries of Charles Darwin, Gregor Mendel and Hugo DeVries all had their origins in studies carried out on heredity in plants. Their ease of reproducibility through grafts, cuttings and rapid maturation made vegetables the ideal test subject for controlled experiments and unlike with the behavioural quirks of animals, they could be rapidly domesticated, leading to controlled and catalogued varieties.

As a result of the perceived legibility of the vegetable subject, the ease with which plants could be penetrated, demystified and known permeated out and beyond late nineteenth century's discourses on botany. 'Plant study' was widely praised as a suitable pastime for women and children, for whom the morally and physically complex worlds of zoology and physiology was judged too taxing or distressing. However, this more homely or familiar vision of plants also inspired gothic imaginings of plant life too, as shown in chapter 5, where the wholesome life processes of plants were made grotesque and unfamiliar by tales of carnivorous plants, a mainstay of cryptobotany before Darwin's *Insectivorous Plants* of 1875 called attention to the real-world specimens around us.

Thesis 4: Plants are Inhuman

This heading is perhaps a more direct paraphrasing of Keetley's original six theses than the others, owing to the fact that the first of her theses is titled "Plants Embody an Absolute Alterity" (6). In the context of her study of plant life and horror, Keetley's highlighting of the alterity of plants is used to express the unknowable difference in ways of being between plants and people that can solicit uncanny terror, however in the current context of 'why are plants fantastical?', the inhumanity of plants can go some way in understanding their popularity as imaginative subjects. Owing to their sheer otherness from human life[5], to the point that there were on-going debates questioning whether or not plants could even be considered 'alive', it is safe to say plants come without

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didn't take off to the same degree as his zoological and botanical taxa. See David Bressan's 'How Biology Pioneer Carl Linnaeus Once Tried To Classify Minerals': forbes.com/sites/davidbressan/2016/06/16/how-biology-pioneer-carl-linnaeus-once-tried-to-classify-minerals/#b6480ff6afc8

[5] Alternatively described by Meeker and Szabari as "the plant's radical lack of zoomorphic qualities" (4), such difference "seems to invite us to imagine new ways to come into contact with it" (17), see *Radical Botany: Plants and Speculative Fiction* (2020).

the same degree of political, moral or existential baggage attendant on people or animals. Their apparent inert insensitivity meant, as mentioned above, they could be experimented on with total impunity and calls for the moral plight of plants were few and far between[6].

The otherness of plant life also meant that they were easier to imaginatively experiment on too. Armed with the precedent of the alien and exotic species that were on display in hothouses, writers were afforded licence to invent and bestow completely fabricated plants, exhibiting traits that may have been physically impossible, but rendered nonetheless plausible by the already alien nature of "vegetal being" (Marder 74). The sheer biological distance between people and plants meant they could sustain levels of embellishment that would cause more anthropomorphic subjects to crumble under the weight of absurdity. Similarly, some writers took advantage of the apolitical alterity of plant life to depict fantasies that would be deemed unspeakable were they given human actors. A much-documented example would be the erotic satires of plant life of the eighteenth century, the most famous being Erasmus Darwin's *Loves of Plants* from his *Botanic Garden* (1791), which relied on the conceit of assignment of male and female sexual organs in flower heads to speak openly about polygamy, orgies and same-sex relations at a time of enforced sexual orthodoxy (Bondestam 115-118). By the late nineteenth century, these associations of an overtly 'floral' individual with queer sexual practices had been refined and recodified through both pastiche and more sober, cautionary tales in order to articulate what was increasingly seen as a real, degenerative threat to red-blooded masculinity – the character of the 'pansy' – the central figure of chapter six. The transgressive fantasies of plant life were not limited to sexual politics however, as chapter four demonstrates how cryptobotany was deployed to give reading publics an anticipatory glimpse through the use of botanic euphemism at what was possible when selective breeding along eugenic ideals was enacted in a fantasy garden space.

Thesis 5: Plants form connections

In spite of their inhuman difference, plants played an indispensible role as affective loci in the nineteenth century, transporting subjects physically,

[6] Though not unheard of, see chapter 5.

sentimentally or temporally through textual connections and associations. In literary studies, the most noted manifestation of plant connections is in the use of floral metaphor and poetics, the ‘language of flowers’ for example, where specific blooms were invested with meaning in order to evoke in the heart and mind of the viewer a picture of one’s innermost thoughts and feelings. Studies such as Claudette Sartiliot’s *Herbarium/Verbarium: Discourse of Flowers* (1993) and *A Touch of Blossom* by Alison Syme (2010) have gone to great lengths to unpick the affective powers that the Victorians invested into specific plants; however in recent years there has been a renewed interest in more expansive or obscure forms of connection facilitated by plant life. For instance, there is the longstanding associative relationship between plants and representations of time. J. David Archibald in his study on the use of trees in evolutionary diagrams dubbed them “the single most powerful and most often used image of evolutionary history” (Archibald 22) and along with Theodore Pietsch (2012) and Franco Moretti (2005), have devoted entire books to the function of arboreal forms as repositories of past histories, from royal genealogies to the descent of species. The formal qualities of trees, their sturdy trunks, branches and roots, provided an ideal epistemological base onto which one could project significant figures from the past so they can take their enduring place in the network of genealogical connections that constitute these diagrammatic trees of life. These connotations were subsequently strengthened by the newly discovered pedigree of the vegetable kingdom, both in terms of its earliest origins and living species. The nineteenth century saw rapid development in the field of palaeontology and palaeobotany, which revealed pre-historic landscapes populated by giant plants, the forebears of today’s ferns and conifers. Armed with this new knowledge of ancient plants and their modern descendants, plant life suddenly opened a vista of rhizomatic connections that brought past and future species into reach.

Linkages and distortions of time were likewise reflected by a collapsing of physical distance, wherein plant life was made to bridge, transport or even replicate remote localities. In some cases of cryptobotany this was incredibly literal, as in the American Romance writer Edward P. Mitchell’s short story *The Balloon Tree* (1883) where the titular tree is a form of aeronautic transport that is able to ferry the narrator “more than a hundred miles” overnight while

adventuring in an undisclosed tropical island. However, speculative plant narratives could also be enacted for far less fantastical ends. The peak of European imperial expansionism saw a proliferation of 'acclimatisation societies', which strove to introduce non-native species in different imperial territories "in order to reshape the land for aesthetics and recreation" (Dunlap 303). Domestically, this involved bringing back rare and exotic specimens from imperial outposts and conniving means of having them bloom in the colder climes of Britain. However, in colonial territories, the reverse was the case, as British fruits and vegetables were exported, particularly to India, South Africa and Australia, with hopes that through experimentation and expatriation, they could be made to grow and thrive in these exotic locations. The purpose of these experiments was twofold, for the former, it was a symbolic exercise of dominion where Imperial powers could requisition the produce of distant lands and connect them to the heart of the modern urban metropolis; in some cases even claiming that this was the plants' *true* home, as H. Rider Haggard did in *A Gardener's Year* (1905):

> it would almost seem as though Orchids were especially intended to be grown in greenhouses, […in] vast and gloomy forests […] its beauty and perfume can be appreciated by the birds and insects alone. Remove it from that tree and set it in a greenhouse, and it becomes a delight to man (Haggard *Gardener's* 93).

In the case of the latter importation from occident to orient, the purpose was to stamp a comfortably familiar version of nature onto indigenous wildlife in British enclosures, allowing Imperial administrators to "engage in the wilful fiction that life in India was merely a continuation of the English experience" as argued in John Plotz's 2007 study of 'The First Strawberries in India' (659). Through the medium of glasshouses and controlled climates, small portions of England could be transplanted to India, and vice versa, in a display of power that sought to strengthen globalising connections in the period through botanical display.

Of course, while real living specimens played a vital role in tethering empires together, they were seconded in their efforts by fictional plants, which likewise conjured exotic flora in domestic environs, though not always as a display of imperial might. Ailise Bulfin in her 2018 study *Gothic Invasions*

highlights the rising wave of “invasion anxiety” in *fin-de-siècle* Britain, an “underlying but pervasive concern that the integrity of the island of Great Britain might soon and suddenly find itself breached by some form of intrusive alien agency” (3). As the title of her work suggests, Gothic fiction was frequently the medium through which this anxiety was expressed and Bulfin details includes mention of numerous Gothic invasion narratives such as Bram Stoker’s *Dracula* and *The Jewel of the Seven Stars*; however, not all invaders came in the human shapes of mummies and vampires. Bulfin’s own wording of invasion anxiety, being a threat to the “integrity” of the land “of Great Britain”, would suggest that alien plants would in some ways be the ultimate Gothic invader, in the sense that they literally embed themselves in the soil, the very fabric of the nation. Based in part on real-life invasive species that arrived on British shores in the nineteenth century, such as Japanese knotweed or giant hogweed, Gothic tales conjured exotic vegetable invaders that run amok in the otherwise green and pleasant land of British gardens. Examples include H.G. Wells’s *Flowering of the Strange Orchid* (1894) and Kate and Hesketh Pritchard’s *Story of the Grey House* (1898), both of which involve plants brought back by naïve explorers, unwittingly unleashing vines that rapidly grow and begin to consume both people and places in their voracious conquest. Later chapters will develop the fears of an avenging botanical nature retaliating against colonial possession and extraction, but for now it is sufficient to note that through both real and imagined specimens, plants’ rooted morphology was ideally suited to forging connections between remote points and these connections could be a point of supremest confidence, or furtive anxiety.

Thesis 6: Plants are Natural

The final point is perhaps the most commonplace of all six, but its cultural reality underscores all the previous five theses. Over centuries, vegetable life has become synonymous with the Western idea of “nature”; it is the green of the ‘green movement’ and the ‘green and pleasant land’; plants with their rootedness and continual cycles of renewal possess a timelessness that helps set them apart from the bustle and struggle of human life (Schulz 3). Beings of natural, as opposed to political history. As a result, plants are able to sustain a wealth of associations of a pre-civilised, “Edenic” world: peace, plenitude,

balance, sustainability, health and abundance (Schulz 2). These organic virtues of plants appeared time and time again in cryptobotanical fantasies, as writers attempted to borrow the 'natural' credentials of plant life to imaginatively create hybridised beings that could co-opt the verdant "natural rightness" of real-life plants to serve artificial, human, even industrial purposes (Schulz 156). In this way plants present an imaginative lifeline, a means to redress or undo the excesses of human ecological hubris by having a return to nature and the botanical. Switching dairy production from land-intensive cattle farms to garden-grown fruits, moving from fossil fuel extraction economies to plant-based bio-fuels; as subsequent chapters will unveil these are not only twenty-first century fixations, but nineteenth century ones too, as speculative Victorian minds reached out for more efficient, equitable and sustainable ways of being in the newly industrialised world they had created.

Chapter Outline.

The six chapters of this thesis are grouped thematically to show how cryptobotany grew and manifested in response to specific contexts within the late nineteenth century. The structure of each chapter will be as such: beginning with the new breakthrough or plant discovery before looking at how forms of fiction capitalized on this new development to create works of cryptobotany that unlocked the imaginative potential of these new ways of thinking about plant life. As a result of this more thematic approach, the chapters do not follow a strictly chronological time-scale, nor do they focus on singular authors in isolation, with a view instead of creating a more flexible methodology that can pursue the nooks and tangents of each chapter's subject without being bound to a single date or individual author. To account for this, particular care has been taken to highlight parallels and connections between authors or specific historical events that span multiple chapters.

The first chapter, Power Plants, begins the thesis by discussing the cryptobotanical fantasies that depicted a modern utopia in which energy, resources and wealth could be directly supplied by plant life. The first portion of the chapter is dedicated to unpacking the key concerns of the period that most resonated with plant fictions, namely that of energy and the newly discovered process of entropy. Period sources are combined with contemporary writings from the 'energy humanities' to build a picture of the

evolving understanding of energy in the Victorian era, before turning to the important role plants played in this on-going discourse of energy, power and productivity. As shown in the chapter, works that sought to explain the principles of the dissipation and generation of energy frequently had recourse to botanical metaphor to illustrate their work, and subsequently these metaphorical plants quickly found their way into speculative depictions of gold, coal and electricity all literally 'growing on trees'. In tracing the hopes of securing the energy and resources made available by the cheap organic labour of these imagined plants, the chapter unravels the productive fantasies that sought to remedy the finite scarcity of capitalistic entropy with the natural abundance of plant life; using cryptobotany to imagine a world where all manner of resources would be available by natural, rather than industrial means.

Following on from issues of resources and entropy, chapter two, Green Living: Cryptobotany and Cultures of Health, draws connections between the same desire for generative vegetable energy in the previous chapter with issues of the individual health and wellness of Victorian consumers, explored through the medium of patent medicine. Examining the advertising fictions that enabled the rise of vegetable-derived patent medicines, the chapter tracks how the imaginative techniques of cryptobotany were essential for transforming mundane herbal powders and tinctures into miracle-cures for a public that was yearning for 'natural' remedies for the ails of modern urban life. Central to the chapter is the contrasting of two novels that portray fantastical [and fraudulent] plant medicines, Maarten Maartens' *The Healers* (1906) and H.G. Wells's *Tono Bungay* (1909), two novels where patent medicine products play significant roles. A comparative reading that contrasts the texts with real-world examples of medicines highlights the different ways each text imaginatively treat the plants that constitute their respective commodities, revealing both the scope and limits of the cryptobotanical imagination to affect the perception of vegetable commodities in the period.

Chapter three, Space and Thyme: Imagining the Unseen with Victorian Cryptobotany, examines the unique role plant life had to play in Late Victorians' imaginings of distant times. The age of plants, both individual specimens and the evolutionary origins of their newly discovered

paleontological ancestors, meant that vegetable life could serve as a witness to far-off time periods where no human accounts could reach. In such cases, cryptobotany refers not only to the 'plants that are yet to be', but also 'the plants that once were', as writers evoked imagined accounts of distant plant life of the past and future to help bring far-flung temporalities into the present day. Beginning with the past, the chapter contrasts two very different texts, John Ruskin's *The Elements of Drawing* (1857) and Jules Verne's *Journey to the Centre of the Earth* (1864), to examine the kind of literary and aesthetic techniques the Victorians used to imagine unobservable plants – uncovering the unique subjectivities made available through vegetation of the past. Switching from history to futurology, the chapter also features two novels by H.G. Wells, *The Time Machine* (1895) and *The Food of the Gods* (1904) and their anticipatory visions for plant life that is yet to be. In both texts, the forecasted changes in plant life are used by Wells as a means of measuring the radical shifts and changes in scale that come with new historical epochs, with the *Time Machine* showing a decadent, devolving flora, while *The Food* showcases rebellious giant plants that resist control.

While the narratives of the previous chapter relied on plants as autonomous witnesses of far-off inhuman worlds, chapter four: The Grass can Always be Greener: Discourses of Improvement in Cryptobotany, examines what happens when plants are made subject to human designs and become wholly cultivated specimens. By the turn of the century, certain writers sought to use cryptobotany's connection to time to envision a way to a new utopian future through the genetic lineage of plants and the science of horticulture. Beginning by exploring the integral role that plant life played in early scientific experiments and theories of heredity, the chapter goes on to tease out the increasingly high expectations placed on the products of horticulture and the promise they held for producing superior organisms. Concerned predominately with the discourses of botanical and human betterment that thrived in America in the early twentieth century, the chapter offers a reading of two visions of horticultural utopia made possible through breeding new and better plants by fellow Californians Luther Burbank and Charlotte Perkins Gilman. In Burbank's *The Training of the Human Plant* (1906), we see an outline of the methods that could bring about a genetic revolution in the human species akin to the

difference between wild and cultivated fruits and vegetables. Though technically not a work of fiction, I argue his speculative approach, as well as the numerous allusions to metaphor and the engagement of readers' imaginations, warrants a literary reading in order to fully unravel the context and content of his horticultural dreamland. This fantasy was subsequently given form by Gilman in her 1915 work *Herland*, which receives a close reading that, like the other texts featured in the thesis, focuses especially on the marginal world-building details of the fantasy nation's highly cultivated flora. Working in dialogue with the two texts, the chapter advances a reading that Gilman, Burbank and others of the time deployed cryptobotany as a means of suggesting to the public, through the harmless analogy of horticulture, the necessity of enacting of species-wide controlled heredity. While pulling apart precisely why this plant-based propaganda was deemed so fruitful for winning hearts and minds towards the cause of eugenics, it confronts the problematic and easily overlooked role fantasies of plant life played in the scientific debates of the early 1900s.

As somewhat of an antidote to the supreme optimism and confidence of the American genetic utopias of the early 1900s, chapter five, Animal, Vegetable, and Everything In-between, examines the unique role plant life played in the Gothic imaginings of the period. As mentioned previously, the influx of plant species inflamed the imaginations of writers and readers alike in the nineteenth century, providing specimens that seemed to test the limits of previous definitions of plant life. The blurring of categories such as plant and animal that resulted from discoveries such as carnivorous plants proved ample inspiration for writers to create plant monsters, which terrified readers with threats of atavistic and predacious vegetation that cannot be tamed. The chapter ties stories such as Maud Howe's *Kasper Craig* and Lucy H. Hooper's *Carnivorine* (1889) to anxieties surrounding humankind's place at the top of the great chain of being and the food chain while plants that think, feed and move challenge the anthropocentrism of the nineteenth century. The chapter also looks at the impact of this Gothic view of plant life beyond the confines of genre fiction, suggesting that by the end of the century a 'gothicisation' of plants had left its mark even in the discipline of botany.

Leading on from these tales of ambiguous hybridity, the sixth and final chapter, Becoming a Pansy: Queer Cryptobotanical Obsessions, examines instances of imagined plants that disrupt or propose alternative ways of being. It begins with examples of the now-familiar association of flora with an effeminate or otherwise compromised masculinity, examining how a mania for flowers was construed in the late nineteenth century as a symptom of degeneracy. The chapter then advances to an occurrence of floramania in H. Rider Haggard's *Allan and the Holy Flower* (1915), providing an in-depth reading of this neglected text. Attention is paid to how Haggard's novel depicts plant life, especially orchids, as a cryptic and shadowy group of beings that constantly play with and undermine the perception, even consciousness, of British explorers through the monomania of orchidelirium. The chapter concludes with a more notorious floraphile, Des Esseintes from Joris Karl Huysman's 1884 text *A Rebours*. Examining the role of invented plant life in the novel, a reading is posited that Huysmans uses cryptobotany to celebrate the queer and artificial elements of plant life, openly contradicting the discourses of utility, beauty and profit that runs through the majority of the texts in the thesis.

Chapter One – Power Plants: Cryptobotany and the generation of capital

In the earlier-cited *Cabaret of Plants*, shortly after celebrating the nineteenth century as the "zenith" of wonder and respect for plants, Richard Mabey laments that by comparison, the twenty-first century has reached a newly depraved and dreary relationship with green nature:

> Influential conservationists [...] openly abandon(sic) the idea of arguing for plants' 'intrinsic value' in favour of stressing their economic potential, and have enthusiastically embraced the jargon of the marketplace. Wordsworth's 'host of golden daffodils' has been rebranded as 'natural capital' and the Wildwood as a provider of 'ecosystem services'. 'Nature', once seen as some kind of alternative or counter to the ugliness of corporate existence, is now being sucked into it (Mabey 5).

Mabey's statement makes frequent appeals to the idea of a pre-capitalist Romantic relationship with plant life and its surrounding environment, contrasting the language of the past with the ugly reality of the present through the use of multiple quotations to suggest that the commodification of organic phenomena is a recent, abortive product of the neoliberal moment of the twentieth and twenty-first centuries and that it can be undone by looking to the Victorian heyday of the botanical imagination; where plants were understood, respected and venerated, but untainted by associations with commerce.

While Mabey's dismay at the logic and language of capital being applied to eco-systems is entirely justified, his appeal to a more nineteenth-century-based approach to 'Nature' may not yield as wild a departure from the demands of capital as he may wish to believe. As this chapter will unpack, the idea of plant life as 'natural capital' is not an invention of modern neo-liberal economies, but one that was very much alive and thriving in the nineteenth century. This was not so much in spite of, but rather directly resultant from, the wonder and respect for plants that abounded in the period, which allowed writers, scientists and men of business to picture a world where plant life was set to work in the service of capital. The cryptobotanical fantasies that ensued showed plants that were not so much "sucked into" the grinding machines of capital generation, but *became* the means by which wealth is generated and extracted, in a process of proto-sustainability that would seem by modern understanding to be a perversion of the concept.

Everything from the notion of ‘branding’ plants, to the assignment of monetary value to what should be natural specimens of wonder each can be traced back to the cryptobotanical fantasies of the late nineteenth century. Though multifarious in form, the consensus among such narratives was that, if deployed correctly, new botanical discoveries would be able to generate the resources and labour necessary to solve the ails of modernity, and even elevate it to a near-utopic era (Rabinbach 2). Coal that could be harvested like firewood, gold that could be plucked from a branch and life-giving tonics that could energise even the most lethargic or enervated consumer were all being reported in the pages of newspapers and periodicals. This chapter details the overlapping concerns of energy, capital and plant-life in the nineteenth century that would ultimately give rise to many of the narratives examined in the thesis. The aim is to emphasise the imaginative connections between economic, industrial and organic processes in the period, using varied sources to lay bare the fantasies of a plant-based efficiency that promised to redeem the entropy of modernity.

The Heat Death of the [Late Victorian] Universe

To understand this drive to imagine a plant-based capitalism, it is first necessary to consider the historical contexts of the period; the discoveries and revelations, both in botany and beyond, which made the idea of transitioning from an intensely industrial to a ‘greener’ means of production not only appealing, but to some, absolutely essential. The period preceding the late Victorian moment was one marked by a sense of optimism buoyed by technical innovations, huge advances in productivity and a gravitation towards principles of free trade. Many were forecasting a new golden age of prosperity, especially in Britain as it enjoyed its imperial ascendancy in the mid-century, a moment captured in the short introduction to the Great Exhibition of 1851 written by Henry Cole, one of the key figures behind its development. Articulating the principles he felt lay behind the forthcoming exhibition, he lauds the emergent “achievements of modern invention” and their ability to “rapidly” deliver humanity “to the accomplishment of that great end to which…all history points” (36). The “end” to which Cole refers is “the unity of mankind”, which can only be won by the complete “conquer[ing of] Nature” and to turn it entirely “to his use” (36). The progress-driven worldview put

forward by Cole, though wholly focused on human ingenuity, is reliant on a view of nature as both endless in its capacity and uniquely suited to the needs of civilised humanity: “Science discovers these laws of power, motion and transformation: industry applies them to the raw matter, which the earth yields us in abundance, but which becomes valuable only by knowledge” (36). Cole’s cosmology of science and commerce providentially working hand-in-hand towards a common purpose was a recurring theme of the period and signified the degree of confidence in engineers of brick, steel and steam to construct and build a new world using only raw materials and human innovation.

The coming decades however bore a rather different reality. From a geo-political perspective, the American Civil War (1861-1865), the Franco-Prussian War (1870-1871) and the Long Depression of the 1870s did much to slow and impede the flow of trade that had been dreamed of by reformers in previous decades and leading to a stagnation across Europe and America that continued intermittently for the next twenty years. However, a far more profound and unavoidable factor concerned the fundamental nature of the economic system that was dominating the world, as Rosalind Williams writes in *Triumph of the Human Empire* (2013):

> In 1890 nearly every imaginable measure of material growth – human population, industrial production, resource consumption, energy use, species extinction – all of which had been slanting upward since the later eighteenth century, began to show a sharp ‘hockey stick’ upward turn, with no end in sight […] Since the emergence of *Homo sapiens*, human history had taken place against the ground of non-human nature. During their [late Victorian] lifetimes, human activities came to dominate nearly everything that happened on the planet (Williams 8)

As Williams’ notes, prior to this saturation of growth at the end of the century, future capitalistic and imperialistic expansion had always been predicated on the availability of more as-yet untapped land and resources on the horizon; but with “the imminent culmination of the European project […] of surveying the entire planet” (8), the finitude of global resources was becoming alarmingly apparent - seemingly placing a limit on material progress for the first time since the middle ages (12).

Williams dubs this phenomenon "the closing of the world frontier" (9)[7], evoking the fact that the promise of new land on the frontier of territories was swiftly evaporating. In its place there was a rising cultural fear of "running out of time and space" (3), producing "an age of anxiety" (11) that lived in the shadow of a "*fin du globe"* to accompany the *fin-de-siècle"* (9). This sense of economic and political claustrophobia was compounded by further revelations from the realm of physics. Despite the apparent "remarkable generosity of nature" (Rabinbach 3) with regards to the availability of fossil-fuels in the nineteenth century, subsequent "scientific inquiry" during the second half of the century disclosed rather more "unsettling conclusions" (Williams 12) with regard to the long-term consumption of these energy sources. Like the terrestrial expansion of empires, the discovery of the second law of thermodynamics showed the world's energy resources in a state of decline, as dissipation and entropy were acknowledged to be universal conditions of energy[8] - leading to the "inexorable 'heat death'", which in turn forecast an "imminent end of the world" (Williams 12). Such revelations posed a serious challenge to the narrative of economic growth and technical advancement that had constituted the contemporary zeitgeist, promising that "the closing of the frontier would reduce the creative forces that had powered energetic Western societies to such dominance" (Williams 12) and placing a seemingly unshakable barrier on the premise of indefinite growth.

Of the many "creative forces" impacted by these discoveries, few were as vital to the Victorian way of life as coal, and the prospect of its eventual depletion was enough to signal a national crisis. This was the prediction made by William Stanley Jevons in his *Coal Question* published in 1865. An Economist by trade, Jevons threw himself into the disciplines of geology and physics in order to explain the economic implication of Britain's over-reliance on fossil fuels. Jevons outlined in *The Coal Question* a near-future where Britain, and other developed nations, would have depleted all of its readily available reserves of coal, inferring that, as a nation wholly dependent on the substance, "we cannot long continue our present rate of progress" (Jevons

[7] After the smaller-scale 'closing of the Western frontier' in American history, which likewise threatened institutions of manifest destiny and national identity.
[8] The 'rule of entropy' first appeared in 1824 in an account written by the French scientist Sadi Carnot, though it's modern formulation was established over the course of multiple papers presented by a number of physicists between 1850-1860, most notably William Thompson, Humphry Davy and Rudolf Clausius.

11). Jevons' work essentially established a peak paradigm, where the majority of all fuels that exist on the planet have already been consumed; presenting the entropic nature of not only the finite energy sources of fossil fuels, but also the universe at whole. Perhaps the most far-reaching of these accounts was the apocalyptic vision appended to Balfour Stewart's popular science treatise *On the Conservation of Energy* (1873). Stewart's concluding chapters forecast a universal "dissipation of energy" where the world will be divested of "everything like life or motion or beauty" (153). His gloomy predictions fed into a broader anxiety of an impending decline that punctuated much of the *fin-de-siècle* through fears of the degeneration and eventual undoing of the universe as we know it, for as Stewart concluded, "a process of degradation cannot be eternal" (153).

Stewart further built on Jevons' thesis, couching his metaphor in the language of political economy in order to better articulate its ultimate economic impact. Contrasting the fossilized plant-matter of coal with the organic plant-matter available to us today, Stewart itemized and analysed the materials through the guise of a monetary system whereby contemporary capitalist civilisation is dependent on a fuel endowment from nature, with "coal being the store which Nature has laid up as a species of capital for us, while wood is our precarious yearly income" (144). In this analogy, as coal is burnt we increase the burden placed on our 'wage capital' of replenishable resources, which are themselves insufficient to maintain the levels of consumption reached by the 1870s (Williams 12). In a narrative that many readers would have been familiar with, it seemed as if Britain, and indeed the whole industrialised world was heading towards impending energy bankruptcy.

As Williams' suggests, these projections for a future that must end in disaster posed a direct challenge to the current orthodoxy, what Allen MacDuffie describes in his *Victorian Literature, Energy and the Ecological Imagination* (2017) as the "metaphysical faith in the perfect 'economy' of the natural order" (MacDuffie 27). An effective gauge of the impact these revelations had can be felt in the later writings of John Ruskin, whose aesthetics, philosophy and politics identified organic nature as a model on which human productive society should be based. Ruskin dedicated a sizable portion of his 1884 lecture on *The Storm-Cloud of the Nineteenth Century*

specifically to rebuking Stewart's text and other such works as indicative of "the *deliberate* blasphemy of science" and "its love of what is ugly, and natural enthrallment by the abominable" (72-73). To emphasise this point, Ruskin quotes from scripture, before comparing the ancient knowledge with modern science: "thinkers of former time[s] came to the conclusion that they were essentially good, and to end in good, the modern speculator arrives at the quite opposite and extremely uncomfortable conclusion that they are essentially evil, and to end – in nothing" (Ruskin 76). Through this contrast of "euphemy"[9] and "blasphemy", Ruskin reaffirmed his commitment to a system of natural and political economy that was at-odds with the leading orthodoxies of the period.

As Judith Stoddart notes in *Ruskin's Culture Wars*, this dogged adherence to fixed set of "fundamental principles" (7) could not allow for dissent and Ruskin's vision of Nature and God, both perfect by design could not be reconciled with a universe that is to 'begin and end in nothing'. Instead, Ruskin's vision of thermodynamics saw energy and faith combine in a "synthesis", what Cara New Daggett identifies in *The Birth of Energy: Fossil Fuels, Thermodynamics and the Politics of Work* (2019) as a "geo-theology" - an alternate metaphysical paradigm that gained traction in the nineteenth century as a reaction to the "vagaries of entropy" (52):

> If Earth's energy was running down – a tragic vision – then the planet could not be a reflection of God's perfection, nor a stable backdrop for human dramas. Rather the Earth was a flawed system to be worked upon and improved by humans (New Daggett 52)

It is here that cryptobotany enters the fray, for what was essential to this paradigm was the circular and seemingly eternal energy and vitality of plants - a continual motif in Ruskin's writings on everything from etiquette to industry. For him, and many others of the period, the generative nature of the vegetable kingdom was the means by which this improvement and enrichment of an imperfect world was to be manifested, and as we shall see moving forward there were numerous means speculated as to how this could be achieved.

"Bottled Sunshine" – Plants and Power

[9] Meaning benediction, holy or 'good-speaking'.

Following the rapid succession of discoveries in the properties of heat, energy and motion from 1850 to 1870 (Kuhn 321), there was a surge of interest in the physical properties of energy, not just by scientists and politicians, but the wider public as well. In just a ten-year period from 1857 to 1867 popular periodicals dozens of article outlining the new laws of thermodynamics as they emerged from researchers – often using mundane examples and language to explain the densely theoretical physics[10]. As discussed by Ted Underwood in his *The Work of the Sun*, there were two key agents that were seen as responsible for energy, and therefore life, on Earth: the sun, and plant life (119). To provide just one example, an article titled "Heat and Work" from Dickens' *All the Year Round* in 1865 details the physical properties of energy, where it comes from and how it is made useful. The author explains "we find in solar light and heat, the very mainspring of vegetable life... all [living creatures] in the long-run derive life and energy from the vegetable world; all, therefore...may trace their lineage back to the sun" (31). This unity of vegetable life and solar energy was doubly significant, for not only did it suggest a kind of benevolent design in the creation of the universe as a place supportive for human life, but also negated some of the concerns raised by the second law of thermodynamics and its dissipation of energy. So long as the sun continued to pour forth light and heat, plants would be able to "absorb" and "intercept" the energy for later use (31). This is spelled out in the most transparent terms:

> The vegetable world constitutes the reservoir in which the fugitive solar rays are fixed, suitably deposited and rendered ready for useful application. With this process the existence of the human race is inseparably connected. The physical force collected by plants becomes the property of another class of creatures – of animals ("Heat and Work" 32).

[10] Most of these detailed iterations of the same facts quoted above on the solar origin of energy on the planet and the conservation of force by plant-life, further examples include: "Physical Force" – *Household Words* 1859, "Energy" - *Good Words* 1862, "The Labour of Sunbeams" - *Recreative Science* 1862, "Hard Labour in Stone" - *Punch* 1864, "On the Origin of Force" – *Fortnightly Review* 1865, "Sun Force and Earth Force" - *Popular Science Review* 1866, "The Source of Labour" - *Chamber's Journal* 1866, "What We Owe the Sun" - *Once A Week* 1866, "Might and Magnitude" – *All the Year Round* 1867, "Force and Matter" – *All the Year Round* 1867.

From the title of the article, “Heat and Work”, to its evocation of the transfer of property from one “class” to another, it is clear that animals are styled on the bourgeoisie for their role of appropriating resources made by the labour of another class. However, like the unease that follows from real-world industrial relations, this metaphor was not without its complications.

In spite of placing humans as the beneficiary in this great universal transfer of property, these revelations of energy consumption did raise a disquieting notion that was counter-intuitive to an industrious work ethic; namely that animals, and therefore humans, are unable to generate energy of their own and therefore are entirely dependent the labour of plants. The author from *All The Year Round* anticipates the problems raised by this disclosure, admitting “The question is naturally asked,” by a society that has seemingly accomplished so much by determination and hard work: “has not the human will, power to create strength, energy and endurance?” (32). To which the author asserts:

> the grand point permanent throughout all these considerations is that *nothing new is created*. We can make no movement which is not accounted for by the contemporaneous extinction of some other movement (33).

In the narrative that begins to form in these accounts it becomes the role of animal life to take the stored energy of plants and appropriate it for their own purposes. This is achieved through multiple metaphors, though they constantly reprise the framing of class or commercial relations mentioned previously, for instance the process of combustion is described as one where “all energy invested in a plant reappears as heat” (31). This extends the burning of coal, fossilised plant matter, on an industrial scale, where the “energy which the sun of the carboniferous epoch invested in ...[the] produce of coal-pits” (31) is thus released for the benefit of all. While this energy paradigm unified the expenditure of animal and industrial energy as part of an ordained ‘natural theology of commerce’, it also imparted a productive role to the vegetable kingdom when it comes to the exchange of energy on Earth:

> Looking then at the physics of the question, we see that the formation of a vegetable is a process of winding up, while the formation of an animal is a process of running down. This is the rhythm of nature as

> applied to animal and vegetable life. Plants are the economisers, animals are the spendthrifts, of vital energy from the sun (31-32).

This was a narrative that continued to be perpetuated throughout the period, while different authors used different metaphors, the governing logic of the conceit and its overlap with human industry was retained, for example this extract from Grant Allen, writing nearly forty years later in 1895:

> the plant is a machine […] whose great peculiarity is that they possess *energy* or dormant motion. Now the animal is the exact opposite of all this. He is essentially a destroyer, as the plant is a builder. The plant produces; the animal consumes […] And the energy in the plant food, thus set free within his body, takes the form of animal heat and animal motion - just as the energy set free in the locomotive takes the form of heat and visible movement (Allen 18-19).

Though in both of these quotations there retains a degree of the same anxiety mentioned above of the bodily processes of animals involving the "running down" and destruction of resources, these fears are assuaged by the assurance that this is merely the intentional workings of a providential "rhythm of nature". Plants build up and 'economise' in order for the "spendthrift" animals to "set free" these reserves of "dormant" resources for their own purposes; or as the American dietician and cereal mogul John Harvey Kellogg expressed it:

> The function of the plant is to store the energy borrowed from the sun, preparing it for the service of man and animals that, like the steam engine, the furnace or the lamp, must be regarded as mechanisms for using or expending energy (Kellogg *New Dietics* 29).

Throughout all such accounts there is an air of near-idolisation for the uniquely productive capacity of plant life, each reflects a set of social values that have come to be termed "Productivism", as defined by Anson Rabinbach in his 1990 study of energy in the late nineteenth-century *The Human Motor*. Isolating ideas already discussed here such as thermodynamics and Marxist economic theory – Rabinbach identified a fundamental change in the understanding of energy and labour in the Victorian period, marking a shift to "the belief that human society and nature are linked by the primacy and identity of all productive activity, whether of labourers, machines or natural

forces" (3). With such heightened veneration of the power to generate new labour and capital, Rabinbach's claim that Victorian "society... idealised the endless productivity of nature" (4) rings true, and indeed, through the use of metaphors, writers of the period sought to associate the productive powers of plants with institutions of capital. Plants were alternately styled as savers in a bank, makers in a workshop or coal in a locomotive, their invariable purpose is not simply to accrue energy for animal use, but to build up reserves of material to be expended in the service of profit and capital generation. Allen MacDuffie notes this phenomenon of seeing plants as "ready-commodified", referencing the frequent allusions to "bottled sunshine" from Samuel Smiles to T.H. Huxley, where the function of nature is to assist in our consumption of energy (MacDuffie 35).

The Marxist critic Jason Moore identifies this logic of consumption in his own critical history of *Capitalism and the Web of Life* (2015). The text outlines how, in order for the profit-making mechanisms of capitalism to function, they must be provided with a vast quantity of unpaid, externalised ecological labour and resources, which can be found in the frontier spaces of the globe as 'Cheap Nature': the as yet un-commodified material that is sought out for the production of goods. "Cheap Nature…[is] the necessary condition" (101) for economic growth, and to maintain a consistent level of growth while keeping costs of production as low as possible, ever greater quantities of fresh resources and commodities need to be extracted from natural sites of production. As Williams suggested previously, by the second half of the nineteenth century countries found their own reserves of Cheap Nature were insufficient to sustain current levels of development, and what's more, the 'closing of the world frontier' meant the prospect of finding uncapitalised land was rapidly dwindling. This spawned another wave of imperial conquest "as European nations states competed to claim areas on the planet" to secure new resources (Williams 9), a scenario that is also detailed in Moore's retelling of the rise of global capitalism. Thus he explains the necessity for expansion caused by the depletion of 'cheap resources':

> When opportunities for appropriation decline relative to the mass of accumulated capital, a familiar train of events ensues… Workers, soils, forests, and other dimensions of unpaid work become physically

> exhausted…The share of paid work rises, and the profitability of the old regional production complexes declines…[In short] the possibility of renewed capital accumulation, in a particular sector or for capital as a whole, depends upon finding new frontiers of appropriation…Not coincidentally, every new era of capitalism begins with a 'new imperialism' (Moore 101).

In the critical context of Williams' and Moore's writings on ecological "frontiers of appropriation", the botanical writings listed above show the prevailing mythology that surrounded botany. Plants' miraculous ability to generate new material when all other forms of life merely 'ran it down' made them uniquely appealing as commodities, but also incredibly compelling as imaginative subjects. Their unique property as wellsprings of resources moved many to begin to pin their hopes on plants forming an increasing share of the productive labour force of capital, and began to formulate the means to enact this 'greening' of capitalism.

There are a multitude of terms for this phenomenon, for example in Moore's account he uses the Marxist term of "appropriation" as a means of describing the coercive and "extra-economic" processes used to enlist "human and extra-human sources of unpaid work/energy" (95). However, in the context of botanical resources, the term 'bioprospecting' has specifically been coined to refer to the process of seeking out living material that have the ability transform industrial processes and raise efficiency through unpaid innovation. Though the term is a modern one, it has been applied to historic cases of the politics and literature of empire by theorists such as Londa Schiebinger, whose *Plants and Empire* (2004) detailing the exploits of eighteenth century naturalists in search of "green gold" – "rich vegetable organisms [that] supplied lasting, seemingly ever renewable profits long after gold and silver ran out" (7). By the nineteenth century, bioprospecting had advanced from the individual efforts of entrepreneurial plant hunters to an institutionally-backed objective of imperialism. As Moore explains, beyond capital taking ownership of land and directly commodifying certain natural resources, it is necessary for other forces to first palpate, scope out and secure territories that can then be handed over in service of capital:

> This occurs through geographical expansion, and is most effective when empires and states do the hard work of imposing order – cultural, scientific, juridical, and the rest – on new spaces…such accumulation proceeds vigorously when unpaid work/energy is appropriated in service to commodity production, and opens new opportunities for capital investment (Moore 95)

"Ecological Surplus" is the ensuing maximising of profitability that occurs "when capitalists can set in motion *small* amounts of capital and appropriate *large* volumes of unpaid work/energy" (95), and is dependent on the capitalist being granted access to the resource in question through the groundwork of empire. Its significance lies in the explicit ties that link nature's labour to both imperial domination and capitalist exploitation, situating bioprospecting as an extension of the imperial project.

It is possible to observe this bioprospective drive for ecological surplus in historical accounts of imperial expeditions, such as this one from the *Pall Mall Gazette* in 1891, which documents in a new exploratory mission to Africa:

> a trained botanist, who is going out at government expense to report on the flora of our East African territories included within…This is a somewhat unusual course. A competent and capable botanist may do more to open up the country than a dozen mining engineers, for the discovery of a single plant useful to commerce may be of greater value to Africa than many gold mines (*Pall Mall Gazette*, 23rd 6. March 1891. Print.)

The idea that a plant, no matter how beneficial, could be considered of greater value than multiple gold mines may seem bizarre, but such thinking bears the impression of Stewart's ideas of renewability and sustainability when it came to resources; ideas which are conventionally thought of as the exclusive property of contemporary ecological discourses. Traditionally, resource depletion in one locale or stratum meant that miners were "compelled to go deep[er] down [or further afield] for [their] supplies" (Stewart 144-145), but by the latter portion of the century others were advocating a doctrine of resource management that embraced a physiocratic premise of using nature, specifically plants, to generate wealth.

Returning once more to the descriptions of plant life by Allen and others, the very language deployed in the description of these physical processes hinges on economic analogy, energy works in cycles of 'investment', 'deposits', 'property' and 'production', thus tying the roles of vegetables ['the economisers'] and animals ['the spendthrifts'] to two theories of economic production: physiocracy and mercantilism. The premise of physiocracy, meaning literally 'government by nature', was first posited in the eighteenth century by a group of French economists as a reaction against the rising tide of industrialism (Beer 13). They argued that "land was the only genuinely productive form of capital" on the premise that "labour [was] the source of value", so the innate "value of nature (added over and above the labour of man) makes agriculture more productive than other enterprises" (Underwood 119). The unique use of the combined productive faculties of humankind and plant life meant that "only in agriculture could labour produce more than it consumed" (120). All other forms of industry were "sterile" (Beer 14), creating no new wealth but merely transforming existing capital into novel, and ultimately useless forms – often producing more heat than light.

Though a product of the eighteenth-century, physiocracy underwent a rebirth of sorts in the mid-late nineteenth century, spurned on in part by the rising ascendancy of America and its new role as the world's 'breadbasket'. The Governor of New Hampshire N.J. Bachelder summarised it thus: "The prosperity of other industries is not the basis of prosperity in agriculture, but the prosperity of agriculture is the basis of prosperity in other industries" (qtd in Kloppenburg 73). To return to the analogy set up in *All the Year Round*, the agrarian economy becomes a stand-in for the botanical kingdom as a whole; its purpose is to capture the energy of the sun and turn it into capital that could be consumed by humans. Mercantilism and global commerce is by extension the animal that ingests this capital and expends it through heat and motion, using its labour to produce novel applications of energy, but *creating* nothing in terms of real wealth. These parallels between the worlds of economics and science, energy and capital are invaluable when examining the subsequent accounts of plants providing the energy and resources necessary for industrial processes. To have a tree that could perform the work of coal-fuelled generator, for example, totally transforms the character of production – instead of a singular exchange of coal for electricity, there is a renewable *creation* of

resources – therefore a creation of wealth – that can be depended on to sustainably and continuously provide more “bottled sunshine” for human use.

It is crucial that in using such terminology we do not blur the lines between the seemingly ‘green’ inclinations of some Victorians and the contemporary writings of Moore and other left-leaning theorists of sustainable development that are critical of capitalist economics and the legacy of imperialism, as Allen MacDuffie surmises in his analysis of Jevons’ ecological message “[he] was no environmental hero” (53), he was still committed to England’s national interest and prevalence on the world’s stage; he merely warned of the expense it may entail in the future. This earlier iteration of sustainability not only depended upon capitalist logic, but seemed to ratify it. The promise of a new species of capital that was not subject to the same entropy as traditional commodities under mercantilism was a utopian fantasy that helped stoke the engines of imperialism. The very language of the article in the *Gazette* surmises this most succinctly, with the scale of “opening up” of Africa being achieved by the economic promise of a plant-based economy being of greater penetrative impact than physically boring into the earth through mining. To borrow again from Moore’s own lexicon, what is achieved is a ‘diffusion’ whereby the liquidation of one resource allows the subsequent commodification of countless others; however, unlike in Moore’s model these resources may exist in a perfectly cyclical economy. The result is not a revelation of the finitudes of imperial capitalism, but rather a streamlining and optimizing of it through the innovations of nature’s store.

As mentioned in the introduction to this thesis, the status of plants as physical, material commodities in nineteenth-century systems of capital is an area of continuing and extensive scholarship. However, the majority of this thesis is concerned not with the real commodities such as quinine, rubber and cotton, but rather the *idea* of what commodities could still be waiting to be discovered ‘somewhere’ on the planet’s dwindling frontiers - the cryptobotanical, or ‘hidden plants’, that remain undiscovered. In doing so, we witness a transplantation of expansionism from material frontiers to frontiers of the imagination.

Bioprospecting on the Imaginative Frontier: Cryptobotanical Resource Extraction

Of the kinds of frontier spaces that exist in narratives of expansion, the form that has predominately been dealt with thus far has been frontiers of territories. As noted by Williams and Moore, in the nineteenth century this most often took the form of imperial expansion, such as the 'scramble for Africa', and is well documented for its "geopolitical consequences" (Williams 9). The imaginary frontier, however, perhaps requires a degree of explanation. In excess of the physical, liminal frontiers that were being explored and prospected by British agents and merchants on the hunt for new materials, many at home also pursued a wholly psychic 'imaginary frontier' of speculation through the use of fiction. This frontier was often informed by conceptions of the endless generative power of nature, particularly the exotic nature found in darkest Africa or the remote Americas. While it was a wholly cerebral affair – it nevertheless had an impact, certainly on the popular perception, and even the policy of imperial prospecting endeavours, in the sense that it held the promise of the *potential* riches that existed beyond what was known. Though it was seldom possible for these fantasies to bear fruit in terms of material resources, they nevertheless remain a fascinating and valuable source, for while trade records and ledgers may be able to tell us what it was the Victorians were able to extract from their various prospecting endeavours, the fiction of the imaginary frontier can tell us what they wished, or feared, they would find.

Fiction as an imaginative tool served as a means of giving life to these speculations of what the future may hold, and "the late nineteenth century" saw "decades of intense... speculation" through the medium of fiction (Beaumont, 17), eventually giving rise to an entirely new genre: speculative fiction. Often seen as a pre-cursor to the science fiction of the twentieth century, speculative fiction was typified by writing of a near future, or parallel present where a few subtle changes in reality reveal a drastically altered fate for humanity. The genre was identified by critics as early as 1889 in response to Charles Bellamy's utopian novel *Looking Backward: 2000-1887*; however it was equally applicable to dystopian fiction as writers inscribed the fears of their age across an imagined future, and issues of energy and resource depletion were some of the most frequent themes in these speculative narratives. For instance, in Joseph Conrad's collaboration with Ford Maddox Ford in 1901: *The Inheritors*, a self-proclaimed *'Extravagant Story'*, the authors imagine the infiltration of the planet by a cabal of alien beings called the "fourth

dimensionalists" who have arrived on Earth to assert dominion over it. As explained to the protagonist Arthur by the nameless female emissary from the fourth dimension "your ancestors were mine, but long ago you were crowded out of the Dimension as we are to-day" (10) – displacing humanity as the dominant species, as they themselves have been displaced from their dimensional home.

Conrad and Ford paint a picture of a universe governed by physical reactions where one culture consumes all it can, until it is then forced to reach out from its current locus to displace another in order to continue its rate of consumption in a kind of inter-dimensional colonialism. It is a speculative solution to the impending closure of the frontier as identified by Williams at the end of the century; when there is nothing left in the globe, it is possible to tear through even the fabric of space to ensure fresh resources and energy necessary for the continuation of existing systems. In *The Inheritors*, the demands for resources are afforded transformative influence, altering the very fabric of reality, but this narrative hyperbole is not a distortion of the significance of new resources to a capitalist economy; as Conrad wrote economies "cannot afford not to" expand. A frontier space was thus needed from which these fresh resources can be extracted, be it the frontier of the incomplete map and unclaimed territory, or even an imaginary frontier such as the cross-dimensional boundary of Conrad's story. These frontiers held the promise of the raw materials necessary to further augment and propel economies of energy or capital forward, reaching higher, and greater feats of progress and growth.

Fictional frontier spaces created by speculative narratives thus served as an arena in which to work out issues that were otherwise insoluble through the use of fantastical commodities. As Rosalind Williams writes of the impact of thermodynamic and colonial entropy, "In practical terms 'progress' was still possible, but it ceased to be grounded in an understanding of the reality of the universe" (Williams 13) – therefore for fantasies of unending growth to continue, a 'new reality', like Conrad and Ford's story, had to be imagined. In doing so, it was possible, at least in theory, to displace the consequences of the dreaded universal dissipation of energy so that the "apocalypse might be forestalled" by imagining conditions that could resist entropy (Rabinbach 7). As

early as 1865, when Jevons was writing his study of coal depletion, he issued an anticipatory warning to those who believed that the scarcity of coal could be overcome by the innovation or discovery of a heretofore-unknown energy source:

> we ought not at least to delay dispersing a set of plausible fallacies about the economy of fuel, and the discovery of substitutes for coal, which at present obscure the critical nature of the question, and are eagerly passed about among those who like to believe that we have an indefinite period of prosperity before us (Jevons 4).

This stony-faced pessimism is what Elizabeth Carolyn Miller identifies in her own study of Victorian resource extraction literature that "for the first time in history, social life was understood to be premised on a non-renewable material base that was depleting towards exhaustion" (30). The result, according to Miller, was "a new conception of futurity" that is "undead", "unknown" and estranged from conventional cycles of growth and renewal (30). While this is certainly true for the "provincial realist novels" that Miller refers to in her article, this conception of a decaying future is not representative of all responses to the entropy and resource depletion unveiled by discoveries in physics and geology. There is a tendency within the Energy Humanities, especially when dealing with historic conceptions of energy, to focus on carbon-based fuels and its associated petro-cultures. While coal, oil and gas undoubtedly made up almost the entirety of fuel since the industrial revolution, from the inception of the mass consumption of coal there have been attempts, both fictional and practical, to move away from fossil fuels[11]. By examining the hopes many held of a plant-based, renewable energy source in the period, this research strives to open a space in critical terms for considering the appeal of green energy within the nineteenth century, and this critical effort is driven by the recognition that the Victorians themselves were doing this for materialist reasons.

Indeed, in Jevons' own warnings in *The Coal Question* above, there was an acknowledgement that counter-narratives of fossil fuel alternatives were being "eagerly passed about among those who like to believe that we have an indefinite period of prosperity before us", restating the extent to which

[11] See Steven Stoll's work on industrialised agriculture, particularly his profile of John Adolphus Etzler (1791-1846), *The Great Delusion: A Mad Inventor, Death in the Tropics, and the Utopian Origins of Economic Growth* (2008).

the notion of a continuation of previous ideologies of never-ending abundance remained incredibly seductive for an age concerned with the limits of energy. The key to ever-expanding growth, as outlined by Moore, was “the possibility of renewed [or renewable] capital accumulation”, therefore a scenario where an ever-renewing capital source could be discovered would negate the need to continually seek out fresh resources, solving capitalism’s sustainability crisis. Likewise, as Williams’ suggests, such a fantasy could no longer be “grounded in an understanding of the reality of the universe” and therefore realism was substituted for a fictional mode that could transcend entropy.

Sarah Alexander in her study *Victorian Literature and the Physics of the Imponderable* (2016) further interrogates the ways in which the “utopian literature of this period imagined worlds in which entropy might be overcome” (Alexander 84). Examining multiple accounts of early science fiction and texts that dealt with ideas of energy, Alexander articulates how “capitalist production came to be understood as highly entropic because of the ways it was dependent on fossil fuels, or coerced or forced labour”, therefore speculative fiction was thus deployed to “overcom[e] the implications of thermodynamics in order to avert the ills of industrial capitalism” (Alexander 84). Crucially, argues Alexander, these issues were inescapable in narratives of speculative fiction, for “imagining alternative [worlds ...] at the *fin-de-siècle* involved not simply reimagining social and economic relations, but also disentangling capitalist production from the laws of thermodynamics”, specifically entropy (Alexander 85).

One of the most obvious ways of ‘imagining alternatives’ to entropic production was to more closely align industry and modernity with the only beings on Earth who resisted the ‘running down’ of entropy, who were able, in a superficial contravention of the laws of thermodynamics, to *create* energy: Plants. It was perhaps this willingness to imagine renewable plant energy sources that caused the journal *Forestry*, a specialised periodical dedicated to the management of forest-lands and estates, to run the following article. Sandwiched in the December 1885 issue between articles about the practicalities of orchid pollination and how to vitrify wood, there is an account of ‘The Electric Tree of New Guinea’*,* accompanied with a disclaimer from the editor stating that “we will give it for what it is worth, merely remarking that it is

too much on a par with many other unrealized wonders of New Guinea for us to accept without reserve" (504). Scepticism aside, the article launches into a detailed account of the discovery of the tree and its various properties. After being chanced upon by a team of explorers, the tree is found to be able to deliver "severe electric shock[s]" and after analysis with a botched galvanometer found "a current circulated through the entire [tree]" emanating from a series of "black cores" (506) that seemed to act as batteries. The article ends with the "sincere hope" that "Elsassia electrica will grow in other countries; it would be a great thing, would it not?" (507), for with the transplantation of such a discovery, the reliance on steam power over the generation of electricity can be by-passed as it has been found to quite literally grow on trees. The story of the tree caused quite a sensation and was repeated in a number of journals each adding exciting new properties to further embellish the story and entice readers. *The Friendly Companion*, for example, included the detail that the trees were made up of "almost pure amorphous carbon" (96). "Amorphous carbon" is the name given to molecular forms of carbon that do not adopt a lattice or crystalline structure: namely, coal. The implication is, if this tree was not useful enough in its spontaneous generation of electricity, it is also composed of a material that is nearly identical to coal, thus seemingly solving the twin crises of electricity production and coal depletion in one neat, sustainable, arboreal package.

Such purported species were not just remarkable for their novelty and value to botanical science, but also their value as potential sources of income, signifying a transfer of labour from intensive and inefficient industrial processes to new plant species. Such plants could perform tasks that would ordinarily require fuel, labour and machinery, for gratis; requiring only sunlight and water as remuneration and opening up the potential for long-term sustainable growth. From a contemporary standpoint, we can recognise this as concern over sustainability and a desire for resource conservation and efficiency, but while the late Victorian period lacked the terminology and technology to effectively diagnose these green issues, they were nonetheless perceived as significant for the longevity of Britain's prosperity and security. Indeed, it was precisely because there were no major renewable sources of power generation that botanical fictions took root. Confronted with the depletion of natural resources, writers of fiction cast around for examples from

the natural world of self-sustaining systems and the botanical mode of production naturally lent itself to an ideal model for future economic development. Plants were models of efficiency, able to take waste and turn it into delicious and beautiful produce year on year and as early as the eighteenth century, people were marvelling at what Erasmus Darwin termed in his epic poem of the same name *The Economy of Vegetation* (1791). Nature's seeming capacity for endless sustainable growth provided an inspiring model for those in the period who were already enamoured with modern achievements in science, commerce and innovation, and explicitly fed into discourses that painted capitalist modernity as being a 'natural' and unwavering ascent of material progress (Macduffie 29).

Besides energy production, other entropic commercial processes could be imaginatively improved by the introduction of plant labourers. A decade later in August 1890 multiple reports circulated in periodicals and newspapers including *The Philadelphia Times* and *The Kansas Star* of a "Metal-Eating Plant" discovered by "the well known naturalist of Bavaria (sic) Professor Schelwisch"[12], a fellow traveller on "the Stanley expedition" – referring to the real-life 'Emin Pasha Relief Expedition' lead by Henry Morton Stanley from 1886-1889. While resting in the "Umbopo region" Schelwisch comes across a plant "practically composed of iron"; from leaves to roots the plant has adopted the qualities of the metal, and the account later details how it is able to "absorb" metal deposits directly from the ground in "a process supposed to be similar to electro-plating". The author goes on to speculate the ease with which one may go about cultivating these plants back home, noting their 'rank growth' and hardiness as evidence that they could be remarkably transplantable; one would simply need to plant a crop in ore-rich soils, wait until maturation and then burn off the organic matter leaving a perfectly refined metal to be collected. The implicit fantasy behind the narrative holds that the destructive and labour-intensive processes of conventional mining and refining could be replaced by the organic functions of these new plants. The wasted land, energy and materials that were currently dissipated under the entropic industrial model, are conserved and streamlined in the imagined plant-based operation; with minimal human effort and environmental degradation, it would

[12] A possible reference to a professor "Schweinfurth" who accompanied Stanley for some of his travels through Equatoria (Stanley *Vol.1*, 52)

be possible to enjoy the same, if not greater material output in this plant-mineral utopia.

The hope and optimism with which plants are thus described, as well as the enthusiasm shown for the pre-industrial, even pre-lapsarian, forms of energy generation through plant-life signified a desire to return to a point before the entropy of mechanised capital; a total relocation of the burden of energy and capital generation from society to a bountiful and cheap nature.

As Elizabeth Carolyn Miller notes in her study of the more sombre, Realist response to Britain's "nonrenewable, diminishing stock of resources" there was a fear that, "from metals to minerals to coal", all aspects of modern industry pointed towards a future "bereft of the cyclical comforts of a stable, predictable natural system" (30). However, as the fantastical accounts cited here show – cryptobotany offered precisely that, a naturalised system where metal, minerals and even coal could be harvested with the cyclical surety of a pastoral idyll. Fabricated plants link the human mind with their natural surroundings and help reveal the kind of world the late Victorians wished to grow for themselves as the natural and industrial worlds blur into a physiocratic vision of the future where energy, efficiency and productivity are the governing laws of humanity and nature alike. While still remaining organic and undeniably 'natural' subjects, these plants were imagined as primed to serve human and market demands – signifying a view of nature that was ready and willing to be conscripted into the service of capital to help produce new wealth, rather than just transfer existing wealth. This idea of 'industrial plants' can present something of a challenge when negotiating ecological criticism due to the aforementioned tendency towards regarding man-made and natural creations as separate. It is valuable at this stage to return to Jason Moore who, rather than adopting the limiting 'nature/culture' binary, posits a view of capitalism's prospecting gaze that acknowledges the role provided by natural phenomenon in the production and distribution of commodities. He emphasises the "extra-human" and "unpaid" (Moore 17) labour and services within an economy that are provided by certain natural processes, and how capitalism seeks to harness these natural phenomena so that they may continue "to yield [their] 'free gifts' on the cheap" (1). The result is a view of

capitalism that highlights the dependency of the system on a rich and continual source of uncapitalised nature to fuel it.

Beginning this thesis by looking at the fundamental qualities of plant life the Victorians were most impressed by, a picture begins to develop of the form and function of cryptobotany in the nineteenth century, at least in the context of productivist fantasies of efficiency and accumulation as seen here. For all the feats of technical engineering that came with the age of steam and the fantastic wealth that resulted from them, a growing awareness of the laws of thermodynamics provided a lingering anxiety at a time where progress seemed on a never-ending ascent. Then, as now, it was the fossil fuels that enabled the modern world to keep turning that ultimately presented its biggest obstacle, as speculative thinkers warned of a future where the energy so readily available now would be depleted and dissipated. Confronted with such a possibility, writers had recourse to the productivity of plants and the cryptobotanical imagination, which they could use to create a scenario where the vegetal power of harnessing extra-terrestrial energy could be directly applied to industrial processes – bio-engineering their way out of the problem of resource scarcity by making industrial production emulate the continual cycles and growth of organic life. Progressing on from the imaginative framing of vegetable life as a source of renewable energy for the macrocosms of markets and supply-chains, the following chapter turns to cultures of food and medicine to explore how the same fantasies of vitalistic energy were consumed on an individual basis, packaged in fictions that promised a world where people could likewise harness the boundless potential of plant life.

Chapter Two – Green Living: Cryptobotany and Cultures of Health

The cases of cryptobotany examined thus far have focused predominately on concerns of resource security within the Victorian era, where plants were imaginatively enlisted to provide fresh, sustainable stocks of finite materials to restore markets and economies on the brink of exhaustion. Scaling now from the macro to the personal, this chapter will address how the same logic of energy conservation and botanic vitality was mobilised to appeal to individual consumers in the period through discourses of plant-based health, bodily renewal and clean eating. The phenomenon of patent foods and medicine is the ideal case study for seeing these discursive forces in action as it encompasses both the chief health and wellbeing concerns of the time and what kind of, invariably floral, remedies were on offer. Paying particular attention to the medium of advertisements for patent stuffs, the chapter will draw from both fictional examples, including *The Healers* by Maarten Maartens (1906) and *Tono Bungay* by HG Wells (1909), as well as the real-life pills and potions that inspired them. In each instance critical analysis will be placed on the unique role plant life played in the presentation of these medicines, unpacking in particular how the transformative power of fiction was able to turn mundane, or even noxious, vegetable matter into miraculous life-giving preparations, all through the use of the cryptobotanical imagination.

The previously established generative qualities of plants that so inspired the Victorian imagination made the leap from industrial processes to the bodies of consumers through their stomachs; specifically, through food. With the generation of power and harvesting of minerals seen in the previous chapter, there remained another form of industry that involved an inefficient mismanagement of land use that could be rectified by a plant mediator, namely animal pasturage. The moment supposedly arrived in 1878, when a botanical innovation was presented to the world at the *Exposition Universelle* in Paris. The species dubbed *Brosimum Galoctodendron*[13] was indigenous to South America and according to travel narratives was consumed by native tribespeople as a substitute for milk. In reality, the 'milk' secreted from the tree

[13] The species had been documented and verified over ten years previously and thus differs from previous examples of cryptobotany in the sense that the species is an actually existing plant specimen, however the ensuing

was a form of latex, and while it did indeed contain protein and lipids, it was far from the custardy nectar that was described to English readers. Nevertheless, edible or not, the mere *idea* of a plant that could produce milk like a cow captured the imagination and fancy to such a degree that the tree received a new burst of publicity, being touted as a means of providing a renewable, low maintenance source of milk, potentially available for all households with a garden.

The ensuing articles painted a picture, albeit an often satirised and cynical one, of a post-scarcity future where starvation can be practically erased by the ready supply of vegetable milk. A piece in *Funny Folks* from 1879 speculates:

> In case it turn out that our climate suits it, we would suggest that all the main streets of our cities be planted with it. For with a *Brosimum Galactodendron* within reach, no unfortunate beggar or poor person need ever starve to death, whilst many other wayfarers would not find it amiss to mix a little with the weaker fluid now publicly supplied from 'the cow with the iron tail[14],

The potential plenitude of the vegetable imitator and the "weak" character of its bovine counterpart similarly leads *Fun* (1879) to run an article titled *Milk for the Million; or, The Dairyman's Doom* forecasting a near future where "every householder with a back garden or a yard will at once plant his cow tree and tell the milkman not to call anymore". Instead of a nation in covert dependence on foreign produce, Britain as a whole, even down to the level of households, becomes a self-sufficient nation living off of produce grown on its own soil; a utopian vision of economic and gastronomical sovereignty. The extent to which this can be viewed as heralding a new cryptobotanical age of self-sufficiency is of course extremely limited by the nature and tone of the publications and articles. *Fun* and *Funny Folks* were, as their titles suggest, not the most serious of periodicals and thus the idea of milk by trees may be reduced to a simple joke. However, in order for these satirisations of utopian plant worlds to function, they had to draw from the kind of writing that was sincerely imagining a similar future, and while the scenario is made in jest, the

[14] A reference to adulterated or contaminated milk that was available in densely crowded urban centres

picture of small-scale alternatives to large-scale cattle farming would have been a highly desirable scenario for many in the period from the perspective of the health of the nation's economy, and its people.

By the late nineteenth-century the British domestic demand for livestock was beginning to become unmanageable, with imported beef (Gregory 15) from North and Latin America, as well as Lamb and dairy products from New Zealand and Australia (Atkins xvii) all being increasingly called upon to supplement British produce. From both a gustatory and patriotic standpoint this was somewhat problematic. Not only was the transported meat judged to be inferior (15), but the very idea that Britain's national dish, for centuries aligned with its political identity[15], should be provided by foreign, competing nations was seen as scandalous. *Punch* joined dissenting voices rallying against foreign meat in its 1877 cartoon 'Down on Her', making an example of the housewife "dabbling in American beef" as a point of social and national embarrassment. By the middle of the nineteenth century the vegetarian movement was already calling on this anxiety of foreign meat by pivoting towards a paradigm where "foreign supplies" could be replaced with homegrown vegetables (Gregory 15). This rise in foreign meat imports also coincided with an increased understanding, or at least awareness, of bacteria and germ theory. The awareness of the putrefaction of dairy and meat products and its link to illness became an integral part of civic and food management and "dominated sanitary science from the mid-1850s to the mid-1870s" (Hamlin 383). Even *Funny Folks* gives mention of it with their inclusion of the 'cow with the iron tail' referring to an infamous article published in *Household Words* in 1850 that detailed the inferior and even dangerous quality of urban-raised dairy products (David Law 7-9).

DOWN ON HER.

Butcher. "You've not been 'avin' so many J'ints this last Week or two, Ma'am."
Lady (who has been dabbling in American beef, but does not dare say so). "Er—no—er—we've had a good deal of *Game* sent us lately by some Friends in the North, you know!"
Butcher. "Indeed, Ma'am! Now, what sort of Game do they send you in the Month o' April, Ma'am?"

Fig. 2.1 'Down on Her' by George du Maurier. Engraving from *Punch*, 21 April 1877: 178.

[15] See Ben Rogers' *Beef And Liberty: Roast Beef, John Bull and the English Nation* (2003)

In the final decades of the century, the perceived plight of the consumer faced with the prospect of contaminated mammalian milk spawned rapid innovation to create and market a 'clean', often plant-based, alternative – a phenomenon that proved a source of particular inspiration for the Dutch novelist Maarten Maartens' work *The Healers* (1906). Maartens was the pen-name of the novelist Jozua Marius Willem van der Poorten Schwartz, writing in English for the British and American markets at the turn of the century. Maartens enjoyed moderate success and acclaim, a some-time correspondent of Thomas Hardy, he published a string of novels between 1889 and 1912 but has since fallen into obscurity. In his *Companion to Victorian Literature*, John Sutherland admits that "most readers...will draw a blank at the name 'Maarten Maartens'" (ix), however his novels grappled meaningfully with many of the societal trends and sensations of the period, and can be invaluable for providing the detail, or to borrow Sutherland's term, the "subsoil" which constitutes "the field" of Victorian Studies (Sutherland x). *The Healers'*s plot centres on multiple generations of the Lisse family, a Dutch aristocratic line with various connections to colonial interests, scientific research, Christian Science and spiritualism. These various strands converge to paint a picture of Europe at the turn of the century caught at a cross-roads between empirical science and esoteric mysticism. It is the force of commerce in the novel, personified in a Mr Bitterbol, who first introduces the eminent bacteriologist Baron Lisse, and the reader, to a miraculous plant patent product. Bitterbol's plan is to have the Baron lend his name along with his professional and aristocratic credentials to a new plant-based alternative to cow's milk, a hermetically sealed coconut extract, which he hopes to market to the "civilised – all too civilised" (185) consumers who have been turned off mammalian milk.

Through the various asides of the narrator and Baron Lisse's own research, the reader by this point of the novel has become aware of the newly established study of bacteria and 'germs' that had blossomed in the late nineteenth-century thanks to pioneering work of Justus von Liebig (1803 – 1873) and Louis Pasteur (1822-1895)[16]. Bitterbol adopts a rather cynical view of the advancement of scientific knowledge, seeing it not as a means of enriching or prolonging life, but rather as a tool to foster a sense of paranoia, a climate that creates endless opportunities for him and other "quack" salesmen

[16] Both of whom lent their names to patent foods.

to swoop in with their own self-proclaimed remedies. This logic of business over scientific interest is repeatedly pushed before the Baron by Bitterbol as he tries to persuade the Doctor to join him on his scheme; not only because it makes shrewd business sense, but also, having alerted the world to the bacteria present in animal milk, he now has a moral obligation to provide a solution, having deprived every mother of a means to feed their children:

> The food of their puling infants, that cry vainly for nourishment! Their own milk, sir, is contaminated by hereditary disease! The cows of the country are laden with tuberculosis, typhus, scarlatina, whooping cough! [...] The world, sir, disturbed in its inmost bosom –I speak accurately- the distressed maternity of the whole civilised -all too civilised!- human race demands milk – untainted milk! (185)

With the dawn of a new microbial paradigm, people were suddenly made aware of the swarms of bacteria they unknowingly ingested every day. In the picture painted by Bitterbol, livestock animals become little more than incubators for diseases, physically “laden” with the weight of bacterial colonies swarming in their blood, flesh and milk. Despite his wild gesticulation and fervent sales pitch, Bitterbol’s assertion that the bourgeois consumers of his market demographic are “disturbed in [their] inmost bosom” is hardly an overstatement, as the realities of bacterial contamination in food make themselves known to the reading public. An article from *The Girl’s Own Paper* from 1900 on foodborne tuberculosis titled ‘THE WORST OF ALL PLAGUES’ describes the palpable unease and disgust that could be mobilised in discourses on food, with the author prompting the revelation "we all eat the [products] of tuberculous animals” and “we have personally carved a joint in which there were whole chains of tuberculous glands" (481). The explicitly “personal” reference to one’s proximity to the hereto unseen threats that make up the familiar flesh of roast beef, in combination with the domestic site of contagion – the family dinner table, or even the infant’s bottle –render the wholesome familiarity ‘meat and milk’ into something deeply unsettling; transfiguring mundane foodstuffs into putrefying masses of bacteria where animal products take on the characteristics of the abject – something to be forcibly expelled from the body and home.

Presented with such findings, how then are families to feed themselves? That is the cry issued by Bitterbol's rhetorical masses of "disturbed" housewives, and his answer is a miracle-vegetable substitute:

> 'Take away all yonder contaminated fluids!' Mr Bitterbol swept the empty table with a magnificent gesture. 'I should say' – he held his cocoanut on high – 'Here is nature's sterilisation! Unspoilt by any contact with animal disease!' (185).

Fig. 2.2 'Imperial Granum' Advertisement from *The Gentlewoman*, August 1895.

Bitterbol's proposal for plant-based milk differs from the speculative accounts of the utopic, labour saving abundance of the *Brosimum Galactodendron* and its potential for an almost Edenic self-sufficiency. Bitterbol's coconut milk instead prioritises and elevates the desirability of the plant as commodity, reifying its qualitative difference from corrupted animal milk with carefully chosen words to conjure the necessary feelings of cleanliness. Like the above contemporary advert for Imperial Granum, Coconut milk can be 'natural' without the corporeal taint of animals and the various forms of decay their bodies can harbour; the coconut's own hermetically sealed shell acts as barrier to any notions of bacteria, while its 'flesh' retains the unsullied cleanliness and wholesomeness enjoyed by botanical specimens. In describing the production process, Bitterbol is careful to stress that he would devise a machine that could pierce the husk of the coconut and transport the milk from the sealed space of the shell to the sealed space of a tin can "without it ever coming into contact with outside influences" (189),

acknowledging the necessity of maintaining this idea of untainted food. Plants were perceived as fresh, natural, pure and above all "clean" - characteristics that were increasingly hard to come by in the densely crowded urban spaces in turn-of-the-century Europe, and, as with our contemporary fad for 'clean eating', were seen as a means of keeping the body healthy in an increasingly toxic environment.[17]

In *The Healers*, the concern is with the new science and fad for hygiene, and thus his vegetable product is touted for its 'purity'. As Bitterbol sets forth his algebraic formula for money making in the new century as follows: "Every quackery…is entirely a matter of advertisement. My idea, your name, his advertisements: the thing's done" (189). The surety with which Bitterbol presents this equation couched between his various pseudo-scientific claims naturalises the process of money making, unifying the growth of the plant with the venture itself and placing the generation of capital on par with other natural biological processes. As sure as plants synthesise energy from the sun, so too will an initial investment of three hundred thousand francs produce a result that "will be immense, beyond anything you expect!" (188). With the generation of capital given organic qualities, Bitterbol is able to depend on its guaranteed and self-determined growth. Returning first to the process of capital generation, Bitterbol's assurance of their fortune lies not only in the organic chemistry of capital synthesis, but also the pseudo-scientific logic that will fuel the demand for their product. While the Baron, a true vestige of vocational, genteel scientific enquiry, cannot see how the findings of his "fellow workers" could be capitalised upon, Bitterbol is quick to point out the demand that would exist for such a food source; even mentioning Lisse's "great rival" Pasteur, who was also "seriously consider[ing]…the sterilised-milk business" (189) - referring to his own 'pasteurisation' method for removing microbes from food.

> We intend to supply every mother in Christendom, soldered tin envelopes, as imported, with patent apparatus – patent, mark you: that's the point – with patent apparatus for conveying the fluid directly

[17] The food journalist Bee Wilson has written on the similarities between the food crises of "Victorian England" and the "wellness food businesses today", see *The Guardian* 11/08/2017 'Why We Fell For Clean Eating'.

> from the inside of the fruit to the lips of the child, without opening it, and possibly infecting it…the milk's pure, and the idea's first-rate (186-187).

Bitterbol's speech neatly shows the capitalisation on the Victorian 'superfood'. The liquid capital is literally sucked from the husks before being individually packaged and throughout Europe, America and Asia, providing for every infant mouth and supplying Bitterbol and Lisse with tremendous royalties. As Moore states, nature provides the free labour of production, the coconuts are remarked as being especially "rich in milk" (186); all that is needed is a transfer from the unbranded packaging of the fruit itself to a branded packet of "Lisse's Milk" (187) in order to begin raking in profits.

The 'purity' of the milk lies at the heart of its appeal, and Bitterbol is not blind to this. He knows that what is required from the consumer in excess of the scientific reassurances of Lisse and his "little dissertation…on the dangers of cow's milk" to be printed on the side of the tin, is the idea that what they are buying is essentially pure, free of all the tinctures and infections which have been made aware to them by modern science. To combat this fear, Bitterbol again evokes the status of the plant as 'natural' and weaves it with his persuasive advertising language so that it takes on the quality of an "ambrosia":

> Not 'sterilised', which can be easily proved a sham, but sterile *by nature*, incorruptible, unbacteriable! Immicrobable! We will coin the new words for the new thing! It will be easiest in German, but we will do it in all the languages of Europe and Asia! (187)

Between Lisse's scientific theorem and Bitterbol's own distortion of facts, the humble coconut takes on a fantastic new quality in the minds of the consumer that neither man nor machine can hope to emulate. Only a plant can be free of the corporeal taint that creates these foodborne diseases, whilst still laying claim to the idea of it being a natural product. Without the vicissitudes of flesh, or the unwholesomeness of a sterilised synthetic concoction, plants can occupy a purer ontological space where they can be near-mechanical in their production efficiency, near-mammalian in their lactic nutrients and still maintain an "incorruptible" natural wholesomeness. This new classification demands new language, and like other cryptobotanists, Bitterbol is more than willing to coin new phrases to fill, populate and solidify the foundations of his

freshly hewn corner of the market by creating new levels of hygiene in the minds of consumers with his new verbiage.

Maartens' portrayal of the fad for hygienic plant foods had a wealth of real-world sources to draw from, with the foremost being the noted American doctor, health reformer and breakfast cereal mogul John Harvey Kellogg. One of the most zealous campaigners for 'dietary hygiene' and the removal of all meat from everyday diets, in the same manner as Bitterbol, Kellogg advocated replacing what he saw as tainted animal products with his own brand of patented plant-based foodstuffs – his famous corn flakes being the most well-known, both now and in the 1890s. Presiding over the famous Battle Creek Sanitarium from 1876 until his death in 1943, Kellogg pioneered a number of diets and treatments for varying disorders that he judged to be caused by internal putrefaction, caused by ingesting 'unclean' foods. Though published largely in the early twentieth century, his methods and theories are a product of the 1870s and the theories of putrefaction that were prevalent in Europe at the time (Hamlin 383). Almost in response to the picture of clamouring anxiety painted by Bitterbol's description of 'milk terror', Kellogg remarked that "Nothing could be more absurd from a scientific standpoint than to take great pains to secure a clean milk supply...and then swallow along with it meat containing from a hundred to a thousand times as many germs and bacteria of a most pernicious and loathsome kind" (Kellogg, *Autointoxication* 34). Instead, in order to maintain a healthy and clean body, one must only ingest foods that were perceived as nutritious, easy to digest and wholesome – these were invariably plant-based.

Whilst Kellogg and others found a number of devotees amongst English and American polite society, this did little to stem the appetite for meat amongst the public at large. As James Gregory notes in his study *Of Victorians and Vegetarians* (2007), the movement was regarded in the popular press as eccentric at best and mere "humbug" at worst (178). The lesson seemingly being that there is a limit to what plant innovations can impose on the existing social structures and habits. Potential botanical innovations in mineral extraction or power generation were met with tentative interest, or even eager anticipation. However, the prospect of a meat-free diet was an innovation too far for most. When it came to the revolutionary step of an all-

vegetable diet, even the most ambitious writers had to adopt a degree of pragmatism, placing a sufficient gap between the present and a speculative meatless future to give technology and society proper time to adjust and evolve. The time this would take varied from source to source. Kellogg believed that with proper education, technical development and the adoption of eugenic principles it would only take "half a century" before "we shall have become sufficiently civilised to reject from our tables things that are only proper food for hyenas and turkey buzzards" (*Autointoxication* 34). The French astronomer and proto-science-fiction writer Camille Flammarion saw pan-vegetarianism as a far more gradual process. His epochal science fiction fantasy *Omega* (1893) foretells a world made unrecognisable by millennia of selective breeding in both the human and vegetable kingdoms, and by the twenty-fourth century, after the elimination of war and poverty, the human race is finally ready to accept vegetarianism. His vision for a world where "sumptuous repasts no longer consist of the smoking remains of slaughtered animals" involved a combined effort between botany and organic chemistry to "produc[e] sugar, albumen, the amides and fats, from the air, water and vegetables…with plants ever green and flowers always in bloom" (198). Crucially, both Kellogg and Flammarion's accounts echoed the often-cited claim of the vegetarian movement that meat-eating was synonymous with barbarism, and that in order to advance beyond this debased state, it was necessary to cultivate sufficiently refined technologies and people to reach a point of true civilisation – an idea further developed by Charlotte Perkins Gilman, as seen in chapter four.

While waiting for the impending vegetable utopia, many were keen to experiment in the hope to expedite the progress of botany and society. It is this quest for novelty and innovation in botanical products that seeps through from the pure fantasies of speculative fiction, into the real marketplace of the Late Victorian and Edwardian periods. In addition to the utile, revolutionary, labour-saving plants being discovered in the corners of the known world, Britain also saw rather mundane species of plants reconfigured and made to adopt superlative new characteristics; and these most frequently manifested in the guise of patent medicine and its accompanying advertisements. The subject of its own form of speculative literature.

“The Contemporary Swindle” – Cryptobotany in Fiction

Patent medicine was in many ways the perfect commodity for the fast-paced, increasingly global economy of the late nineteenth century. The term came to refer to over-the-counter supplements or medicines of varying effectiveness sold as ‘secret remedies’ for all manner of ailments. While existing for centuries as an off-shoot of folk medicine, the patent medicine makers of the nineteenth century expanded what were cottage industries to large commercial endeavours, amplifying the profits, reach and supposed efficacy of their wares. Notoriously dishonest, the manufacturers often used cheap raw materials and industrial by-products in their creations (Pendergrast 13), relying instead on the *imaginative* potency of their pills and tonics created by heavy-handed advertisements. Modern patent medicine originated in America during the economic boom that followed the Civil War, and its first notable depiction in literature was in the novel from which the era latterly derived its name. *The Gilded Age* (1873) was written by Mark Twain in collaboration with Charles Dudley Warner and was intended as a satire on the clamour for capital in contemporary America. The narrative follows the various misadventures of several family groups as they attempt to get-rich-quick through various speculative industries including land prospecting, stock manipulation and, of course, patent medicine. In aligning these various, rather dubious schemes, Twain and Warner demonstrate not only the rather hollow character of the seemingly endless riches of the *Gilded Age*, but also the speculative nature of each respective industry.

The scheme of patent medicine is proposed by Colonel Beriah Sellers, providing it as an example of the perfect industry for those with slender capital resources:

> I’ve been experimenting ... on a little preparation for curing sore eyes – a kind of decoction nine-tenths water and the other tenth drugs that don’t cost more than a dollar a barrel...there’s one ingredient wanted yet to perfect the thing...But I’m progressing, and before many weeks I wager the country will ring with the fame of Beriah Sellers’ Infallible Imperial Oriental Optic Liniment and Salvation for Sore Eyes – the Medical Wonder of the Age! (Twain 97-98)

As he talks through the various economic processes that transform the investment into a fortune, Sellers borrows the organic quality of the base commodity itself, lending it to the capital it subsequently generates: “Keep your money close and add to it. I’ll make it breed,” (Twain 97) he assures, bring the proliferation of capital into the realm of natural, organic production. By naturalising these economic developments, he is able to confidently proclaim the rate of expansion of capital as it follows the natural order of money-making:

> The second year, sales would reach 200,000 bottles – clear profit, say, $75,000 – and in the meantime the great factory would be building in St. Louis, to cost say $100,000. The third year we could easily sell 1,000,000 bottles in the United States ... and *then* it would begin to be time to turn our attention toward the *real* idea of business (Twain 98).

For while the US would prove the fertile nursery bed for this budding industry, it is the global market where his commodity would eventually take root and bring forth harvests of untold wealth and expansion:

> “[O]ur headquarters would be in Constantinople and our hindquarters in Further India! Factories and warehouses in Cairo, Ispahan, Bagdad, Damascus, Jerusalem, Yedo, Peking, Bangkok, Delhi, Bombay – and Calcutta! Annual income – well, God only knows how many millions and millions apiece!” (99-100)

Described like an invasive weed, Sellers’ tonic expands to encompass the globe, with the exotic locales becoming fertile markets for his business to expand into, he asserts “in the Oriental countries people swarm like the sands of the desert; every square mile of ground upholds its thousands upon thousands of struggling human creatures” (99), each of them waiting to offer up their own piece of coin in exchange for their new product. Business is thus presented in an almost agricultural light, with the would-be consumers of the East depicted as fertile “ground” that can yield a veritable “avalanche of coin” (100).

As seen in the case of Sellers and Bitterbol from *The Healers*, the enthused patent medicine man imparting his vision for a global trade network is something of a trope within fiction of the period and can be seen once more by H.G. Wells in his novel *Tono Bungay* (1909). The

purveyors of the patent commodity in both of these narratives have more than a touch of the rhetoric of Colonel Sellers' global vision founded on botanical drugs. However, Wells, writing from 1909, and Maartens from 1906, had the benefit of hindsight where Twain, writing at the inception of the industry could only speculate on the heights the industry could take. The timelines of both novels begin at undisclosed points in the 1860s, where the conditions of innovations in science and marketing were most auspicious for the creation of a new kind of patent medicine. The plots then rapidly advance as these new commodities then grow and transform in size and success, until they become the massive industry known to all at the turn of the century, "the great cocoas and patent foods...the whole gigantic swindle that makes the world go round!" (Maartens 189-190).

By the time of Wells' and Maartens' writing, the patent medicine industry had reaped the rewards of new advancements in the art of advertising from the 1860s (Richards 170) transforming the market and propelling individual traders to the ranks of millionaires, with noted successes like Beecham's pills in England and the tonics of Lydia Pinkham in the US. Successful proprietors were able to expand operations with bloated advertising budgets and factory-scale production, flooding the market with a seemingly numberless variety of increasingly miraculous medicinal preparations. By the 1880s the list of cures and beneficial effects touted by the manufacturers of these vegetable compounds was limited only by the column inches available where they were, as the British Medical Association noted in 1906, "so boldly advertised, especially in popular monthly magazines and weekly newspapers, and in diaries and almanacs pushed under the front door or dropped over the area railings" (BMA v). Insomnia, indigestion, depression, hair loss, liver disease, constipation, general aches and pains – nothing was beyond the powers of these cure-all preparations.

Inevitably, the failure for these medicines to live up to their claims, and in some cases even cause serious harm due to their undisclosed ingredients, provoked widespread condemnation and the industry was subjected to government intervention in 1875 following complaints from medical professionals. However, even a scientific refutation using material evidence was unable to dissuade either the copywriters, or their wilful consumers of the power of these wonders of nature. In essence, this was because what these

medicine sellers were putting forward was a variant of the earlier-cited material: a speculative fiction, this time in advertising.

So committed was England's faith in the feats achievable by these miraculous plant compounds that numerous governmental and official bodies attempted to intervene and calm the fevered consumption of what were effectively on the most part little more than sugar pills (Richards 170). The most concerted of these efforts was the above quoted British Medical Association's *Secret Remedies: What They Cost and What They Contain* (1909), which sought to dispel once and for all the illusions that surrounded the so-called cures of the quack doctor. The preface to the volume contains a number of conjectures as to precisely *why* so many people are prepared to swallow the claims laid before them, concluding:

> One of the reasons for the popularity of secret remedies is their secrecy… it enables him to make use of cheap new or old fashioned drugs, and to proclaim that his product possesses virtues beyond the ken of the mere doctor; his herbs have been culled in some remote prairie in America or among the mountains of Central Africa, the secret of their virtues having been confided to him by some venerable chief (BMA v).

What is being described is essentially the same speculative leap involved in the stories explained in this chapter. In a remote locale, on the authority of a consulted scientist or native wise man there has emerged a new plant specimen with unprecedented benefits that will be brought back and reaped for the benefit of English consumers. As such we can safely consider that, if not explicitly related, the two phenomena of patent medicine and cryptobotanical fictions are at least sequential; the popularization of belief in one begets opportunities for proliferation for the other.

In the hopes of dispelling the various illusions that plagued the British public, the BMA's committee sought to make clear the actual ingredients of each pill, potion and drop, in an attempt to show the commonplace origins of the ingredients of the majority of these preparations, and their supposed inability to live up to the "exuberant boasts" of the advertisers:

> Care has been taken to reproduce the claims and exuberant boasts of the vendors, and the contrast between them and the list of banal

> ingredients which follow must strike every reader. This juxtaposition of analytical facts and advertising fancies is instructive and sometimes entertaining, the fancy is so free and the fact so simple (BMA iv)

In their juxtaposition of the mundane ingredients with the superlative claims of the manufacturers, the chemists of the BMA anatomise the bare bones of the speculative faith fostered by consumers. There is an ambiguous belief that within these botanical reagents there lies a certain potency that once set at work, can 'do the body some good'.

It can be surmised that for the BMA such plan fabrications were seen as an attempt to dupe an ill-informed public into purchasing what were essentially balls of sugar and glycerine. Their method for deflecting the allure of these narratives was to unmask the 'secret' behind them – to resituate the commodities from the world of exotic miracles to the mundane drawers of the street corner pharmacist, and indeed if the adverts were an isolated example of these vegetal fictions then such approach may have succeeded. However, despite trying to disprove the adverts of brands like Beecham's, Eno's and countless others, it soon became evident that the fight was against more than simply dodgy pills. To borrow a botanical metaphor, the false claims of the patent medicine maker were but the most visible, gaudy blooms of the strange plant that had taken root in the popular consciousness, thriving in the fallow ground of the imagination and tapping into pockets of insecurity, disbelief and longing. While addressing and seemingly refuting the most conspicuous falsehoods of patent medicine, the intervention did little to stop the rampant growth that was spreading beneath the ground of *fin-de-siècle* Britain and cryptobotanical fictions remained impervious to fact.

Despite parliamentary backing and a second volume decrying the practice, the BMA's actions did little to discredit patent medicine (Bakx 22), indeed Beecham's even put out a new advert following the publication of *Secret Remedies* touting its parliamentary notoriety as evidence of its healing powers (Richards 291). While later historical retellings of the era of patent medicine ascribe this continuing success of snake oil sellers to the gullibility of the English public, it can also be seen to attest to their willingness to subscribe to a "system" that incorporates some leap of faith or degree of esoteric knowledge; indeed, *Secret Remedies* groups patent medicine with cures of

“electricity [,] hypnotism or … Christian Science” (Richards vii) implying that there remains something uniquely strange, even supernatural about plants and their ability to heal. This belief of plant-based powers, seemingly stronger than material evidence is what appears to have sanctioned the hyperbolic claims of the advertisers and served as catalyst for the generation of vast quantities of wealth. In these cases of patent medicine the creation of value and potency of the medicine are both largely psychological, as they needed to appeal more to the mind, than to actively change the body. Unlike in Moore’s materialist paradigm outlined earlier, where plants directly take over other less efficient processes in order to provide labour or energy, these plants are consumed because of the seductive *idea* of wellness they engender, and like all ideas, must be packaged in a consumable fiction for them to take off.

Like the journalists who spoke as a witness to the marvels of an electric tree or milk-yielding bark, such advertisements appealed to a public who had been exposed to the fabulous new frontiers of botany, trading off of this belief to validate their various medicinal claims. The key differentiation is, whilst such authors relied on fantastical plants to furnish real and practical needs, the manufacturers of patent medicine were able to transform real, mundane plants into miraculous drugs. As such, if we want to understand the appeal of these nostrums, as Alice Tsay notes in *Absorbing Fare: Food, Bodies, and Social Attention in Modern Britain* (2017), our “focus [should be] less on the material *stuff* of these pills and tonics in favour of exploring the many ways they are defined by and associated with an immateriality and opacity of heightened possibilities” (66). Invested as they are in “speculation about what could be”, Tsay draws attention to the “structural parallel to the future-oriented structures that underline the promises made by patent medicines” and the imaginative worlds of science fiction (68-69) – opening up critical space for analysing these cases of advertising as a form of speculative fiction. It is through this lens that I wish to approach the claims made by patent medicine as forms of cryptobotany, in order to unpick precisely what it was about the floral elements of these pills and potions that made “patent medicine […] a locus for imagining the possibilities of individual and corporate transformation” (68).

The ensuing works of speculative advertising fiction fast spawned a multi-million pound industry that proved immensely profitable, though as Thomas Richards states in *The Commodity Culture of Victorian England* (1990), it was an industry that was intensely reliant on advertising:

> The brotherhood of quacks spent two million pounds a year in advertising costs. In 1908 alone the government stuck patent medicine stamps on forty-one million articles, and the duties the public paid on them amounted to over three million pounds…the English public bought … more pills per capita than any other nation in Europe (172).

The necessity of such advertising was that in the crowded marketplace, the product alone is unable to furnish the promised effects, and so "they [became] the first to sell image rather than product" (Pendergrast 13), namely the idea of a botanically enriched picture of health. Thus it was necessary to supplement the mundane vegetable matter of the medicine with a constant stream of enlivening rhetoric and visually stimulating advertisements, renewing the benefits of the product.

This fallacy of obligatory fabrication is dissected in HG Wells's *Tono Bungay*, or to give its full title while in serialisation, *Tono Bungay: A Romance of Commerce*; a reference the embellishments, and fantasy – or 'romance' – inherent in modern marketing practice. The plot is narrated by George Ponderevo – a young man who is co-opted by his uncle Edward, a former chemist, while he makes [and ultimately loses] his fortune on a patent medicine he names 'Tono Bungay'. Marketed initially as "THE SECRET OF VIGOUR" (Wells 127), the tonic latches on to the boom in patent medicine and quickly develops a range of products including lozenges, whiskies, tobacco and a hair stimulant, among others (152). Sitting between *The Food of the Gods and How It Came to Earth* (1904) and the *Sleeper Awakes* (1910), *Tono Bungay* can be viewed as part of a wider project that sought to map the transformation of nature by capital, and the increasing disparity in scale that was shaping the beginning of the twentieth century. In *The Food of the Gods* for example, this disruption of scale is literal, with wasps the size of dogs and wheat growing taller than most houses. In *Tono Bungay*'s advertising fiction, the transformative power is that of rhetoric. A speech made by the corrupted young artist-cum-advertiser Ewart serves as a fine example of the new logic of

advertising and its effect on commodities; with the self-actualising speculations of ‘Smith’s Mustard’ demonstrating the transubstantiating power of advertising fictions:

> The old merchant used to tote about commodities; the new one creates values. Doesn’t need to tote. He takes something that isn’t worth anything, and he makes it worth something. He takes mustard that is just like anybody else’s mustard, and he goes about saying, shouting, singing, chalking on walls, writing inside people’s books, putting it everywhere, ‘Smith’s Mustard is the Best.’ And behold it *is* the Best! (159)

There is something here about projecting superlative properties onto otherwise mundane commodities, the ability for plant life to, at least in part, sustain these fictions. To return to an earlier-cited example, a new advert for a plant-based miracle-cure fulfils the same role as the alleged discovery of a new species that can perform fabulous feats of industry. Both use fiction as a means to present the reader with a vegetable variant that has heretofore been hidden from the civilised world, imaginatively invoking the idea of a source of renewable electricity, an end to digestive complaints, or simply ‘the best ever’ condiment as a means to excite or entice.

The suggestive power of these fabrications is ruminated on by George in *Tono Bungay* as he marvels at the faith people had in their bottled “fiction”:

> this fantastic community gave him unmanageable wealth and power and real respect. It was all a monstrous payment for courageous fiction, a gratuity in return for the one reality of human life—illusion. We gave them a feeling of hope and profit; we sent a tidal wave of water and confidence into their stranded affairs. “We mint Faith, George,” said my uncle one day. “That’s what we do. And by Jove we got to keep minting! We been making human confidence ever since I drove the first cork of Tono-Bungay” (Wells 221)

The composition of the product as George admits is mostly “water”, however the material commodity is seen as secondary in significance; what is truly being manufactured, according to his uncle Edward, is belief – or rather the illusory conditions that make belief possible. By planting the seeds of “ideas” of health, wellbeing and energy into consumers’ minds the Ponderevos are

able to afford people “hope” and conciliation in their “stranded” lives, giving them the chance to believe they are being revitalised by the power of nature. George identifies this culture of advertising as a “fiction” - aligning it with other fictive sources examined previously. While different in character and intention, the similarities between the two branches of botanical fiction are pronounced. Their common roots run deep and tap into the same vein of collective anxiety; issues of food and energy security, a fear that modern life has given rise to a malaise of threats and dependencies that human labour itself cannot sustain. In the case of medicines, it was the newly established pathologies of microbiology (Richards 169) and chronic fatigue that provided “the great fear[s] of the ‘Age of Capital’” (Rabinbach 19). By some contrivances of nature, patent medicine makers were also able to create a novel remedy for these crises of capital by fabricating products that spoke to the exhaustion and illness that was ever-present in modern urban centres. Through the lens of literature, both Wells and Maartens were able to identify the mundane forces that were able to turn ordinary plants into miracle workers, unmasking the power and influence of fiction by creating their own renditions of these plant-based medicines. The efficacy of these textual representations is thrown into greater relief when contrasting the work of Wells and Maartens with real-world examples of patent medicine. The following section will look at a number of notorious late Victorian health commodities with an eye towards their use of cryptobotanical advertising fictions, before returning to Wells to unpack what he saw as the inevitable end for these medicines that were so reliant upon the augmenting powers of fiction.

The Flower of Health – The Cryptobotanical element in Victorian Patent Medicines

A glance at some of the best-selling preparations of the time reveals the expectations placed on plants to perform wonders in the body. Each compounded botanical preparation was expected to set to work in the body, curing any number of complaints from gout, dyspepsia, kidney failure, constipation, ‘weak nerves’ or simply reverse the aging process and ‘restore energy’. Plant compounds were uniquely suited to the task, not simply because of their documented curative properties, but because of their benevolent reputation as miracle labourers. Indeed, the expectations placed

on the products by advertisers may not have been able to stick, were it not for the fact that consumers had been steeped in stories of strange and wonderful plants for over a decade. Expectations had been raised to such an extent there seemed no feat too great for the right combination of plants.

Several of the best-selling preparations of the time were Beecham's Pills, Eno's Fruit and Vegetable Salts and Angelo Mariani's 'Vin Mariani', all of whom touted their botanical pedigrees. Though sale statistics for products are difficult to estimate, the reach of the products was truly global with Vin Mariani having distribution centres in "London, Strasbourg, Montreal, Brussels, Geneva, Alexandria and Saigon" (Pendergrast 24) while Beecham's routinely touted one better, stating it had "the largest sale of any patent medicine in the world". Besides the boastful content of their adverts, the sheer volume of advertising[18] for each suggests that both were returning sufficient profits to invest sizable amounts of money in further publicity to peddle their wares in publications like *Punch, Cassell's Family Magazine* and *The Illustrated London News*. The products themselves were intended both as dietary or health supplements and cure-alls, for while being marketed chiefly as an aid to digestion and cure for 'nervous disorders', what such preparations really traded on was an idea of 'energy' and 'wellness' derived from plant life and made accessible to the consumer. By dissecting the various claims and inferences made by each manufacturer - specifically with regard to how plants function as signifiers of health, science and a broad idea of 'the natural' - the value and centrality of the cryptobotanical in these commodities becomes increasingly clear.

As a starting point for literary analysis, few Late Victorian brands embraced the language of advertising to quite the extent of Eno's Salts, founded in 1868 by James Crossley Eno. A businessman and copy writer, Eno was known for "his intensive approach to publicity…rarely taking (sic) less than half a page …to accommodate the vast amount of copy" (Hindley 97), which became synonymous with the 'Eno brand'. As the above advertisement shows, the standard format usually depicted the product alongside some testimonials and the list of ailments it could cure – but placed at the heart was

[18] Costing Thomas Beecham £120,000 a year by 1891 (Jubb, iv), American counterparts, where advertising was a more refined art saw even greater figures, such as $500,000 per anum for the advertisement of W.T Hanson's Pink Pills for Pale People.

invariably one of Eno's own "HEALTH MAXIMS". These could vary from summations of contemporary (pseudo-)scientific knowledge, to semi-metaphysical tangents:

> A NATURAL REMEDY: TIME WAS WHEN DISEASE WAS THOUGHT TO BE DUE TO THE DIRECT INFLUENCE OF EVIL SPIRITS AND EXORCISM AND MAGIC WERE INVOKED TO CAST IT OUT. THE EVIL SPIRITS EXIST STILL. WE CALL THEM "DISEASE GERMS" AND THEY MUST ALSO BE CAST OUT.

A NATURAL REMEDY.

Time was when disease was thought to be due to the direct influence of evil spirits, and exorcism and magic were invoked to cast it out. Science has taught us wisdom. The evil spirits exist still. We call them "Disease Germs," and they also must be cast out. Once lodged in the stomach or intestines, fever with its hallucinations, or biliousness with its aches and pains, are the results.

There is no simpler, safer or more agreeable preparation than

ENO'S 'FRUIT SALT'

The approved specific for driving out disease germs. Its action is quick and thorough. It clears the intestines, rouses the torpid liver to new life, stimulates the mucous membrane to a healthy action, and cleanses and invigorates the whole digestive tract.

IT IS THE OLD-TIME EVER-POPULAR HOUSEHOLD REMEDY

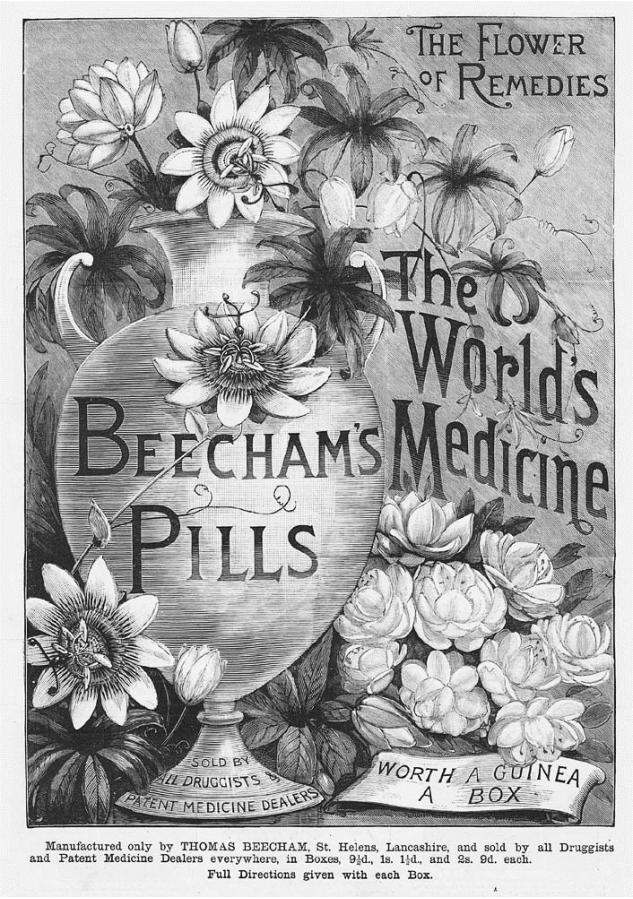
FOR

Biliousness, Sick Headache, Constipation, Errors in Diet—Eating or Drinking—Thirst, Giddiness, Rheumatic or Gouty Poison, Feverish Cold with High Temperature and Quick Pulse, and Feverish Conditions generally. It is everything you could wish as a Simple and Natural Health-giving Agent. You cannot overstate its Great Value in keeping the Blood Pure and Free from Disease by Natural Means.

Be prepared for emergencies by always keeping a bottle in the house.
It is very effective in the early stage of Diarrhœa by removing the irritating cause.
It may be safely taken at any time by old or young.

Prepared only by

J. C. ENO, Ltd., 'FRUIT SALT' Works, London, S.E.



Manufactured only by THOMAS BEECHAM, St. Helens, Lancashire, and sold by all Druggists and Patent Medicine Dealers everywhere, in Boxes, 9½d., 1s. 1½d., and 2s. 9d. each.
Full Directions given with each Box.

Fig. 2.2 *The Graphic* (London, England), May 06, 1911; pg. 669
Fig. 2.3 *The Illustrated London News* (London, England) June 17, 1891; pg. 864

By invoking the superstition and occult sensibilities of a previous age, the insinuation is that while the name behind the various agues has changed from 'spiritual possession' to 'germs' there still remains a 'miraculous' technique for banishing this ailment forever, which is linked to the vegetable kingdom. In effect Eno is purporting his fruit salts to be a modernised form of magic[19]; that the fruit-antacids will "rouse", "cleanse" and "invigorate" the user into a state of perfect health. The reason his preparation is able to uphold this pretense of sorcery is of course the mysterious vegetable ingredients. By tendering the

[19] In some cases, rather more literally, an advert from Beecham's Pills in 1887 promises "they will act like 'MAGIC' … and work wonders on the most important organs of the human machine"

contents of his preparation as a mixture of the past natural remedies of the rural witch and the latest in scientific theory, Eno's salts are able to retain the romance and mysticism of a supernatural agent whilst enjoying the credentials of modern empirical science. This balancing act between scientific fact and fantasy is representational of cryptobotany's appeal within the period; at once encouraging belief in the wholesomely natural, yet exhibitive of the latest wonders in scientific technology.

Cryptobotany in the guise of patent medicine did not merely insinuate a connection to the "magic" of past miracle-workers, it also confronted its readers with the demands of modern attitudes to health and progress. An advertisement for Eno's from *Country Life* in 1906, the year *The Healers* was published, states "TO CURE – IS THE VOICE OF THE PAST. TO PREVENT – IS THE DIVINE WHISPER OF THE PRESENT". Naturally, this imperative for people to vigilantly purchase nostrums even when in perfect health is exceptionally convenient for manufacturers. Nevertheless, the imaginary shift from a reactionary form of medicine, to the prospect of relegating disease for ever with the proper deployment of the right vegetable assistance is a distinctly utopian concept, in line with revolutionary adoption of all-plant diets in *Omega*. To refer back to Moore, it signifies an "ecological surplus" so transcendent that all demands of a modern society can be met by the natural productions of plants[20]. Rather than digging for coal when more electricity is needed, breeding greater numbers of cattle to provide more milk or, in this case, taking medicine when one is ill, plants could furnish a nation with a continual abundance of resources (and good health) in a kind of Edenic, perpetuated vegetable-homeostasis.

[20] See chapter 3 for expansion on the idea of the imagined automated receptiveness of botanical renewables and their potential for limitless and widespread production.

Fig. 2.4 Advertisement for Beecham's Pills from *Town and Country*, march 1888

As opposed to the heavy and extensive verbiage of Eno's, the makers of Beecham's Pills – the self-proclaimed "Flower of all medicines" - opted for a more metaphorical than literal depiction of their product and its benefits. Many of Beecham's adverts were replete with flourishes, nymphs and flowers and used said flora as a visual, and sometimes textual, metaphor for the *naturalness* and healthiness of not only their product, but also their consumers. From the 1887 advert quoted earlier, the reader is told how each pill can "arouse in action with the ROSE BUD of health the whole physical energy of the human frame". The symbolic rose bud acts as a stand-in for the potent plants that form Beecham's Pills and by consuming this revitalising plant it is possible to unlock one's "whole physical energy". This is the same principle as the industrial plants listed previously, only relocated to the human energy of the body rather than electric or coal power; in both cases extraordinary plants are taken into the system in order to provide more energy, to remove "the body's natural resistance to the demands of productivity" and overcome "fatigue" (Rabinbach 23).

By consuming and absorbing the effects of these plant products it was possible to borrow and emulate the characteristics so valued in plant-life. Another Beecham's advert a year later in 1888 shows a distressed maiden yet to try the wondrous Beecham's Pills and complaining how, like so many afflicted by the 'nervous sicknesses' of the 1880s: "my spirits droop of late –my roses pine!". The phrase establishes a unity between the plants that constitute Beecham's Pills and the purely rhetorical blooming of health that is engendered in the consumer. Beecham's use of these floral analogies for rosy female health were not without precedent, but rather followed a rich tradition in the nineteenth-century of what Amy King identifies as "the botanic vernacular" (6); an extensive and concerted use of floral 'bloom' narratives to signify the emergence and flourishing of a young woman's "sexual maturation… social position, bodily facts, and affective life" (5). In the adverts, enervated maidens with 'pining roses' borrow strength and beauty from their sister flowers' through the medium of Beecham's Pills so that they might bloom once more. The effect of this is that by ingesting the cryptobotanical signifier of blossoming, floral vitality, women were able to embody the same beauty and natural energy exhibited by plants. The process here is the same one that Roland Barthes identified some fifty years later in his semiotic readings in *Mythologies*; the advertisements of Beecham's and others sought to transform the mundane ingredients and endow them with cryptobotanical mythology, using their speculatory language to create an "imagined or expected possibility of future transformation" (Tsay 67). In every corner of Beecham's adverts there are self-referencing representations and allusions to the botanical: there are the potent [secret] ingredients, the entwining and thriving plants that frame the advert and lastly the metaphors for health touted by the copy writers, in order that on a semantic level they begin to blend together, becoming a kind of hybridised flower of wellness.

Vin Mariani was less secretive or ambiguous about its contents and proudly announced its main active ingredient as the leaves of the coca plant and its principle alkaloid, cocaine. There was a craze for coca during the late nineteenth century spurred on by testimonials by noted medical professionals such as the President of the BMA Sir Robert Christison, who at 78 scaled Ben Vorlich in the Scottish Highlands "with an ease like that which [he] used to enjoy in...[his] youth" after consuming only a quantity of "cuca leaves"

(Christison 530). This feat of mountaineering achieved with no fuel to speak of but an enlivened human spirit was a total contradiction of the analogy of entropy depicted in *All the Year Round Article* from 1865. Therein lay the indisputable appeal for cocaine's ability to provide the much-needed 'energy' essential for modern life, combating fatigue and over-taxed nerves without food, drink or sleep. The advertising that followed capitalised on this reputation as a stimulant that could defy entropy, capitalising on testimony by contemporary celebrities like Emile Zola and Pope Leo XIII for Vin Mariani's ability to "maintain health at its highest pitch", banishing "exhaustion, depression, insomnia and ...fatigue" (*Country Gentleman* 693).

In a similar manner to Eno's imperative of vigilantly preventing ill health, the language of Mariani's advertisements reflected the *fin de siècle*'s desire to conquer the ebbing of strength that must necessarily accompany any feat of great physical or mental exertion; to be forever at peak performance, without rest in order to keep up with the demands of conquest, production and labour. As earlier asserted by Rabinbach in his appraisal of the discourses of energy at the time, it was widely believed that the natural world, particularly the ever-

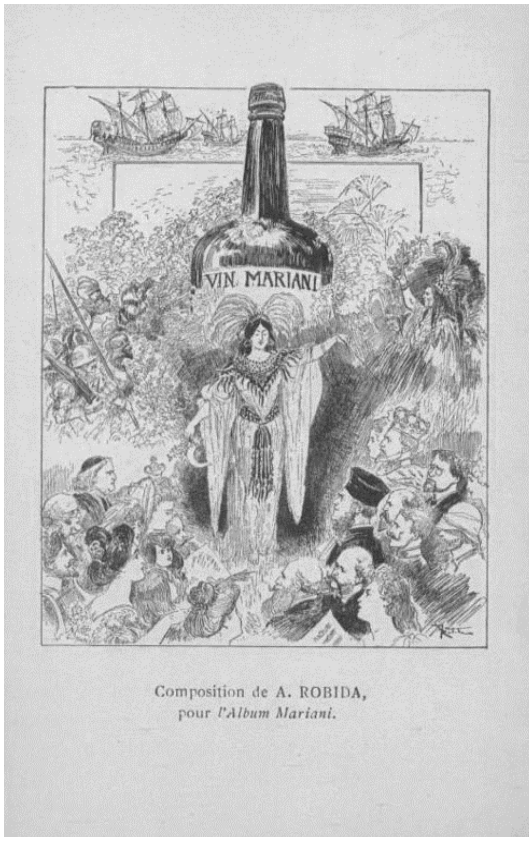


Fig. 2.5+6: Two Postcards C.1890 commissioned as adverts for Vin Mariani; author's photographs.

renewing world of plants held the force and stimuli necessary to sustain “the considerable energies required to service the new productive forces”, once “unleashed by nature” it was simply a case of them being “harnessed by society” (Rabinbach 20). *Tono Bungay*’s Ponderevo was himself a fictionalised caricature of Angelo Mariani and as such Wells used the same incentives for his own advertising, insisting “You can GO for twenty-four hours...on Tono Bungay Chocolate” (Wells 152-153), tapping into the desire he saw in the market for people to improve their productivity and do more and more with less and less.

Mariani also self-consciously propagated this idea of coca as the botanical fuel that would keep the engine of the nineteenth century ticking over into the new era of the 1900s, as depicted in the two postcards above, where the universal dependence on coca is shown through clamorous consumption in one, and deferential reverence in the other. The first depicts a quasi-divine Angelo Mariani delivering bottle of his wine from above to a horde of grasping consumers, the second shows representatives from all peoples of the world paying homage to a personified Coca, an inscription on the back reading: “Vin Mariani Unites all Nations”. In both cases, the central figure [be it Mariani or Coca herself] has an almost godlike status, dispensing energy in liquid form amongst the people of the globe. Even kings and religious leaders are reduced to acolytes before the new sovereign force of Queen Coca: vitality, energy and commerce “unite” the globe in a common purpose of energetic, industrialised modernity. The images mirror both the messiah complex of Ponderevo in *Tono Bungay*, whose self-delusions increase in size proportional to the financial success of his beverage, and the abstracting powers of adverting fictions to equate vital energy with the power of coca.

In addition to these visual testimonies to the potency and influence of coca, Angelo Mariani also employed other forms of fiction to further bolster the properties, origins and benefits of his coca-wine. For example, in 1896 he commissioned the poet and storyteller Paul-Armand Silvestre to write him a short story, *Le Plante Enchantée,* his own ‘Romance of Commerce’, detailing the arrival of the coca leaf in Europe in the sixteenth century. The narrative ends with his own distant ancestor being able to father a child (in spite of his advanced years) thanks to the wonders of the coca plant; the implication being

that Angelo Mariani owed his very existence to the invigorating power of the coca plant, which he now selflessly shares with humanity for the benefit of all. Silvestre rhapsodizes on "the leaves of a marvellous plant used by the Incas to preserve the most precious treasures of youth, the Divine Coca, which rekindles in us like an inner sun, whose beneficent radiance regenerates us"[21] (Silvestre 21); a reiteration of the other accounts of plants offering "bottled sunshine" seen earlier with the internalisation of a Promethean "inner sun" allowing humans seemingly now able to generate and sustain energy themselves, when ingesting the proper plants. Mariani's commission of a literal floral fiction for the purposes of advertisement serves as a concise representation of the imaginative interplay between plant-commodities and the fictions that grow up around them. The coca plant, already exotic and potent thanks to its ancient Incan provenance inspires and sustains the mythologies projected onto it through the various mediums of advertising, which in turn elevate the commodity to a kind of cryptobotanical specimen – giving it powers and properties in excess of its empirically verified attributes. It is the same transformative force that envisioned the plant stories quoted earlier, only directed through advertising to influence and change the perception of real plant commodities.

As Wells's 'Napoleon of finance', it should come as no surprise that Edward Ponderevo himself repeatedly states his desire to go in for this financial exercise in hamartia. Allowing his fancy to run away with him, he imagines himself able to control the globe's supply of various drugs:

> Take a drug – take ipecac, for example. Take a lot of ipecac. Take all there is! See? There you are! There aren't unlimited supplies of ipecacuanha – can't be! – and it's a thing people *must* have. Then quinine again! You watch your chance, wait for a tropical war breaking out…and collar all the quinine…Think of having all the quinine in the world, and some millionaire's pampud wie gone ill with malaria, eh? That's a squeeze, George, eh? Eh? Millionaire in his carriage outside, offering you any price you liked (Wells 69).

[21] Author's translation, the original French reads: "*d'une plante merveilleuse dont se servaient les Incas pour conserver le plus précieux des trésors de la jeunesse, la Coca Divine qui rallume, en nous, comme un soleil intérieur dont le bienfaisant rayonnement nous régénère*"

The avarice and cruelty require little unpacking as Wells clearly seeks to show the gross levels of greed and human suffering that follow the actions of men of business who seek to own all the world's supply of life-giving drugs. However, in addition to the rather obvious moralistic point, Wells could also be seen to be implying the impossibility of such a project. By this stage in the narrative, the reader is used to regarding Ponderevo's statements as slightly deranged as he begins to lose perspective – culminating in the building of his own personal Ziggurat 'Crest Hill' – and so his projects, though alarming in their intent become reduced somewhat by his farcical delivery. His intent to corner the market is no different. For his choice of example, Wells selects the known emetic ipecac, so when Edward suggest he might "take ipecac ... Take a lot of ipecac. Take all there is!", the futility of hoarding a natural commodity becomes clear – one can ingest the world's supply of ipecac, however it will spew out of one soon enough, for it is impossible to keep down. In William Kupinse's analysis of the role of value and waste in *Tono Bungay*, he argues that "in his schemes of 'corners' ...Edward is reaching toward a definition of value" that cannot be accounted by the "theories informing emergent consumer and industrial capitalism" (57), and instead reaches for a kind of anachronistic value with guaranteed profit such as can be found in previous centuries.

This hearkens back to the physiocratic model of economic production outlined previously. In these narratives, to grant capitalism vegetative traits like natural growth and self-sustenance, it must, like a plant specimen, be rooted to a fixed point with seasonal produce that can at times clash with the directives of Victorian free enterprise. The fictive examples of plant-based commodities from Wells and Maartens show the fundamental incompatibility of this vegetalised means of production with modern commercial life. In *The Healers*, after Baron Lisse refuses to invest, Bitterbol's coconut venture ends up draining the capital from him regardless through a number of veiled acts of fraud that unravel throughout the plot. When confronted, Bitterbol simply replies his actions followed the course of nature, for his coconuts "must" be financed and as such he sought out to "supply the needy", styling his venture's thirst for money is equivocal to the coconut plant's need for water or sunlight (Maartens 367). The trajectory of commerce in *Tono Bungay* follows a more more complex trajectory. The narrative begins in Bladesover House, an ancestral home with tenanted acreage belonging to "a countess with a

financial aspect, but still, you know, a countess" (9). This productive land would have been considered the locus of capital generation under the auspices of physiocracy, but instead it is a stagnant decaying space. Not until George and his uncle leave the rural life in the Home Counties for urban London are they able to launch his endeavour thanks to venture investment. This abandonment of the agrarian country in favour of the city sets up 'Tono Bungay' as a commodity that is doomed to failure. Despite hoping to capture profits and growth as surely as a plant can synthesise nutrients from the sun and soil, *Tono Bungay* exhausts its narrative energy distancing itself from any kind of earthly connection.

Once the commodity is in production, the botanical origins of the drink should seemingly bind the commodity to the productive capacity of the land, but from the very first pages the novel we are presented with Tono Bungay as something that is airborne, unfettered by concerns for earthly solvency, George describes his uncle:

> Astraddle on Tono-Bungay, he flashed athwart the empty heavens—like a comet—rather, like a stupendous rocket!—and overawed investors spoke of his star. At his zenith he burst into a cloud of the most magnificent promotions. What a time that was! The Napoleon of domestic conveniences! (Wells 10-11)

Tellingly, George embarks on a hobby for aviation once Tono Bungay really takes off, describing his "sense of inexorable need, of distress and insufficiency that was unendurable, and for a time this aeronautical engineering allayed it" (202). This "need" is fostered by a desire to "get [his] foot on something solid" as he becomes aware that his uncle's vast wealth is but a "universe of soapsuds" (203) – in short, a bubble. Kupinse here identifies the "mixed metaphor" of George's confused desires, "nothing could be less solid" (60) than the precarious machines George fashions, as his several experiments invariably fall apart or fail mid-flight. By staying airborne and divorced from the ground, George is able to remain ignorant of, and detached from, the source of his wealth and where the ingredients of their tonic ultimately derive. Just as his uncle rides high on his commercial success, George is able to be estranged from the material constraints of entropy and instead ride high on the crest of energy and capital that is being burnt up. For

a novel so pre-occupied with questions of thermodynamics, it is needless to say that this frantic expenditure of energy and capital cannot go on indefinitely; like an aircraft running on fumes or some frantic consumer ingesting stimulant tonics, a crash looms inevitably ahead. The Ponderevos' fortunes take a nose-dive by the book's denouement, forcing him to send George 'back to earth', literally, on a mineral prospecting mission to the cape of Africa to bring back a reported 'heap' of material known as "candaium" or "quap" (Wells 310), hoping to capitalise on the newly emerging market for radioactive metals to recover their lost finances.

The island of quap is the one portion of the novel where land is figured as the source of capital generation in something that resembles the physiocratic model. However, when George finally arrives at the remote island what he finds is the antithesis of wealth. Instead the land discloses nothing but a noxious, corrosive and cancerous effluence:

> The only word that comes near —and that is not very near, about the whole of quap, something that creeps and lives as a disease lives by destroying; an elemental stirring and disarrangement, incalculably maleficent and strange (Wells 329).

The decidedly gothic "quap" he has been sent to retrieve actively resists commodification. As he and the ship's crew attempt to shovel the mineral onto the ship it eats through the shovels and the flesh of their hands, before ultimately sinking the ship, "rotting [the] woody fibre" (337) of the hull, thus dissolving the last of his and his uncle's capital and dissipating the remnants of their accumulated energy back into the land and sea. The exotic space of the quap's location is also a site of untold barbarism and savagery, the radiation from the material permeates the whole island with a fetid atmosphere of violence and malevolence. Referring back to the accumulative desires of capital outlined by Jason Moore and Rosalind Williams previously, this is what the final frontier contains in Wells' universe. Contact with the traditional wellspring of capital, the land, does not disclose new sources of revenue, but rather a corrosive vacuum of nature that sucks energy back from human agency into the natural processes of decay, in this case the "atomic decay" (329) of radioactive substances.

Ultimately, Wells seems to imply that civilised, capitalist modernity is too entrenched in its “aimless fever of trade” and the “wasting” (Wells 381) of energy to meaningfully return to the era of capital creation through sustainable, physiocratic methods. Plants can certainly be harnessed as a means to make money, as shown by Tono-Bungay’s success, but their commodification means they are no longer plants that are able to create new energy or capital, but merely dead resources that can be embellished and circulated around global markets. Growth can ensue, but it is as William Kupinse described it - “’the tumorous growth-process’ of early twentieth century consumerism” (52) built on an inflated sense of value that is unnatural, cancerous and ultimately fatal. Such systems are subject to waste, entropy and eventually decay and this is precisely what Edward Mendelson’s sees in his analysis *Tono Bungay*. He picks up on Wells’s use of “sterility” and “futility” (xv) to reflect the current state of Britain’s advanced capitalist economy and society, portraying “a vision of disintegrating personal relations, a disintegrating society, even a disintegrating universe”, where “all the hopes and enterprises of the era” are “futil[e]” (xiv). This reading is further augmented when considering Wells’s involvement with socialist politics at the time, which as will be explored in the next chapter, manifested itself in a number of ways in his novels.

Building from the preceding treatment of fantastical plants performing everyday tasks, this chapter has shown conversely how, with the right presentation, everyday plants could be transformed to perform miraculous medicinal feats. The success of these cryptobotanical fictions hinged on their ability to tap into, or even engender, a particular anxiety of modern life, often to do with the threats to one’s health, lifestyle or wellbeing, which made people reach for the safe, sanitary and renewable productions of the vegetable kingdom. If no existing plant could be sufficiently “blown up” to fulfil these needs, a new genera or species could be wished or manufactured into existence and paraded before the reading public, inspiring fresh wonders of what new purpose the vegetable kingdom could be turned to next. In some cases, tinted by the hyperbole of fantasy or advertising, plants could paint near-utopian levels of health, wealth and abundance, whereon all of humanity’s needs could be unabatedly met by a continual production of vegetable ambrosia.

However, in addition to these extreme flights of fancy there were a number of ambivalent representations that sought to dispel or re-situate the mythology that surrounded plants. What emerges through *Tono Bungay* and *The Healers*, aside from the cynicism surrounding the various hoaxes of the trade in 'miracle plants', is a flora that is not so easily tamed. While it was certainly possible to commodify plants and plant-products, their status as living beings ultimately ends up complicating, rather than perpetuating, the financial gain that ensues, ultimately failing to result in the kind of everlasting source of growth imagined by some. The extent to which this resistant, organic 'vegetal being' can be seen as a criticism of the capitalistic means of extraction on the part of Wells or Maartens is debatable. Certainly the greed and deception of modern business practice come under much scrutiny and ridicule, however neither case has the force of an all-out condemnation or the vision to offer an alternative worldview. It will be the job of further texts and chapters to see how these more measured critiques were joined by other cryptobotanical narratives that saw the imaginative potential of plants to sustain a new kind of society for the new century, where humanity and botanical nature would be able to live in sustainable harmony.

Chapter Three – Space & Thyme: Imagining the Unseen with Victorian Cryptobotany

Thus far, the exploration of the imaginative uses of plant life in the nineteenth century has largely revolved around fantasies of acquisition. The natural economy of plants, their ability to generate energy seemingly from nowhere and the ease with which said energy could be commodified and put to work for the services of capital meant that they featured in a number of speculative fantasies of how to solve numerous economic, social and health crises of the period. In such cases, the natural world, and especially green nature, provided both a model of efficiency and a limitless reservoir of resources from which the modern subject could derive health, wealth and prosperity. However, not all imaginative uses of plant life were motivated by desires for material enrichment and profit. The coming of age of the science of palaeontology, geology and evolutionary theory in the nineteenth century meant that many speculative observers longed to see into the far-off horizons of the past and future to accurately record sights previously undisclosed to human eyes. In order to do this, writers, scientists and artists alike turned to plants, apparently the oldest and most resilient form of organic life, to traverse these vast swathes of time by imagining this far-off flora and building speculative worlds around them. This chapter will examine this expansionist drive in the Victorian imagination as it pursued new territory in the planet's past and future through cryptobotany, using the changing forms of plant morphology to construct and sustain a view into far-removed temporalities. This includes trips into the hidden pasts of plants, as with Jules Verne and John Ruskin, as well as forward-looking anticipations of future landscapes populated by the fantastical plants of H.G. Wells in *The Time Machine* (1895) and *The Food of the Gods* (1904).

In pivoting to scientific and visual depictions of plant-life in the nineteenth century, it becomes necessary to establish a methodological base. Lorraine Daston and Peter Galison's landmark study *Objectivity* (2007) provides a strong critical basis for approaching the topic, with its engaging and thorough history of scientific representation in the period. The well-known work establishes a binary between two forms of representing natural scientific phenomenon: "objectivity" and "true to nature", arguing that each of these

“epistemic virtues” claimed a superior position for understanding nature. On the one hand, truth to nature drew from enlightenment sources, utilising the artist/scientist’s imagination and discretion to represent an ‘idealised’ version of a specimen that would represent a genus or species more faithfully than any naturally occurring example could. By contrast, objectivity involved removing as much of the imaginative faculty as possible from the point of the viewer, to render a subject as faithfully as possible, often by mechanical as opposed to artistic process (Daston and Galison 105,120). Given the core argument of this thesis, namely the existence of a ‘cryptobotanical imaginary’ in the Late Victorian Period that informed both scientific and literary depictions of plant life, Daston and Galison’s argument seems to offer a rather grim outlook, suggesting that there was a marked segregation and denigration of imagination within scientific discourse. However, Daston acknowledges that their argument is complicated by the noted exception of botany; for while their thesis is intended to map the ascendancy of objectivity as a scientific virtue, plant life proves a sticking-point:

> Botany was one discipline in which truth-to-nature persisted as a viable standard in the realm of images [...] Authors of treatises on the application of photography to the sciences urged botanists and other naturalists to use the camera in order to capture “the thousands of details of the veining leaves” and to achieve “a rigorous exactitude, an exactitude which they have so much difficulty in obtaining from artists, always too prone to correct nature.” But even boosters admitted that photography would never replace drawings in botany [...] Experts in scientific photography warned botanists that when some feature was to be highlighted amid a welter of detail, drawing pencil and brush bested the camera (Daston 105).

While the reasons for the apparent resistance of plant life to the objective technologies of photo-realism will be made clear throughout the this chapter, a particularly novel example can be found in a work of popular science from 1910, *The Wonders of the Plant World* by G R Scott Elliot. Elliot begins his book on plant wonders by confronting the prejudice that plants aren’t very wonderful at all, admitting that “they seem to us the very model of dullness, stupidity, and slowness; they cannot move even from one field to the

next" (13), before revealing that in fact plants do move a tremendous amount, but from our own limited perspective it is very difficult to see. To remedy this, he asks the reader to adopt the position of "an inhabitant of the planet Neptune", who experiences time very differently, for "three of our years are a Neptunian week, and […] ten of our days are about three-quarters of a Neptunian hour" (15). From this super-elongated experience of time, a Neptunian would be:

> astonished at the rapidity of our vegetable world. The buds would seem to him to swell visibly; in the course of an hour or two, the bare boughs of the trees would clothe themselves with the luxuriant greenery of midsummer. Hops would fly round and round their poles, climbing at the rate of a foot a minute. Bare places, such as the gravel heaps near a sandpit, or the bare railroad tracks at a siding, would be perhaps in one week entirely covered by rich grass and wild flowers. In six Neptunian months a forest of graceful larches would spring up to a height of seventy or eighty feet. So that, if one thinks Neptunially, the activity of plants can be easily realized (15).

This cryptobotanical 'Neptunian vision', of envisioning plant morphology unfolding before our eyes is precisely the subject of this chapter and also the reason why the freeze-frame stillness of photography was judged incapable of capturing plant life. The necessity for a reader to imagine themselves from the perspective of an alien visitor in order to properly appreciate the roving tendrils of hops or bursting blooms of summer demonstrates perfectly the kind of imaginative work that Victorian readers were prepared to go through in order to fully realise the otherwise imperceptible wonders of plant life, and fictional tools such as Elliot's "Romance" were there to help them (13).

Returning briefly to Daston and Galison's framework, the rogue status of plant life resists simplification in this way, and as such it is useful to include work from a critic who has likewise found their subject matter to fall outside of the established binary of objective and 'true to nature'. Martin Willis' *Vision, Science and Literature 1870-1920* (2011) "is designed as a refutation" (7) of Gaston's work, arguing that "[i]n the sciences and imaginative literatures […] I have found no clear evidence of the existence of a shift from the objective to the subjective in vision" (3). Instead he posits that:

> The porous boundaries of seen and unseen, and of image and imagination, led to a new epistemology of vision that held the actual and the imagined in fragile suspension. Each visual encounter had the potential to push the observer into either category, or both, or to shift between them (Willis, 5)

While *Objectivty*'s breaking down of categories of representation are invaluable, it is Willis' reading that rings true when compared with studies of plant life in the late nineteenth century in his admission of a nuanced and multi-faceted view of scientific vision. As will be demonstrated, plant life's intrinsic link with considerations of deep, evolutionary time, both past and present, meant that vegetable subjects of scientific, literary or even artistic studies were seldom seen as static specimens, but rather dynamic evolutionary beings that held a near-limitless potential for growth and change in heir pasts and futures. In such considerations, the viewer is expected to view the plant both as it exists and the myriad forms it has held and will go on to hold in a "fragile suspension" of the real and imaginary. As such, visions of plant life consistently elude objective representation with a hidden or cryptic element, transcending otherwise staunch binaries of real / imaginary and objective / true to nature with an ambiguity that can be hard to grasp, but fecund in its possibilities.

John Ruskin's *Time Machine*: Plants Past and Future

The complex theoretical realities of grappling with this ambiguous vision of plant life were expressed by the art critic John Ruskin in his educational writings, which serve as a primer on the nineteenth century botanical imaginary. Ruskin regarded objectivity in plant study as "mere copying" (*Proserpina*) that was flawed in theory and impossible in practice. Despite their at times lifeless appearance, he argued that the morphology of plants was incredibly dynamic and intricate, with its full beauty only being disclosed in part over extended periods of time. Indeed, owing to their largely inanimate nature, the only way they can be seen to change and alter at all is with the imagined passage of time. This made plant life the perfect model and measure for an artist's skill because it required both exacting detail and the capturing of imperceptible elements. The artisan must be able to reproduce the "cadence"

of individual specimens, what he had described in his *Elements of Drawing* from 1857 as the “vital truth” (118), of botanical nature:

> the form of a complete leaf is never seen; but a marvellous and quaint confusion, very definite, indeed, in its evidence of direction of growth, and unity of action, but wholly indefinable and inextricable, part by part, by any amount of patience. You cannot possibly work it out in facsimile, though you took a twelvemonth's time to a tree; and you must therefore try to discover some mode of execution which will more or less imitate, by its own variety and mystery, the variety and mystery of Nature, without absolute delineation of detail [...] no natural object exists which does not involve in some part or parts of it this inimitableness, this mystery of quantity, which needs peculiarity of handling and trick of touch to express it completely (Ruskin *Elements* 87-8).

Breaking rank with other drawing manuals on the subject of nature study, *Elements* openly touts the impossibility and “inimitableness” of copying natural forms, presenting organic matter as an “inextricable” and unwieldy subject that demands artists deftly manipulate and play with perception in a way that matches nature’s own disorienting “confusion”. The success of a work is thus gauged not by the exactness of its detail, but rather in the degree to which the artist is able to replicate their own version of the haphazard imperfection present in nature.

The Elements of Drawing is regarded as a rather minor work in Ruskin’s vast bibliography and has seldom received critical interest outside of art historical research into the history of drawing manuals and the techniques of draftsmen. However, the critical and didactic discussion Ruskin has with the reader is dense with meaning that warrants a close and sustained engagement, as it offers modern readers a glimpse into the creative process of imagining with plants. Ruskin’s negotiation of the inconclusive and ambiguous qualities of plants continues for pages as he attempts to reconcile and set down in language what it is that so eludes him in pencil and watercolour; eventually arriving at the term “translucent” (87), which does a great deal of work in unpacking his impressions of plant life. Writing on aesthetic art, the term is characteristically centred on optics, with translucence suggesting a barrier placed between a subject and a viewer that partially

obscures their sight. Light and loose shapes can be seen, but close detail is lost and the overall impression is therefore incomplete or imperfect. For Ruskin, plant life with its alien mode of existence and myriad of ever-changing and intricate forms is perpetually shrouded in this blurring layer, so that even under the most precise scrutiny, fugitive elements of the plant will always evade detection. Rather than seeing this is as a cause for dismay, Ruskin marks this area of uncertainty as the locus of creativity in artistic composition. As one is dealing with an incomplete picture, it is up to the artist to preserve and experiment with that elusive mysterious element, in which the imagination is allowed free rein. Tethering this visual analysis back to the literary imagination that is the subject of this thesis, Ruskin's views maintain relevancy and can offer at least a partial reasoning for the licence so many writers took with plant life. By translating that hidden, 'cryptic' element identified by Ruskin to fiction, an author would be able to expand, speculate and embellish the vegetable subject, creating a fanciful representation that is drawn from the mystery of plant life. This is the essence of the cryptobotanical imaginary.

In order to faithfully depict these translucent subjects obscured by time, it becomes necessary to see how they will change over their lifespans. Later in the same text Ruskin speaks of how to do this, providing his own version of Elliot's previously mentioned "Neptunian vision", using the "governing lines" in trees (fig.3.1) to disclose their future growth, enabling the spectator to "*kno[w] the way things are going*" (Ruskin 119, his italics), referring to the movement of plants as they travel and grow through time:

> Your dunce thinks they are standing still, and draws them all fixed; your wise man sees the change or changing in them, and draws them so,—the animal in its motion, the tree in its growth [...] Try always, whenever you look at a form, to see the lines in it which have had power over its past fate and will have power over its futurity. Those are its *awful* lines; see that you seize on those, whatever else you miss (119 – Ruskin's italics)

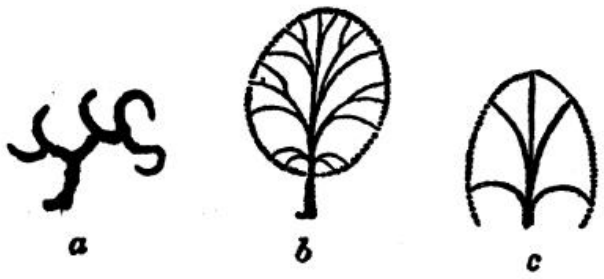


Fig.3.1 Ruskin's examples of the several governing forms of trees taken from *Elements of Drawing*, showing how they will grow and change during their lifespans.

It is perhaps *The Elements of Drawing*'s form as a drawing manual and field guide that drives Ruskin into considerations of time, writing instructional criticism designed in anticipation of the work of art that is yet to be created, hoping to mould and alter it at its very conception. At any rate, he requires a similar intimacy with the subject of plant study, inclining the reader towards the slippery nuances of the plant in its past and future variety and showing how forms that are hidden by time can be uncovered if you examine its growth through its rudimentary lines (fig.3.1). For example, an accurate representation of a tree, according to Ruskin, will uncover "what kind of fortune it has had to endure from its childhood" (118), whilst anticipating how each subsequent branch will "take its part in filling out the united flow of the bounding curve" (121) of its future growth. Dramatizing dynamics of growth, Ruskin instructs his readers to "take more pains in trying to draw the boughs of trees that grow *towards* you" (123 Ruskin's italics), with the emphasis on *towards* highlighting the perspective of something 'reaching forward' in real-time towards the artist. The contemplations of the tree's movement in both space and time requires the viewer to imaginatively engage with the future of the plant, culminating in Ruskin's final gauntlet, to imagine how the tree will go on growing after you have packed up your easel and left.

Such a plant-centric aesthetic, which is so mindful of the transformative effect of time on flora, has far-reaching consequences for the imaginative scope and potential of representations of vegetable life. It speaks to a willingness to see more than an objective gaze can represent, instead using the imaginative faculty to envision plants in radically different settings, times and forms. This corresponds with Elizabeth Chang's reading of imaginatively manufactured ecologies in nineteenth century genre fiction, where she argues "the removal of the mimetically realistic supports of plant and animal life"

liberated writers, creating an imaginative environment that can partially reject the “premises of realism” and bring new realities, and temporalities, to the fore (Chang ‘Hollow Earth’). What’s more, by imagining these new kinds of environments, cryptobotanical fiction was able to challenge the established anthropocentric ontologies of Realism and its privileging of the human experience. As Jesse Oak Taylor notes in ‘The Novel After Nature, Nature After the Novel’, Realism functions by marginalizing non-human agency in order to create a backdrop on which human characters can move about freely, and that inversely, when Realist forms are subverted, it is possible to “extend” the reach of fiction “beyond the human” (115). Therefore, in following Chang and Oak Taylor’s lead to the greener spaces of genre fiction, the remainder of the chapter will explore the role of plant life in forging fictional depictions of distant and fantastical times and places.

In the last chapter, *Tono Bungay* was shown to explore the great contemporary fortunes of venture capitalists through detours into nuclear physics and aeronautics, having all three crumble and disintegrate in the closing portion of the novel. However, prior to *Tono Bungay*, H.G. Wells also showed a significant interest in the “questions of reality and representation”, which he used, according to Caroline Hovanec, to “continually destabilize[sic] scientific observation as a reliable means of knowing” (466). In Hovanec’s reading of the *Time Machine* (1895) she identifies Wells’s implicit ideology of perception where he “sets up empiricist assumptions about seeing, knowing, and believing in order to knock them down” (466) through the novel’s constant reference to a changing and evolving landscape that exists “below the threshold of perception” (467) and resists categorisation.

Crucially, in the framing portion of *The Time Machine* that occurs in the present day, a plant is the sole shred of material proof of the Traveller’s journey - yet is nevertheless shrouded in mystery. Responding to the consternation from the assembled group of ‘men of science’ asking why he was unable to produce any kind of proof of his journey, Wells interrupts the Traveller’s narrative to present the flowers given to him in the land of the Eloi: “The Time Traveller paused, put his hand into his pocket, and silently placed two withered flowers, not unlike very large white mallows, upon the little table. Then he resumed his narrative” (58). Despite the broad disbelief his fantastic

story of the future is met with, the flowers repeatedly arouse doubt and confusion in the witnesses to the Traveller's tale, as even the learned among them profess they "certainly don't know the natural order of these flowers". When a "Medical Man" asks if he may take them for further study, the Traveller responds "suddenly: 'Certainly not'", resisting the attempts map the morphology of the flora of the future. The mysterious flower figures in Mary Bowden's article 'H.G. Wells's Plant Plot: Horticulture and Ecological Narration in *The Time Machine*' (2019), where she argues there is most assuredly potential for the flowers to "yield […] different meaning[s]" (621) and that Wells purposefully keeps them open to interpretation by transferring the botanical specimen from the gaze of scientific scrutiny, to the realm of speculative sentiment. Ultimately, the "two strange white flowers" are left to the narrator of the tale, who maintains them as a personal remembrance of the Time Traveller after he subsequently disappeared; "shrivelled now, and brown and flat and brittle" (Wells *Time* 90), the flowers continue to decay in their own process of time, bearing the proof of their journey only for those with the eyes to see. Though easily overlooked in a first reading, their significance warrants the very final sentence of the novel, where the narrator resolves, rather than trying to identify their type or their odd "gynæceum", to instead content himself with speculation on what kind of future could have spawned such a flower.

Again, as with Ruskin, it is plant life that Wells provides as the anchoring point in his chronicling of the Traveller's disorienting leaps through time. For instance, Mary Bowden identifies Wells's vision of the future as one that "is botanically specific", with the Traveller seeing silver birches, hawthorns, evergreens, rhododendrons, nettles, raspberries and oranges all within pages of touching down in the year 802,701 (606). These varieties, while recognisable to the Victorian Traveller, are shown to have undergone a process of transformation in the intervening years, becoming even more trained towards human wants. In a fantasy in-keeping with the utopian futures discussed earlier, nettles of the distant future have no stings, fruits have grown to vast sizes and sweetness, and it appears that the Traveller has arrived at a point in history where horticulturalists have realised their self-appointed task of engineering plant life to such a degree as to "realiz[e] a new Eden" (Bowden 614). However, even in this new garden planet where the evolutionary path of plants seems to have become wholly determined by human intervention, there

remains inscrutable elements. For one, neither the Eloi nor the Morlocks of the future are able to explain or understand how the flora of their world came to be moulded into this state of apparent perfection and this loss of scientific faculty is directly correlated to the apparent mastery of plant life.

Bowden identifies the prevailing anxiety of Wells's work as that of "degeneration following security" (617), the idea that when humanity is liberated from all confines of scarcity and deprivation, the very absence of these evolutionary weights will result in an atrophy of mind and body as the means for existence can be achieved without rigour or struggle. Bowden reads this relationship between human degeneration and plant life as representative of a "tension between the novel's human and plant plots" (621); part of a "competitive narrative model" (622) in which the text's "ecological narration" (617) competes with its human narration in a pseudo-Darwinian struggle for resources and the reader's attention. This reading provides many useful tools for breaking down the more nuanced elements of the novel's environs, bringing to the fore elements that are wont to be marginalised due to anthro- and zoo-centric bias in readers, writers and critics alike. However, I would argue the framing of the 'two sides' she identifies [human and plant] as existing in direct competition over-simplifies the complex ecological relations we see play out over millennia in the text. Conflict suggests a purposeful, active pursuit of the stakes of confrontation, it also means that the plant life in the narrative is defined in relation to its on-going 'conflict' with human actors, when in fact the ultimate conclusion of the novel is more ambiguous than that, presenting an ambivalent world where plants and humans have had their evolutionary paths untwined, separating out once again onto two trajectories.

Increase in temperature and a cessation of the seasons mean that as human life degenerates, the conditions for life become optimised for an ascendance of vegetation million years hence where "the future has been thoroughly and systematically dehumanised" (MacDuffie 240). Here all traces of animal life, even the most "inferior" and "degraded beings" (Macduffie 238), have completely disappeared and the Time Traveller is confronted with the frozen alien landscape a "red beach" – lifeless, save for patches of "livid green liverworts and lichens" that dot the desolate plane: "I looked about me to see if any traces of animal life remained […] But I saw nothing moving, in earth or

sky or sea. The green slime on the rocks alone testified that life was not extinct" (83). In this extreme post-human environment, the far-flung future begins to resemble what little was known of Earth's most ancient past, when life first emerged from its primordial soup[22], causing a disorientatingly circular view of history that greatly diminishes humanity's place in it. In accounts of both of these environments, plants are shown to be staking out an existence long after and before even the most basic animals, providing an inhuman yet nonetheless conterminous imaginative foothold in these remote temporalities.

Recent scholarship in the energy humanities has tended to maintain the assertion made by Barbara Freese in her highly influential history *Coal* (2003) that the fossilised plants that formed coal were "rooted in a past so distant it still could not be imagined" (Freese 69) by Victorian consumers. However, as seen in the previous chapter, the ancient botanical antecedents of coal, were well documented, circulating in periodicals and works of popular science, with such accounts often using the botanical origins of coal to help bridge the massive imaginative gap between the nineteenth century and pre-historic coalfields. This reading is greatly assisted by Naomi Yuval-Naeh's 2019 article 'Cultivating the Carboniferous: Coal as a Botanical Curiosity in Victorian Culture', which draws on a variety of sources throughout the century to argue that the "vegetable fossils" of coal were presented as "the infallible Historians of extinct systems of vegetation" and that through the use of "botanical-aesthetic imageries […] geological time [was] blurred" – with plant life enabling a kind of "sensual time travel" via the literary construction of "a coherent space of botanical matter and spectacle" (422). Making such vast swathes of time and alien environments like the carboniferous forests "coherent" to average readers was no easy task, and many accounts of the ancient past often remarked on the difficulty to conceive of such distances.

[22] The theory that the most basic forms of life began spontaneously from a liquid medium of minerals with sufficient heat for them to bond and form a living cell. Though a 20th century parlance, the science behind it originated from the nineteenth century, see Charles Darwin in a letter to Joseph Dalton Hooker in 1871: "But if (and oh what a big if) we could conceive in some warm little pond with all sort of ammonia and phosphoric salts,—light, heat, electricity present, that a protein compound was chemically formed, ready to undergo still more complex changes".

One particularly experimental example of this was ‘The Story of a Piece of Coal’ by John Ellor Taylor, originally published in *Science Gossip* in 1869. Whilst technically a work of popular science, the self-avowed ‘story’ relies on a large number of conventions of fiction and is part of a wider series written by Taylor called *Geological Stories*, a collection of ‘autobiographies’ of various minerals written from the perspective of said mineral, recounting their ‘life story’ up to the present day. Coal begins its story directly addressing the issue of temporal scale, asking the reader from the first line: “Can any of my listeners form any idea of what a million years means?” (79); this remoteness of time is further compounded by a second question:

Fig.3.2 An engraving of an ancient tree fern taken from a coal fossil. From J.E. Taylor’s

> what tongue can describe the vegetable wonders of the forests where I grew? The woods were so thick, and the gloom so impenetrable in consequence, that it required a keen eye to make out individual peculiarities (103)

The implication being, with no sentient life except lower insects to record the sights and sounds of the distant forest, how can they be known? Of course, Coal itself seems to be equipped with sight and tongue enough to relate the story of its origins as carbon being incorporated by photosynthesis into the vegetable bulk of a tree, “this did not prevent me from noticing the many strange objects that surrounded me” (85). In reality Taylor is having the coal ‘speak’ not from a kind of sentient experience, but rather from the impressions and lines of fossilised plants that are found within coal beds, using fiction alongside the latest discoveries of geology and paleobotany to dramatize these long-erased landscapes in the minds of the reading public. Coal’s narrative “recollections go back to waving forests of tree-ferns and gigantic club mosses, as well as to a thick underwood of strange-looking plants” (80), with reference to the well-known modern species of club moss and tree ferns

echoing Yuval-Naeh's analysis that "authors instructed readers who wanted to conjure a vision of the Carboniferous landscape to look at present-day British species and imagine their gigantic ancient forefathers" (434), while the unnamed "strange plants" retain imaginative leeway for the reader to conjure forth their own prehistoric cryptogams. In Taylor's Coal Story therefore, we get a near complete rendition of Ruskin's own theorisation of plants and time – though extending across a temporal scale far in excess of the life-cycle of a single tree. In the "awful lines" of both contemporary ferns and their fossilised ancestors, viewers are able to gain access to the remote temporalities of far-off pre-historic Britain; while having the coal speak through its recorded remains, Taylor uses the imaginative faculty of fiction to have the ancient plant-matter conjure in the minds of readers the forests of its birth.

This blend of science and fancy was similarly deployed in the nineteenth century's most notorious fictional dive into geologic time, Jules Verne's *Journey to the Centre of the Earth* - originally published in French in 1864, before receiving two English translations in 1871 and 1877[23]. Like Taylor, Verne used the latest geological and paleontological discoveries to inform and shape his depiction of the strata of the globe as his characters descend through the Earth's crust and peel back layers of pre-history, having the uncle-nephew duo of Otto and Axel[24] Lidenbrock impart scientific lessons on the wonders of modern discoveries as they exchange remarks of wonder along their voyage. For instance, on entering a cavern filled with plants of the carboniferous era, Otto exclaims that "Never had botanist such a feast as this!" (Verne, *Interior* 268), with Axel assenting "Providence appears to have designed the preservation in this vast and mysterious hothouse of antediluvian plants, to prove the sagacity of learned men in figuring them so marvellously on paper", noting in an aside the reader that in the face of such botanical wonders: "My uncle's enthusiasm, always a little more than was required, was now excusable" (Verne, *Centre*, 173). In such instances Verne's narrative forms a similar, instructive, role as Taylor's, marvelling at the wonders of modern science and its comprehensive knowledge, even congratulating "the

[23] The 1871 edition published by Griffith and Farran titled *Journey to the Centre of the Earth* is the most well-known and enduring English language version, despite the omission of several chapters and other abridgement. The 1877 translation by Ward Lock & Co Ltd. was titled *Journey to the Interior of the Earth* and retains the lost chapters. Quotations from the texts are differentiated by (Verne, *Centre*) for the 1871 translation and (Verne, *Interior* for the 1877).
[24] Named Harry in the 1871 edition.

sagacity of learned men" for being able to so faithfully replicate the extinct species in text, which they now see verified before them in the Earth's interior.

However, as the pair descend through the Earth they are met with progressively bewildering sights, to the extent that the impressions become overwhelming for young Axel and he falls into a self-professed delirium as his "imagination [is] carried […] away amongst the wonderful speculations of paleontology":

> All this fossil world rises to life again in my vivid imagination. […] my dream backed even farther still into the ages before the creation of living beings. The mammals disappear, then the birds vanish, then the reptiles of the secondary period, and finally the fish, the crustaceans, molluscs, and articulated beings. […] I am the only living thing in the world: all life is concentrated in my beating heart alone. There are no more seasons; climates are no more; the heat of the globe continually increases and neutralises that of the sun (Verne, *Interior,* 287)

Rather than the kind of pleasant 'armchair time-travel' Yuval-Naeh associates with popular science authors' attempts to bring the past to life, Verne's imaginative leap through time is violent and disruptive, both for the narrative and for Axel, who faints under the overwhelming weight of the revelations he sees. His rendition of being 'the last thing alive' echoes the Time Traveller's final recorded flight into the distant and alien future.[25] Axel's vision sees millennia of evolutionary development fall away from him in a dizzying trip through time. Like Wells' dehumanised future, there ceases to be seasons, or changes in temperature and all complex animal life vanishes, leaving himself as the sole faunal representative; though not "the only living thing", despite his claim, for with the increased heat, "Vegetation becomes accelerated". To speak of the velocity of plant life may seem like an oxymoron, but like Ruskin's branches that reach *towards* the viewer, the movement of plants through both space and time become merged as they swell and bloom into giant forests in Axel's imagination. Written from a perspective of a disembodied state, he experiences the carboniferous landscape in a tactile, sensuous reverie, gliding "like a shade amongst arborescent ferns […] I lean for support against the trunks of immense conifers; I lie in the shade of *sphenophylla* (wedge-leaved),

[25] Which similarly results in a kind of nervous collapse for the hero

asterophylla (star-leaved), and *lycopods*, a hundred feet high"[26] (Verne, *Interior* 288), before travelling even further back to the birth of the universe, whereupon his body disintegrates into stardust.

While Axel's annihilatory dream is certainly alienating, this same estrangement enables a truly immersive entanglement with paleontology. Like previous imaginative engagements with time out of place in Ruskin, Wells and Taylor, plant life serves as an anchoring focal point for navigating the strange world, with the trees literally 'supporting' Axel as he passes through the forests. The inclusion of plant family names likewise helps readers populate these early jungles with somewhat familiar plants, though their uncanny size remains overwhelming; a fact represented by Axel's increasing dissolution as he staggers and reclines in the forest. However unlike the previous examples listed, the carboniferous flora is not experienced solely through sight or recorded as observational proof, but touched and experienced, ultimately engulfing Axel as he passes through the strata of minerals on his journey to the Earth's beginning. These themes of human/non-human hybridity are further developed in later chapters; but for the material at hand it is sufficient to note that once plant imaginaries are unconfined from being purely aesthetic objects and begin to be described in increasingly sensational terms, they can encroach on the human narratives of texts – as shown by Axel's involuntary hallucination.

A further result of these sensuous entanglements with green nature in Verne's *Journey* is to compromise the traditional structures of meaning that form the scientific knowledge so valued by Professor Lidenbrock and his nephew. As the travelers descend yet further down into the Earth they enter the 'electric forest', an uncanny landscape of luminous rivers and colourless vegetation:

> Everything seemed mixed-up and confounded in one uniform silver grey or light brown tint like that of fading and faded leaves. Not a green leaf anywhere, and the flowers—which were abundant enough in the tertiary period, which first gave birth to flowers—looked like brown-paper flowers, without colour or scent (Verne *Interior* 349).

[26] In the 1871 edition, the translators make

If the jungle of Axel's dream was notable for its over-stimulating grandeur, the vegetation in the electric forest has the opposite effect; with its lack of colour, scent and discernible form, they resemble dried paper as opposed to living plants. Ceasing to resemble what is recognisable as the verdant subject of botany, both translations place emphasis on the confounding nature of the "inextricable and complicated mass of […] plants" (*Centre* 244), which repel identification:

> there appeared confounded together and intermixed, the trees of such varied lands, specimens of the vegetation of every part of the globe; there was the oak near the palm tree, the Australian eucalyptus, an interesting class of the order *Myrtaceae*—leaning against the tall Norwegian pine, the poplar of the north, mixing its branches with those of the New Zealand kauris. It was enough to drive the most ingenious classifier of the upper regions out of his mind, and to upset all his received ideas about botany (Verne, *Centre* 244-5).

Plant life in Verne's *Journey* then, is somewhat more ambiguous than other representations of plants in time. There are the same morphological details, the emphasis on evolutionary origins and growth; however, where other texts see flora as something that can be delineated and described, though retaining a degree of "mystery" to quote Ruskin, Verne seems to go further than that – having plant life actively challenge and even overpower its spectators. In the scene of the electric forest, not only is plant life made alien by taking away the very thing that marks them as plants, their chlorophyll, but they also clump together in motley arrangements, "mixing […] branches" and "leaning" on one another in a tactile representation of crossing species lines – it is small wonder that classifiers are so upset. Whilst elsewhere in this thesis the case is made that such conflation of species lines are an appeal to Gothic fears of contamination, with Verne it can be argued that it is more a recognition of the limitless variety and strangeness that resides in the genetic history of plant life. By looking into the pre-historic past of plants and finding, rather than confirmation of what we know, an alien and seemingly incomprehensible mess – it marvels at the myriad forms of vegetable life and records with wonder their potential for growth and change.

In a 2019 article titled ‘Battle of the giants: Plants versus animals in idealised landscapes of “deep time”, the geographer Peter Vujaković questions why, in illustrations of pre-historic times, it is so often the mega-fauna of dinosaurs that dominate – frequently in densities of population that would never have occurred in a natural setting. Tellingly, the early days of palaeontology during the Victorian period were largely immune to this bias, with Vujaković noting that “plants were given their due place […] in the 19th century”. His reasoning for this apparent decline in representation was that the increasingly perceived “static nature of plants”, the “dullness” mentioned by Scott Elliot in 1910, in combination with the twentieth and twenty-first centuries’ “demand for activity (often predation) that has its origins in science as spectacle”, meant that plants eventually had to make way for more conspicuously dynamic creatures in artists’ renditions of deep time. While it falls beyond the purview of this thesis to make pronouncements on the tastes of the twentieth century and beyond, the fact that the hey-day of paleobotanical illustration was during the nineteenth century is an observation of no small consequence. It suggests that, unlike later eras, in the nineteenth century plants were not regarded as static or inanimate ‘scenery’ that remain unaltered throughout the years, but rather ever-changing actants with limitless potential for dynamic growth.

To conclude, when imagining plants’ morphological origins and futures, it is necessary to consider their being in time. In this sense, plant life sustains considerations of temporalities far different from the present, providing inspiration and evidence for the speculating individual to venture deep into far off points of the future and past. In the narratives seen thus far, the cryptobotanical visions of remote worlds in Ruskin, Taylor, Wells and Verne have each in their own way invited the reader to use plants to imagine a future without human observers, following both individual and species-wide life spans of plants that far exceed our own in order to spectate a pre/post-human world. However, not all imaginings with plants were so free from an anthropocentric vision. Rather than observing from a distance, other cryptobotanical depictions of future plant life equally sought to imagine an altered world where humans could share and partake in the evolutionary progress of plants, changing and growing along with them. The remainder of the current chapter and its successor explore these themes by turning once more to Wells and a number

of his contemporaries as they experiment with green utopias. Such texts harness the pluralistic and plastic morphology of plant life's straddling of the "actual and the imagined" (Willis 5) to help envision new social and natural orders, depicting near-futures where people could enjoy a mutually sustaining and enriching relationship with a newly cultivated vegetable kingdom.

Plant Life and Progress in *The Food of the Gods*

In his reading of energy in *The Time Machine*, Allen MacDuffie identifies what he sees as Wells's deeply pessimistic anticipations of the future of human progress, with the impending dissipation of energy causing the degeneration of the human race and ultimately blighting the Earth of all but the most rudimentary life. He then compares the text with *The World Set Free* (1914), a resoundingly utopic fantasy of unlimited energy that Wells published nearly twenty years after *The Time Machine* (1895). The later text offers a complete reversal of the dreary predictions of decades ago, with MacDuffie noting that Wells "recapitulates productivist dreams" through an emboldened belief in "the organized application of the scientific method to any and all human problems" (250). His speculative fictions from this period envision a future world that can be remade in accordance with human needs, anticipating "the day when nature can be fully commanded and then transcended altogether" (251), without the accompanying dissipation of energy seen in the Eloi of the future. Progress, growth and power, all without entropy. Situated between these two poles of bleak pessimism and supreme technological optimism is 1904's *The Food of the Gods and How It Came to Earth*; an interesting midway point that shows Wells beginning to experiment with the fantasies of a human-engineered utopia. Whilst retaining a more ambiguous attitude to progress than the bombast of *The World Set Free*, *The Food of the Gods* shows a world in transition between an established and emergent order – and like *The Time Machine* Wells enlists plant life to help communicate the realities of a changing planet.

The Food details the discovery of a new chemical compound that can transform organisms, making them grow to many times their natural size. Where the flora of *The Time Machine* bears the subtle marks of gradual evolutionary change effected over millennia, the growth and changes undergone by plant life in *The Food of the Gods* are sped up to supernatural

speeds, often growing so rapidly that it is visible to the naked eye – crucially bringing the temporal dimension to a visible plain as it features throughout the text as both a metaphor and gauge for the spectacularly rapid growth and change that is occurring with the world at large. In a not-too-subtle case of foreshadowing, the scientist who develops the food is named “Professor Redwood” (Wells 1) a reference to the redwood or sequoia species of trees, famous for producing the largest single-stem plants in the world, already pointing to vegetation defying the limits of possibility in terms of scale. Floral and arboreal metaphor remains a constant throughout the text, with the opening of Book Two beginning “[t]o follow the Food of the Gods further is to trace the ramifications of perpetually branching tree”, which lends the preceding statement: “our whole story is one of dissemination” (93), the quality of the dispersal of pollen or seeds. As we are introduced to the character, Wells reveals that Professor Redwood is a physiologist, studying the effect of growth on living beings and measuring the growth of “all sorts, kittens, puppies, sunflowers, mushrooms, bean plants, and (until his wife put a stop to it) his baby” (Wells *Food* 6). He concludes that rather than being a straightforward, linear experience, growth occurs in “bursts and intermissions” (6), whereon the body must recover.

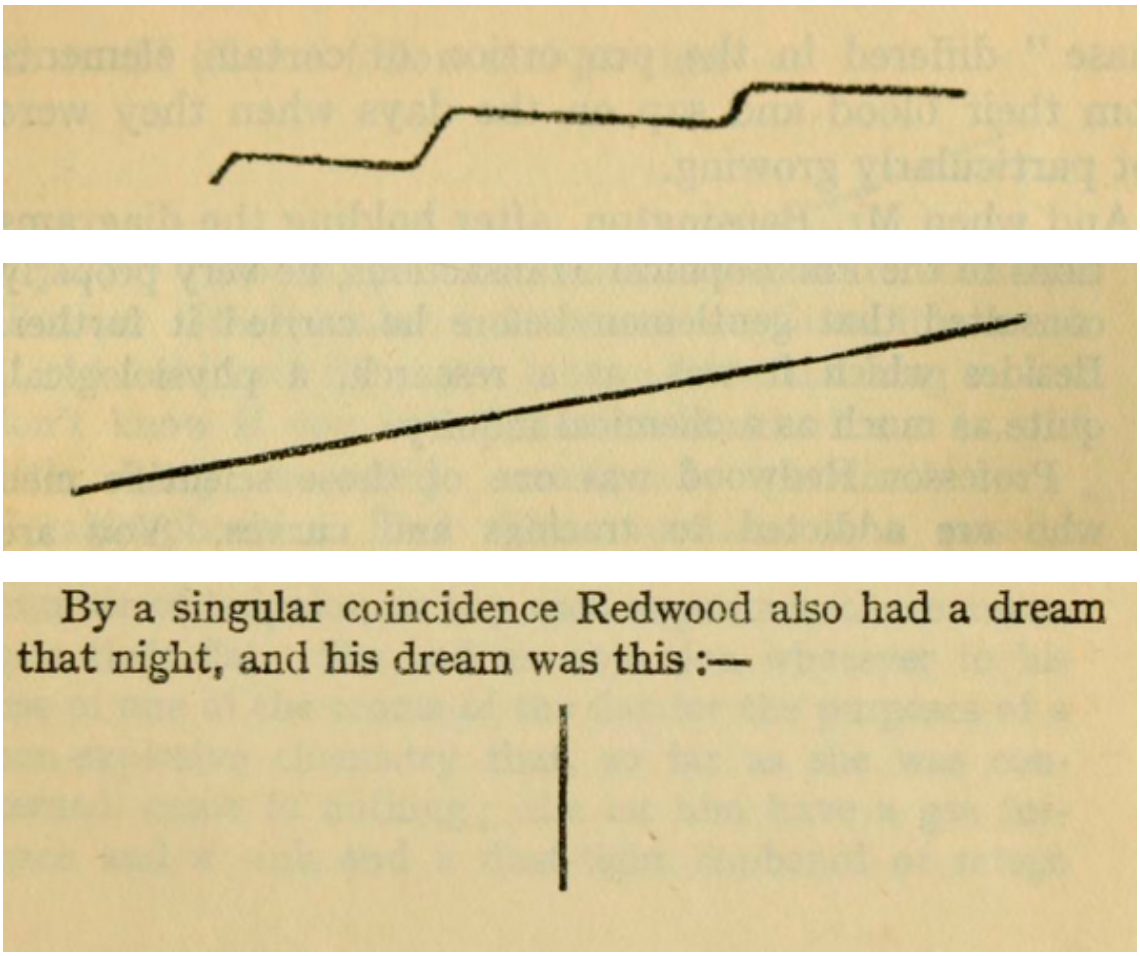


Fig.3.3 / 3.4 / 3.5 Wells's diagrams taken from a scanned copy of *The Food of the Gods* (1904)

In a manner similar to Ruskin's own 'lines of growth' (fig.3.1), Redwood's narration also uses a diagram to illustrate morphological change over time, though unlike Ruskin's figurative drawings, he is not bound to the natural forms of trees but instead expresses his equations of growth and time in far more abstracted forms (fig 3.3/4/5). Therefore he conceives "of growth going on in this fashion [fig 3.3]", and imagines it could be made "to go thus [fig. 3.4]" until one night Redwood "had a dream […] and the dream was this: [fig. 3.5]" (Wells *Food* 8). By extrapolating organic growth into these abstracted forms, Redwood is able to conceive of fantastic, revolutionary transformations that are not bound by material constraint, and this becomes his goal; imagining a world where the size of plants and animals, countries and economies, can be forever on the ascent. In order for the old system of "slow, […] even retrogressive methods" of growth to be done away with, it is first necessary for a new, 'unnatural' nature to manifest, in the form of cryptobotany.

The process by which 'the Food' is created, much like the ingredients of Wells's other miracle elixir in *Tono Bungay*, is left rather ambiguous. Instead of an explicit chemical process, we learn Redwood begins to extract vital fluids from the subjects of studies of growth: "the blood of puppies and kittens and the sap of sunflowers and the juice of mushrooms in what he called the 'growing phase'" (7) – isolating the alkali that is present in all of them in a powdered form that becomes the giant-making Food of the Gods. The description of these liquids conjures an unwholesome and transgressive cocktail of liquid life, cruelly mingling animal and vegetable tissues and cells to extract the "primordial force" of growth (9); with the experiments bringing to mind one of Wells's other dubious scientist, Dr Moreau (1896) and his "animals carven and wrought into new shapes" (160). The ability to enact changes in a living being's morphology, described by Wells through Moreau as "the plasticity of living forms", is indicative of the kind of fantasies that were entertained in a post-Darwinian scientific moment where the various causes of phenomena such as species division and growth were believed to be being imminently comprehended and mastered. As MacDuffie stated in his reading of *The World Set Free*, Wells uses fiction as a space in which recent minor breakthroughs in scientific understanding are given imaginative room to run their full course, except rather than overcoming the physics of entropy, in *Food of the Gods* it is the biological limits of life that are being rewritten[27].

Similar to the mysterious origin and scientific properties of the Food is its seeming ability to permeate and travel across environments "with the pertinacity of a thing alive" (93). Redwood, along with his collaborator Mr Bensington, attempt a number of controlled experiments on some young animals, including chickens and even Redwood's own son. These initial investigations are fraught with mishaps, for while as the two purchase an 'Experimental Farm' in which to raise a crop of giant animals to feed the ever-expanding urban desire for meat, the Food quickly finds its way out into the surrounding environment. Within weeks the main building is engulfed in a "canary creeper"[28] that had its roots accidentally doused in the Food by one of the farm hands, a Mr Skinner, who tries in vain to warn Redwood that the plant is "growing all over the plathe like a thnake" and that "it put itth tendril through

[27] As will be shown in the following chapter, there were those who sought to do this in practice as well as in fiction.
[28] A variety of nasturtium.

the window in the night" in an attempt to abduct his wife (23-24). Indeed, while he is making this testimony the canary creeper begins its final assault to engulf the property:

> About eleven [o'clock] the canary creeper, which had been quietly active all morning, began to clamber over the window and darken it, and the darker it got the more and more clearly Mrs. Skinner perceived that her position would speedily become untenable (25)

The serpentine description of the plant as well as the agency it is assigned as its rapid growth allows it to move and even behave like an animal, brings to mind once more Mary Bowden's concept of "ecological narration" from her reading of *The Time Machine*. Bowden identifies ecological narration as occurring "when a narrative's natural environment is not cordoned off as scenery", at which point "its botanical constituents can be situated as actors experiencing their own plotlines within the novel's story" (Bowden 617). This is certainly true for many scenes in *The Food* such as Mrs Skinner's flight from the farm, where the engorged plant life is given agency and seems to be asserting not just an opposing narrative, but a dominating one – forcibly changing the focus of the text and foiling the early experiments of Redwood and Bensington.

Indeed, though contested earlier in this chapter, Bowden's thesis of direct competition between plant and human finds more than enough material in *The Food of the Gods*. In the final chapter of book one, Wells details the site of another leak of the Food by drain, this time in spring when "everything was astir with life in that scummy little corner" (84). Leeching into the pond, the Food creates a nursery of giant aquatic insect larvae, though Wells notes "the only thing that had a chance with these monsters to get any share of the Food were the rushes and slimy green scum in the water and the seedling weeds in the mud at the bottom" (85). From there the pond overflows, carrying "all this sinister expansion of the struggle for life into the adjacent pool under the roots of [an] alder" where one "beheld the big unfamiliar-looking blobs and threads of the algal scum" and "excessive vegetation" (85). As it grows, all this rampant plant life provides the perfect cover for the larvae as they spring a bloodthirsty attack on a local gardener, a scene rendered in lurid detail as the foot-long insects bury their jaws in his face, arm and thigh. These scenes of

“sinister” horror and contamination in the early portion of the text serve to further emphasise the sense fatalism and inevitability that is already being articulated by Redwood and others, regarding Food’s “[self-]appointed end” (93) and the fact that it, and by extension the narrative, is no longer under human control. Indeed, the Food’s influence is so endemic that even its creators “don’t seem able to imagine” (83) the consequences, highlighting the impotence of human speculation in the face of ecological violence. However, while Wells’ depictions of plant life and other natural phenomena in *The Food* have a flirtation with eco-Gothic themes of invasion and insurgent nature, the main focus of plant life in the text at large is not to serve as an adversary or bogeyman but to mark the progress of the Food as it saturates the globe, all the while illustrating the inevitability of the changes at the heart of the novel and highlight the absurdity of the reactionary responses from the text’s conservative figures.

As the giant-inducing food continues to escape and leak into environments, it is consistently plants that are among the first life-forms to be transformed, with “a power of bigness, in fungus and toadstool, in grass and weed” (61) persisting in areas where the Food has left its mark - even after being torched and the accompanying fauna, killed. At the beginning of the second book, which takes place over a decade after the initial outbreak, Wells provides a window on the small-town village of “Cheasing Eyebright” – intended as an archetypal microcosm of the parochial and literally small-mindedness that typifies the old-world and conservative elements of British society at the time. The traditional image of a countryside town life is set in stark contrast to the nature that surrounds it, which the Food has turned from a traditional ‘Green and Pleasant Land’ to a bewildering landscape of “Giant Puff-Balls” and “fungi” so large and rampant it up-ends the flagstones of cellars (98). The persistence of the parochial aspects of the town and its people in the midst of the rampant vegetative growth highlights the incongruity between the emergent world of giants and the residual smallness of the previous centuries already being subsumed by the undergrowth; these actions play out in the grievances and petty dramas of the aged village populace as they are confronted with the new vegetation.

In this microcosm, ‘old’ ideas of normalcy in botanical and horticultural science are used to denote the regressive figures, intended to be foils for the emergent race of progressive and visionary giants that are being raised by Redwood and his civil engineer associate, Cossar. When faced with these freaks of nature, pillars of the community such as the town’s vicar and the local Grande Dame Lady Wondershoot are shown to be hopelessly ill-equipped to deal with the new nature that is befalling the town. Described by Wells as a “conservative-minded little man” (96), the vicar’s “observation in matters botanical was what the inferior sort of scientific people call a ‘trained observation’ – you look for certain definite things and neglect everything else” (98). Similarly Lady Wondershoot, unable to contend with the wondrous shoots in her own garden, flees her country estate for fear of the growth and ends up dying in a Monte Carlo casino as she is unable to come to terms with the new world in her backyard; the vicar laments:

> Poor dear Lady Wondershoot –she didn’t like these innovations. Very conservative, poor dear lady! A Touch of the eighteenth century about her, I always said [...] These big weeds got into her garden [...] she liked the garden in order – things growing where they were planted and as they were planted – under control...The way things grew was unexpected – upset her ideas (119).

In these and other instances where Wells’s authorial voice makes judgements about the ‘the inferior sort of […] people’, it is invariably about those who insist on maintaining dry, bureaucratic systems of formality in the face of revolutionary change. By aligning the vicar with the quality of “trained observation” in botanical science, both are marked as parochial in scope and ‘negligent’ of the new emergent reality around them, which literally requires a broader vision than the myopic detail-driven science of taxonomy. Likewise Lady Wondershoot’s “touch of the eighteenth century” as well as her love for that century’s strictly ordered gardens links her to the birth of ordered classification in botany, advanced by Linnaeus in his *Systema Naturae* (1758); the implication is that this antiquated way of processing and understanding plant life is a relic of the past, like the poor Lady herself.

What is more, it is worth drawing attention to an early attempt in the narrative where traditional forms of botanical classification try to contain the

new flora of the Food as Redwood constructs a herbarium for the contaminated plants; a natural move when documenting new species, but one that proves to be of limited use:

> A blotting-paper book for plant specimens as big as a house door leant against the wall, and from it projected a gigantic stalk, a leaf edge or so and one flower of chickweed, all of that gigantic size that was soon to make Urshot[29] famous throughout the botanical world ... A sort of incredulity came to Redwood as he stood among these things (82).

The comical scale of a herbarium of that size, the prospect of a whole library of volumes at such a scale and the fact that already the specimens can be seen escaping, 'projecting', from the pages of the folio contribute to Redwood's stupefaction, as plant life is shown to have literally outgrown the systems used to define and contain it. Wells was far from the only writer of the period who cast doubt on the validity of classical taxonomy and this perceived inadequacy is discussed in wider contexts in chapter five; however, the implications that plant life's throwing off these antiquated forms has on the internal politics of Wells's novel warrants particular attention. By focusing so much on giant flora and affording it such sway over the narrative[30], Wells is able to hint at the organicism of the progress made by the Food, thus giving it the irresistibility of a force of nature. In the face of such progress, the various objections by conservative strawmen like Lady Wondershoot and the Vicar are rendered comical in their hopelessly out-dated views, though as the novel shifts from the parochial to the national stage, what were conservative views on scientific convention become conservative policies of regressive control. As this change in stakes and scale occurs, Wells maintains a close narrative link with plant life, building on the momentous ascendancy of the "fantastic exuberance of vegetation" as the story reaches its climax.

Taking place twenty years into the narrative's future, the third Book, titled 'The Altered World', provides the reader a description of the changed ecosystem of Britain through the eyes of a man who has been in incarceration

[29] The fictional placename where the Food is first produced.

[30] Even when, for the sake of advancing the human plot, Wells must tear the reader away from the rampant plant life, he does so while communicating the fact that though off-stage, it will continue to grow and proliferate [quote] "For a time at least the spreading circle of residual consequences about the Experimental Farm must pass out of the focus of our narrative—how for a long time a power of bigness, in fungus and toadstool, in grass and weed, radiated from that charred but not absolutely obliterated centre" (61)

throughout the period of the Food's ascendancy. Boarding a train after leaving the prison, he is given a literal window on the new world from the vantage point of the carriage and it is the changes in the countryside flora that begin to catch his eye:

> It was only as the train rattled them past Folkestone that he could look out beyond his own immediate emotions, […] And then it dawned upon him that there were novel disproportions in the world. "Lord sakes," he cried, sitting up and looking animated for the first time, "but them's mortal great thissles growing out there on the bank by that broom. If so they *be* thissels? Or 'ave I been forgetting?" But they were thistles, and what he took for tall bushes of broom was the new grass, and amidst these things a company of British soldiers – red-coated as ever (Wells *Food* 123)

Again, as with the *Time Machine*, Wells plays with the foibles of human perception. Initially the prisoner is able to see nothing, save his gladness at being free – only after a period of time is able to "look out beyond his […] emotions" and register the new world. It is here that doubts and complications ensue, for when confronted with the new super-sized thistles from the train window, the prisoner cannot be sure if his perception of their size is wrong, or if in fact they have always been this size and it is merely his memory, taxed by twenty years confinement, that is failing him. Even his pronunciation of "thissels", to which Wells's authorial voice soon corrects him: "thistles", is wrong; however, through the visual aid of the bright red British soldiers, who are the one constant in the passage, we are able to deduce the changes that have occurred. With the train picking up speed, we are treated to flashing impressions of the surrounding giant scenery, rushing past "the strange bigness of the wheat and of the weeds", "monster grass" and "ten-foot puff-ball[s]" (124), as well as glimpses of how industry is adjusting to the new crop of giant resources, including an "invincible jungle of weed [that] furnished fuel for gigantic machinery", traversing "roads made of the interwoven fibres of hypertrophied hemp" (125). If such bigness is insurgent, then what remains of the old world is undoubtedly in recession as Wells directs the eye towards the "garden-set stations, and all the little things of the vanished nineteenth century still holding out against Immensity" (124), precariously placed alongside the

expansive hyper-flora. In his evocation of the nineteenth century, Wells frames the passing fields as a temporal landscape in which one can see both past and future existing simultaneously in the plant life, highlighting the relationship between fantastical plant morphology and considerations of time. Echoing Ruskin's call to imaginatively envision the past and future direction of a plant's growth, we see older trees being choked by upstart grasses and the newly created "rhododendron logs" being felled for timber in their place. Equally we see an inversion of Verne's vision of Axel's dream, where time was accelerated to show the growth of plants, in *The Food* you see growth accelerated in plant life to show the foward passing of time from one era to another; both have the effect of using drastic changes in plant morphology to bring forth considerations of radically altered temporalities. In Wells's case, the world he is showing ready to burst through the seams of its predecessor is one where the Food has saturated and the scale of progress, growth and change has been completely outstripped.

Before such a world can be brought about, the novel's agents of change have to contend with the reactionary forces that have grown in resentment at a pace with the Food itself. The impressionistic train ride's flashing glances of the countryside only fills in the broad history of the intervening twenty years of the narrative; it is only when the unnamed ex-prisoner begins talking to fellow passengers that he is brought up to speed on the revolutionary social and macroeconomic consequences in these changes in form:

> now it was coming home to every threshold, and threatening, pressing against and distorting the whole order of life. It blocked this, it overturned that; it changed natural products, and by changing natural products it stopped employments and threw men out of work by the hundred thousands; it swept over boundaries and turned the world of trade into a world of cataclysms: no wonder mankind hated it (Wells, *Food of the Gods* 134).

In a more fully rendered, discordant vision of the previous chapter's speculation of plants providing 'free milk' and 'coal growing on trees', Wells depicts the Food's ability to render in hyper-abundance materials that had previously required the work of thousands of workers as precipitating havoc for

both the labour market and global trade. In effect, this is 'cheap nature' made too cheap, or to turn to the oft-cited eco-critical reading of Marx, there is a perverse kind of metabolic pressure on the forces of capital, but not in the conventional sense, where capitalism's digestive forces break down and commodify too much, but rather as when the appetite for resources is abruptly met with more material than it can possibly consume. For an economy predicated on scarcity, the *over*-production of the hyper-fecund Food-fed nature overwhelms the structures of capital that seek to exploit it and the realities of a new world of botanical Edenic abundance hit "home to every threshold".

These economic shockwaves breed a great deal of discontent among the newly unemployed and as alluded to previously, the kind of antiquated and traditional views espoused in the town of Cheasing Eyebright, have, by the conclusion of the novel, metastasised into a coherent, deeply conservative political force that seeks to extirpate and undo the effects of the Food, led by the politician Jack Caterham – Wells's portrait of the modern rhetorician: "a civilised rhinoceros begotten of the jungle of democratic affairs" (176). It is the prisoner's brother who first informs him of the rise of "Jack the Giant-Killer" (127) and he is soon swept up in the fervour and taken to one of Caterham's political meetings to watch a speech on the subject of the 'Boomfood'. Caterham leads a divisive campaign of fear filled with botanical imagery, with acolytes on the one hand evoking a golden age of pastoral harmony in which "slopes once smiled under the golden harvest, how the hedges, full of sweet little flowers, parted the modest portion of this man from that", in contrast with the "monstrous weeds" (138) of today[31]. Sinister botanical slogans such as "prune the bramble growth" and "grasp the nettle" (135) – conjure a rhetoric of removing a malignant overgrowth from England's garden and Caterham encourages multitudes to get weeding:

> "We have heard, gentlemen," cried Caterham, "of nettles that become giant nettles. At first they are no more than other nettles—little plants

[31] Tellingly, the ideal vegetable landscape evoked here is one served a highly political purpose vested in the interest of property-owning class; namely the hedgerows planted as part of the enclosure of the commons in England in the seventeenth and eighteenth century. Wells thus creates a kind of modern War of the Roses in setting up the two opposing sides as florally symbolized by the reactionary, enclosing hedgerows on one side and the democratic, albeit chaotic, giant plants on the other.

> that a firm hand may grasp and wrench away; but if you leave them—if you leave them, they grow with such a power of poisonous expansion that at last you must needs have axe and rope, you must needs have danger to life and limb, you must needs have toil and distress—men may be killed in their felling, men may be killed in their felling—-[…] Learn about Boomfood from Boomfood itself and—" He paused—"*Grasp your nettle before it is too late!*" (130).

Styled in metaphor, it is nevertheless plain that this call to arms is not just aimed against the rampant growth of weeds, but also the giant 'human nettles' that are likewise so upsetting the balance of daily life. By this point in the narrative, small communes of babies who were exposed to the Food in infancy have grown up around the world, resulting in fifty-foot giants who bear the brunt of the little people's frustrations with life after the Food, for as Wells' narrator ruminates:

> it is easier to hate animate than inanimate things, animals more than plants, and one's fellow-men more completely than any animals, the fear and trouble engendered by giant nettles and six-foot grass blades, awful insects and tiger-like vermin, grew all into one great power of detestation that aimed itself with a simple directness at that scattered band of great human beings (134).

However, while it may be easier to muster hate for a person than a plant, there are certain qualities of plant life that make certain manifestations of hatred, in this case essentially genocide, more palatable: their dehumanising alterity, their lack of sentience and so on. Indeed, Caterham attempts to conflate the giants with the nettles and brambles; they are rampant, out of control and if unchecked will pose an existential threat "the splendid traditions of our race and land" (139). This, it turns out, was something of a trope within certain literary and public discourses at the turn of the century, which the following sections will delve into further depth using texts that were more earnest than Wells's satirical skewering of the proto-fascist figure of Caterham, whose unsettling bluster and rhetoric is readily undermined by the text. Indeed, Wells is able to take Caterham's attempt to dehumanise and disempower the giants by likening them to plants and instead reveal it to be a symbol for the inevitable demise of his political programme; for as has been pointed out, plant

life in *The Food of The Gods* serves a myriad of functions, chief of which is the deliverance of Wells's gospel of the Food: "It was bigness insurgent. In spite of prejudice, in spite of law and regulation, in spite of all that obstinate conservatism that lies at the base of the formal order of mankind, the Food of the Gods, once it had been set going, pursued its subtle and invincible progress" (93).

Even in the crowded meeting house where Caterham holds his triumphant speech, vegetation makes an appearance to remind those who will listen that despite the vehemence of one man's political ardour, it will keep making its own progress:

> Did this man realise that while he stood and talked there, the whole great world was moving, that the invincible tide of growth flowed and flowed, [...] Outside, darkling the whole room, a single leaf of giant Virginian creeper tapped unheeded on the pane (177-178).

The long shadow cast by the creeper as it enfolds the meeting house brings to mind the other run-in a character had with a climbing plant earlier in the text – Mrs. Skinner and the nasturtium. In her case at least she was sensible of her impending fate and made to escape the clutches of the giant verdure. The Virginia creeper gives us to understand that Caterham will suffer a similar fate and this is confirmed by the human giants mere pages later when they deliver their own rabble-rousing speech in which they pledge they "will scatter the Food; we will saturate the world with the Food" (190). It is at this point that the core message behind the novel, which had heretofore been hiding behind vines and grasses, bursts from the undergrowth and is let loose in a final promethean battle cry from the leader of the giants, the son of Professor Redwood, who by this stage has lived up to his arboreal surname and become a true giant among men:

> For greatness is abroad, not only in us, not only in the Food, but in the purpose of all things! It is in the nature of all things; it is part of space and time. To grow and still to grow: from first to last that is Being—that is the law of life. […] We fight not for ourselves but for growth—growth that goes on for ever. […] Till the earth is no more than a footstool (190-193).

The narrative ends before we can witness the inevitable violent clash between the residual small world and the forces of the giants, but the ambitions of the giants being literal world domination being consistently framed as the natural result of the progress of the Food, the impression left at its finale is the impending erasure of the last of the old world.

In a manner not too different from that seen in *The Time Machine*, Wells uses the growth and progression of ecosystems to help envision the collapse of civilisation as we know it, with one of Caterham's supporters voicing the prophetic warning that nature, including "the plant world", "will rise on us, […] tremendous growths will obscure our houses, smother our churches, smash and destroy all the order of our cities, and we shall become no more than a feeble vermin under the heels of a new race" (139-140). However, where *The Time Machine* saw humanity's successors as mounting an increasingly abject and moribund descent to evolution's ultimate end: death, as MacDuffie identifies – the Wells of the twentieth century is more optimistic, seeing instead a world of Nietzschean figures that have uncovered the means of infinite expansion. The difference between the two narratives being that whereas in the universe of *The Time Machine* humans achieve wonders with their mastery of technology and the natural world, these innovations ultimately lead to their enfeeblement and undoing. In *The Food* by contrast, the advancement of plant life and the natural world *en masse* is inseparable from the equal advancement and ascendancy of the human giants, deriving their progress from the same common source, the 'Boomfood', which is itself the actualisation of the "purpose" and "nature of all things". The 'histories' of the natural world and humanity are thus merged through the Food, as expressed in the text by the consistent use of plant life as a representative of either the withering old world with its eighteenth-century gardens and hedgerows, or the rapid and all-consuming growth of the imminent future.

In consideration of this chapter's wider theme of plants and time this brings us to an important distinction between *The Food* and the other texts examined thus far. In Ruskin, Verne, Taylor and Wells's *Time Machine*, speculating on the past or future history of plant growth necessarily involved an erasure of the human in order to watch plant life grow and change over

time periods that far exceed our own. By contrast, growth and change is shared by both humanity and plant life in *The Food*, and indeed the growth of plant life is used as foreshadowing and metaphor for humanity's own growth. To give shape and meaning to this distinction within the cryptobotanical fictions in the period, it is enlightening to consider the similar disciplinary differentiation that exists in scientific engagements with plants, namely botany and horticulture. Botany refers to the theoretical knowledge and understanding of how plant life functions and how species delineate, reproduce and change. Horticulture on the other hand, is the applied practice of selectively altering the traits of given species of plants in order to create new varieties that exhibit desired characteristics. From the professionalization of botany in the eighteenth century there was a concerted effort to delineate 'wild' plant life as the true object of study, as opposed to the cultivated endeavours of florists; from Daston and Galison's *Objectivity*:

> Linnaeus went so far as to brand the plant varieties bred by gardeners and florists as monstrous and therefore unworthy of scientific study: "The species of Botanists come from the All-wise hand of the almighty, the varieties of Florists have proceeded from the Sport of Nature, especially under the auspices of the gardeners" (67-8)

Linnaeus's exclusionary hierarchy enforced a lasting professional, classificatory divide that privileged pristine nature as the only specimens worthy of contemplation. A view that was reflected in the aesthetic criticism of John Ruskin, who also echoed this sentiment of selectively grown plants being beneath contemplation, from the *Poetry of Architecture* (1837):

> A flower-garden is an ugly thing, even when best managed: it is 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; torn from the soil which they loved […] to glare away their term of tormented life among the mixed and incongruous essences of each other […] The florist may delight in this: the true lover of flowers never will (Ruskin *Poetry* 493)

Ruskin and his disciples continued to refer to the produce of horticulturalists as 'mongrels', 'curs' and 'monsters' throughout the Victorian period, using

language of purity to construct a binary opposition between the aesthetics of a "true", natural, beautiful flora and the corrupted, modified and ugly vegetation of the horticulturalist – a judgment in taste that continues to have lasting influence.

It is noteworthy to dwell on this differentiation between natural and man-made flora as it corresponds once again with the binary of objective and subjective views of plant life that began this chapter. 'Botany' in its purest sense is the study of plants in a state of abstraction, focusing only on the plant as it occurs in a natural setting. In contrast, horticulture by definition is the modification, cultivation and culturing of plants, which frequently involves their manual transplantation and cross-pollination. It follows then that any speculations on plant life that adopt a horticultural stand-point would necessarily include considerations of culture; so where the botanical imagination may open up temporalities in which humans are erased or greatly diminished, the horticultural imagination brings forth images of a past, present or future where plant and human subjects are intimately bound together – each influencing and sustaining the other – often in an ascendant path of progress, as with *The Food of The Gods*. A practical example of these discursive niceties is best articulated by Shirley Hibberd, perhaps the most famous writer on gardens in the nineteenth century, during an 1890 address to the Royal Horticultural Society in which he had been asked to speculate on the future progress of innovation in the breeding of chrysanthemums:

> It appears that the subject I am appointed to discourse upon is partly historical and partly biological, for the progress seen in the development of the chrysanthemum corresponds with the progress of taste in selection, and illustrates the capabilities of the flower to respond to the demands of taste operating through time, with definite ends in view (Hibberd 137)

While the subject of Hibberd's talk is rather specific, the self-conscious placement of his subject between biology and history is profound. When imagining plant life from a horticultural standpoint, it is common to conflate biology and history, as well as person and plant, as shown by Hibberd's mutually reinforcing "progress of taste". Whilst the plant increases in beauty, the tastes of the breeders become more refined and elevated, which in turn

causes the “flower to respond” with yet higher degrees of aesthetic perfection, and so on, in a continually edifying cycle. In a framework such as this, the plant subject allows for protracted imaginings of how both biology and history can progress through time “with definite ends in view”. Of course, in the context of Hibberd’s paper, those “ends” are simply more beautiful chrysanthemums, however other writers of the period employed the same imaginative means to arrive at far more ambitious ends that lay beyond the closed world of the greenhouse.

Chapter 4 – The Grass Can Always be Greener: Discourses of Improvement in Cryptobotany

"By grasping the ways of nature man can plan the end from the beginning." – David Starr Jordan (Burbank, *How Plants are Trained,* 28)

Fig 4.1: 'They Improve the Chrysanthemum' from 'Nature's Next Moves: The Writing Tree', *Pearson's Magazine,* vol. 3, no. 3, March 1900, pp. 282.

Building on the last chapter's insight of the role plant life played in speculations with time, this chapter will examine the efforts of novelists, plant breeders and popular science writers who sought more than to simply imagine the plants of the future, but to control and manipulate them to pre-determined ends, using breakthroughs in horticulture to enact control of evolutionary and biological destiny of plants, animals and even people. To do so, in addition to British sources, it will draw heavily on writers operating during the 'Progressive Era' of American history (1890-1920), as it was in America that many of the most ambitious projects of plant culture took place, owing to the fact noted by the historian Richard Hofstadter in his classical study *Social Darwinism in American Thought 1860-1915* (1944):

> American intellectuals were less encumbered than their old world counterparts by the agonies of history and were more enthusiastic and willing to apply the latest discoveries in social and biological theory to enact change rapidly (7)

Indeed, in America during the period, the exciting possibilities for an imminent future informed by developments in horticulture yielded a number of fantastical stories as well as earnest entreaties about the wonders that were being achieved with the managed heredity of plant life, as well as the exciting developments that waited just around the corner. Beginning with an account of the crude scientific understanding that formed the basis for imagining the future of horticulture, the chapter will then turn to examples of the kinds of speculative narratives they inspired, centring around the prose work *The Training of the Human Plant* (1906) by Luther Burbank and Charlotte Perkins Gilman's *Herland* (1915). Though crossing multiple genres and forms, the texts seen here are united by their shared belief in an enriched new way of life, made possible through knowledge secured from the selective breeding of plants. By paying particular attention to the cryptobotanical elements of these works and the future worlds they created, a case will be made that plant life played a unique role in sustaining and promoting a fantasy in which humans and plants alike could be subjected to indefinite improvement through the methods of horticulture, creating a utopic vision of a future that obscured a disquieting ideology of heredity.

Plants, Heredity and Horticulture

At the end of the nineteenth century a series of discoveries lead to the birth of the science of genetics, with the period of 'classical genetics' often being described as beginning in 1900 (Carlson 1). The breakthrough that laid the groundwork for this new science of genetics was the 'rediscovery' of a number of experiments by the Austrian botanist Gregor Mendel (1822-1884) made twenty years prior about the nature of genetic inheritance in plants. Of the individuals who wrote of Mendel's work, perhaps the most influential was the Dutch botanist Hugo de Vries (1848-1935), who introduced a new theory of mutation that solved one of the issues presented by Darwin's theory of natural selection[32], namely: by what mechanism do new characteristics emerge? De Vries' theory of mutation, developed on a close study of evening primroses, showed that through careful incremental alteration of a species through successive generations, it is possible for a drastic leap forward to take

[32] In promotional copy for de Vries' book, *Species and varieties, their origin by mutation* (1905), was described as being 'the final word on Darwin's theory'.

place through the freak occurrence of an abrupt mutation that advances a species development in a sudden start.

Such cases may seem rather specialised, but the impact of studies with plant life on the formation of classical genetics at the very start of the twentieth century amounted to no less than a paradigmatic shift in the wider understanding of organic nature at the time, as expounded by the geneticist and historian of science Elof Axel Carlson in his study *Mendel's Legacy: The Origin of Classical Genetics*. For instance, "agriculture was transformed" by the revelations of classical genetics, unlocking methods of food production "that would have been considered impossible in Malthus' day" (Carlson 2). But perhaps the most significant quality of this new science was that it was, in the words of Carlson, "supremely reductionistic" (2). By demystifying the processes of biological difference and evolutionary change, breaking them down into material building blocks, genetics was able to place biology within the reach of engineering. As de Vries explained it "We want to share in the work of evolution, since we partake of the fruit [...] we want even to shape the work, in order to get still better fruits" (de Vries, qtd in Curry 17). The understanding of biological processes meant that it was time to wrest control of evolution from natural pressures; in short, it was *our* business now.

As the work of de Vries and others shone a light on the mechanics of heredity and knowledge of evolutionary ecology grew, there was in certain circles a growing sense of dissatisfaction with the means by which natural selection appeared to operate. First amongst these advocates for a reappraisal of natural selection was the American sociologist Lester Frank Ward, who like Mendel and de Vries, was also a trained plant scientist and wrote a number of texts that advocated rational intervention in systems to better serve the demands of economy. Like the entropy revealed in MacDuffie's reading of *The Time Machine*, Ward saw the natural world as possessing a stock of evolutionary energy and material resources, which it used up in the over-production of new species. This "redundant fertility of the organic world" (*Psychic* 246) manifested in two ways: first was the vast quantity of energy expended in securing the next generation of species through elaborate over-production of gametes and off-spring, the vast majority of which immediately perish or fail to be fertilised. Ward provides the example

of “A large chestnut tree in June”, which “probably contains as much as a ton of pollen. Considering the size of a pollen-grain the number on such a tree would be next to inconceivable” (Ward *Psychic* 247). The “inconceivable” wasted biomass, when a single grain of pollen could serve the purposes of reproduction under proper circumstances, represents a shockingly careless squandering of natural capital to secure the most meagre results.

Secondly, the vast bio-diversity that naturally follows an ecology that is so indiscriminately saturated with the means for reproduction was similarly judged to be a failure in terms of efficiency. Inviting the reader to speculate on the “great law of prodigality” (250) that dominated evolutionary economics, Ward opens gaping rhetorical voids in taxonomies into which pour all of the abortive or wasted varieties of animals and plants conceived under the chaos of natural selection:

> Every one is familiar with the wonderful variety in the actual forms of vegetable and animal life. But these, innumerable as they are, only represent nature’s successes. Intermediate between them there must be imagined an infinite number of failures – conceivable forms in the production of which the organic energy has expended itself in vain, and which really represent a much greater expenditure than that which has been required to create all that exists (251)

Each of these failed lives signified a poor investment of nature’s energies and is representative of what Ward regards as the extreme excess of organic processes. The language of quantitative, even financial, expense seeks to appeal to human reason and show the inefficiencies of “enormous waste” and overproduction incumbent on natural selection. The appeal was, now human reason has advanced to the stage that the flaws in these natural operations can be detected, it is incumbent on us to reorganise both organic and man-made systems to maximise efficiency and better meet the demands of economy.

Between this awareness of the apparent shortcomings of natural selection and figures like de Vries who seemed to have uncovered the means by which these systems could be manipulated and changed, a wave of enthusiasm prevailed regarding the genetic collective future of plants, animals and even people. The arena that was perhaps best poised to sustain the

promise of the ‘possibilities of prediction and control’ was that of horticulture, due in part to the docility of plant life enabling it to be experimented on at whim. As Helen Anne Curry notes in her study *Evolution Made to Order: Plant Breeding and Technological Innovation in Twentieth-Century America* (2016), genetic manipulation in plants became “an aspiration and active pursuit shared among agriculturalists, horticulturalists, and many other[s]” in the early 1900s, thanks to the emergent belief “that living things could be reshaped to human imagination provided only that the appropriate technologies were developed and perfected” (12). From the perspective of this thesis it should also be appended that it was necessary for the appropriate ‘imagination’ to be developed and perfected also, and many writers set about this task of envisioning utopian plants through literary imaginaries. As previous chapters have attested, common themes included “shared visions of a future of agricultural abundance” as well as the imagined potential for plants in other industries, and as shown by Curry, this perceived potential “spurred efforts to test, trial and perfect these innovations” (Curry 12), both in the real, practical experiments of agro-science and in the imaginative arena of fiction. What all of these varying cryptobotanical texts shared was a belief in the power of human ingenuity to remake plants for the better.

Before unpacking these texts, a further word must be said by way of explanation, or indeed defence, of the moniker of fiction being applied to the works that are to follow. Unlike other cases of literary analysis in this thesis, what we see here are not clear-cut works of fiction like short-stories or novels Rather they are works of prose that deliberately invoke the imaginative faculty to evoke new forms and possibilities of plant life. They are here classed as works of cryptobotanical fiction, not just because of their fanciful elements, but because they take part in the same kind of imaginative work that was happening in works of self-identified speculative fiction within the period. As touched on in my prior analysis of ‘advertising fictions’, by adopting this more inclusive conception of fiction it is possible to build a fuller picture of the changing ways people thought about plants and turn the techniques of literary analysis to new and greater effect on these marginalised works, judged too fanciful for the historian of science, but too prosaic for the scholar of literature.

The plants of Tomorrow, Today!

An especially illustrative example that captures the popularisation of the idea of the manipulation of biological destiny is the 'Nature's Next Moves' series, serialised in *Pearson's Magazine* over five months in 1900. The articles function as a satirical iteration of the kind of speculative thinking Wells and others engaged in with their consideration of the evolutionary landscape of far off times, with each installment providing a contribution from a representative from different niches of the study of biology, who offer their opinion on what new evolutionary developments can be anticipated in the future, and how they may benefit society at large. Article number three contains a forecast of 'the plant that is yet to be', as provided by "Archibald Mosley Damstruther […] a crank with a cork leg and a crowd of ideas for improving Nature", who makes his case for the advent of "The Writing Tree" (*Pearson's* 281). It must be noted that to apply a sincere analysis to the claims of such an article, which is purposefully absurd in its demands and predictions of evolutionary science, may seem to miss the point of the clearly satirical angle. However, by treating the text as a work of cryptobotany it is possible to appreciate both the notoriety of new and exciting methods of horticulture and how their imaginative potential manifested in works of fancy; offering an insight into what an imagined flora of the near-future could conceivably look like.

The article begins in the same manner as the rest of the series, with the author lamenting an inconvenience of modern life. In the case of Damstruther, it is the various frustrations of letter writing and its assorted paraphernalia: 'writing ink, nibs, pen-holders, note paper, envelopes, blotting paper, copy paper, red ink, stamps'; all of which are liable to run out or break at the least opportune moment so that "there is hardly one day in the year on which the ordinary man does not find some deficiency in his writing apparatus, and regrets it bitterly" (282). In answer to this, finite, inefficient and overly complicated situation of modern communication, the author turns to the natural world, more specifically the vegetable kingdom, to find an organic, convenient and sustainable supply of stationery:

> It has long been obvious to me [...] that Nature has already foreseen that the want of a writing-tree would, as a civilisation advanced, be felt, and has even made some tentative, experimental moves in that direction herself. Are not many plants provided with spikes, which need

> but little further adaptation to become passable quill pens? The seed vessels of many plants are Nature's first attempt at providing an ink-stand. The gum that exudes from the bark of certain trees shows clearly enough that here is the beginning of an envelope (283)

The list goes on. With each plant, Damstruther demonstrates that within the infinite variety of nature, there are already all of the constituent parts of creating a single plant that could grow all of the necessary materials for letter writing. He even pens a plea directly from Nature herself, asking humanity to take the parts in hand and assemble the tree through the gardener's art of selective breeding and grafting "as you have improved and combined in other cases" (283). However, Damstruther notes that there is a lamentable misallocation of resources when it comes to horticulture, where experts are wont to squander their talents on hollow and useless pursuits:

> They fool away their energy in making primroses grow bigger. They would like black tulips and blue roses. So far their work is merely aesthetic and useless. When they improve our table vegetables they are doing better, but even then they are missing their grand opportunity. Their grand opportunity lies in the discovery and creation (in collaboration with Nature) of the writing-tree (283).

Like Ward, he adopts the logic and language of conservative political economy, seeing the passions of flower-fanciers as "fooling away their time" and does not mince words about his distaste of their creation of "useless" varieties, representing a waste of human effort and organic material, expressed simply as "energy" (283), in something of a throwback to the discourses seen in chapter one.

In order for the manipulation of plants to be performed correctly within such a paradigm, they must be in accordance with the requirements of society, and Damstruther promptly issues his wish-list for the would-be writing-tree. Made up of several distinct species, the main body of the plant would resemble "something along of the same lines as the palm" with quill pines, "paper pods [...] like big bunches of bananas" and gourds filled with a variety of inks (283). These expertly collated plants are then to be planted beside every post-box, where they could service the wants of passers-by, providing them with a convenient, natural and ever-lasting supply of stationery – again

recalling the fantasies of Edenic abundance discussed previously. Having outlined his design and ambitions for his tree, Damstruther's article resounds with an impatience and desire for immediate gratification:

> Nature provided for the savage. It gave him the bread-tree [...] Civilisation still waits for her next step. Civilisation must have the thing it wants at the moment it wants it. It is for that reason that on the station platform at three o'clock in the morning it is possible to obtain a packet of pineapple jujubes and scent one's handkerchief with real lavender water [...] our clumsy and mechanical efforts need to be seconded by Nature. And if the horticulturalist will only take her hints and give her assistance, the writing tree will shortly be ours (284).

Damstruther lists the achievements of modern innovation in circumventing the natural scarcity and particularity of organic materials. The once exotic and extremely expensive commodity of pineapple can be got at a railway station for a matter of pennies, while the seasonal and ephemeral scent of lavender can be secured year-round through vast plantations and being steeped in glycerine. Even the most elusive botanical agents can be made to conform to the whims of modernity and brought into the service of capital, and by establishing the primacy of "the thing it wants", market forces are able to bring together the most unlikely natural commodities. The expected imminence with which these products could be obtained is also of significance, given the temporal considerations of the previous chapter. Like *The Food of the Gods*, Damstruther maintains it is the role of the cryptobotanical imagination to distort and accelerate natural processes of selection to meet modern needs, while producing plant products that themselves seem to shrink distances and time in the service of convenience. In this way horticulture is revealed to be a fundamental part of the civilising project of modernity, where raw innovation can be "seconded by Nature" to produce novel and gratifying botanical specimens.

If wondering readers were left in anticipation of 'Nature's next moves', there was no shortage of individuals who were trying to bring these imagined plants out of the realms of absurd fancy and into material existence. Following the re-discovery of Mendel's theories of heredity mentioned above there was a rapid proliferation of horticulturalists and plant breeders, each experimenting

with different methods to churn out new and improved varieties of fruit, vegetables and flowers. Searching through period seed catalogues yields a vast array of ‘nurserymen’, cultivating new plants for market. Some of the more successful individuals even attracted a degree of notoriety and celebrity and were often profiled in articles such as ‘The Marvels of Fruit Breeding’ (1903), also from *Pearson’s Magazine*. The article serves as an overview of the popular methods and produce of fruit breeding at the very start of the twentieth century, focusing on one orchard in Sawbridgeworth, Hertfordshire owned by the Rivers family, one of the many regional fruit producers of England. The article opens on the peaceful “Old-World streets” of the town of Sawbridgeworth, evocative of Wells’s Cheasing Eyebright with its deliberate depiction of archaic scenes and ‘small-town’ trappings: “one might pass through the village on automobile or bicycle and see nothing wonderful about it” (446). However, like Cheasing Eyebright, the small town of Sawbridgeworth conceals an unlikely wellspring of growth that uses the most cutting-edge science for the benefit of all:

> Take a few steps in the right direction away from the village, and one comes to a place that has done more for the improvement of English fruit than can be easily described or imagined [...] above all, it is here where the most extensive experiments ever known for the improvement of fruits have been made (446)

In the manner of Professor Redwood from *The Food of the Gods*, “these experiments have increased the size of the peach from a circumference of six inches to a circumference of nine inches” (447), with the Pearson’s report seeming to act as a bridge connecting the dizzying fantasy of Wells’s giant veg with the real-world innovations of horticulture.

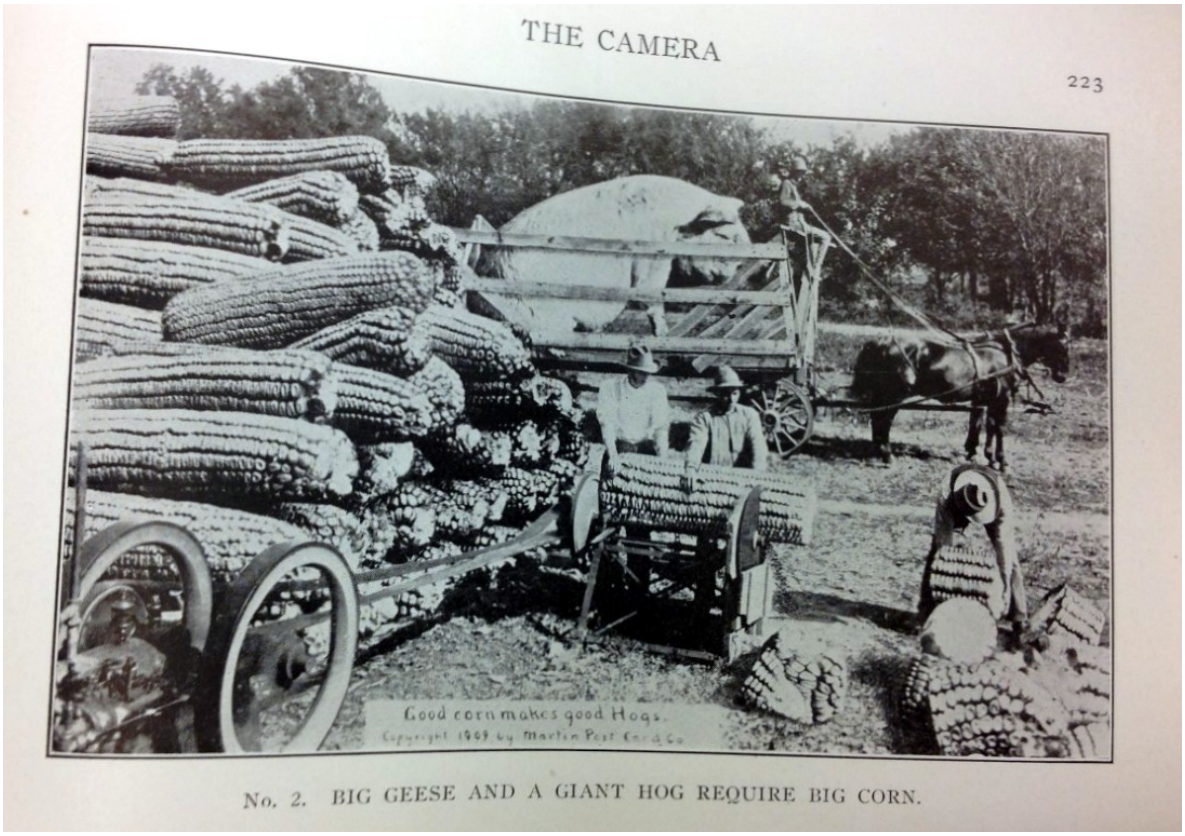


Fig 4.2: An example of William H Martin's Tall Tales Postcards, taken from *Larger than Life: The American Tall-Tale Postcard 1905-1915* by Rubin et al.

Indeed, by looking at the various ways work with plant breeding was styled and presented, it becomes easy to see how the process of horticulture could be seen as the actualisation of the fantastical kind of cryptobotanical fictions that have appeared elsewhere in this thesis. Many other journals of the early 1900s ran articles or deployed the latest techniques of photo-manipulation to present titillating accounts of the kind of yields that lay around the corner for growers of tomorrow – such as seen in the above image from a spread in *The Guide to Nature*, an American natural history periodical from 1910. The article features the work of the famous Kansas-based 'hoax' photographer William H. Martin, who became notorious for his 'tall tale postcards' in the early 1900s. Martin used the technique of photomontage to create agricultural scenes featuring livestock and vegetation that had been cultivated to extreme sizes, reproducing them as postcards that were sold throughout the mid-west. While largely regarded as 'joke' cards, the images proved especially popular during times of famine, pestilence, or other forms of

agricultural depression[33], when food was scarce and the notion of hugely inflated crops was particularly appealing – the visual medium granting the viewer a tantalising glimpse into a world of agrarian abundance. As with the projected future of 'The Writing Tree', these were whimsical fantasies that nonetheless hinged on the expanding possibilities of horticulture. Though parodic, they betrayed a faith in the power of plant breeding and "improvement" to create a physical manifestation of the kinds of cryptobotanical specimens that populated the imagination of the period and turn them into a bountiful reality. As one contemporary commentator, described the work of the nurseryman: "[t]his work makes for progress" (Shinn 3).

With expanding genetic horizons rapidly opening up before a reading public, it was natural, as Richard Mabey noted in *The Cabaret of Plants*, for some to grow accustomed to the extraordinary in plant life and, like Archibald Damstruther, to begin to expect the impossible in plant cultivation. This fact is addressed in 'The Marvels of Fruit Breeding' as the author questions his readers: "Why not carry [it] further?":

> Looking into these experiments in fruit improvement one is struck by the idea – Why not carry them further? Why not cross two fruits of absolutely different nature, and procure an entirely new fruit, unlike anything ever known? Why not an orange crossed with a cherry, an apple with a pear? (*Marvels* 451)

The combinations, and possibilities for growth and variety seem limitless, however practical constraints do impose limits on the English orchard; unfortunately, the author notes, such combinations are beyond the reach of the ordinary grower, for it is incredibly difficult to successfully cross two plants that are not of the same near-species. However this does not shut off the possibility of these more fantastical hybrids, for there were others who indeed could work wonders with plants. While the "Old-World" orchards can and did produce fine fruits, for truly remarkable botanical miracles, one must cross to the wide-open spaces and Edenic climate of the New World: "For more sensational experiments one must come to the United States. No man living

[33] See entry 'Exaggerated Postcards' from the *Kansas Historical Society*: https://www.kshs.org/kansapedia/exaggerated-postcards/10137

has made more attempts to grow entirely new fruits than Mr. Luther Burbank, of Santa Rosa, California" (451).

'The Wizard of the Garden': Luther Burbank

Burbank (1849-1926) was *the* celebrity plant breeder of his age, an accolade that readers today may struggle to conceive. From childhood he had taken an interest in plant breeding, producing his own variety of potato at the age of 22 and going on to produce numerous varieties of plums, raspberries, cacti, apples and nectarines, to name but a few. By the 1890s he was well known even in England, but in America he had achieved great notoriety, frequently being compared with the inventive genius of Thomas Edison and Henry Ford[34] for his harnessing of new technologies for the improvement of humanity; except rather than industrial innovation, Burbank's specialty was techniques of plant manipulation. Indeed, such comparisons were often fostered by Burbank himself, who frequently wrote how the work of the plant breeder could be seen as equal to that of the engineer in terms of skilfulness, utility and originality, whereby "new varieties having endowments of priceless value, and even distinct new fixed botanical species can be produced by the plant breeder, often with almost the same precision that machinery for locomotion and other useful purposes are produced by the mechanic" (Burbank *How Plants* 41). The rationale behind such comparisons was to propagate the notion that the plants that left Burbank's nursery were not mere products of nature, but as much an engineered work of art as a light bulb or Model T Ford, an idea that was of increasing importance to Burbank, as he tried to both cement his reputation as a man of science, and achieve the unprecedented feat of having his varieties of seed patented[35].

By the turn of the century, the notoriety of Burbank's work was such that he was often described as a plant 'wizard' for his ability to magic up new varieties, and a 1901 article titled 'The Wizard in the Garden' from the Californian magazine *The Land of Sunshine* had the following to say about his supernatural gifts:

[34] Both of which were regular correspondents of Burbank's.
[35] See: *Orange Empire* by Doug Sackman (2007) and *First the Seed: The Political Economy of Plant Biotechnology* (1990) for further discussion on the process of patenting seed varieties in the early 1900's.

> As the world's empty spaces fill and its unknown areas are mapped out, there rise explorers as great as Columbus and Livingstone, who lead the human race to continents not bounded by oceans nor bent to the circle of the zodiac. What if one of these continents, new risen against the horizon, were named by us "intensive horticulture," whose gifts when rightly understood shall in due season release brain-tired men from gray city pavements, sending each one to his own well-watered, fruit-giving, life-supplying acre? (Shinn 3)

In this short introduction we get a glimpse at an especially galvanising fantasy behind popular interest in plant breeding, and it is one of seeming paradox: using modern technical skill and know-how to "release" the individual from the condition of urbanised modernity into a paradisiacal utopian scene. The language once again explicitly invokes the closing of frontiers as identified by Rosalind Williams, with the relocation of uncapitalised space from the geographical to the biological. With its potential for untold improvement, the genetic make up of plants and the ensuing 'new continent of intensive horticulture' promises a new colonising space of Edenic, pastoral liberation and natural abundance for all. The fantasy presents a seductive plant-based antidote to urban entropy, with a divided acreage and a flora that is 'life-giving', affording nutrition, health, beauty and purpose, it simply falls to Burbank, the vegetable 'wizard'-Columbus, to guide modernity across this new horizon. This was the promise that lay just beyond reach at the cryptobotanical horticultural frontier.

As suggested by the styling of the new horizon of horticulture as a 'new continent', much of this fantasy of horticulture was presented as an adventure of conquest and control, granting new plant varieties the same significance as imperial prizes such as land and power. This is a fact that has not been lost in critical re-appraisals of nineteenth-century attitudes towards plant life, where a focus has been placed on the imperialistic overtones of horticulture. Lynn Voskuil identifies the frontier of plant breeding as a territory that was being annexed through "cultivation serv[ing] only to confirm the Victorian impulse to colonize the world – including the botanic world that had expanded so rapidly and exponentially in the nineteenth century" (Voskuil 34). Returning to Burbank specifically, Douglas Sackman in his study of progressive-era

California notes how “his improved plants vivified the imagination of fruit growers dreaming of empire”, as he was able to demonstrate a mastery over each new specimen, shaping each plant into a “new ideal” (61), and it was this perceived level of control that so ignited the imaginations of his peers. This desire for dominion over plants was not unique to Burbank or even the late nineteenth century. However, what did differentiate Burbank from other plant nurserymen, and what makes him a candidate for discussions of cryptobotany, was the explicitly temporal aspects to his horticultural practice - his envisioning of the ‘plants that are yet to be’. As Sackman notes:

> The geneticist’s plants lived in space, and their character was thought to be keyed mechanically by the structure of their genes. By contrast, Burbank’s plants lived in history. In planning a new plant, Burbank used his imagination to “look back far into the past and inquire as to the racial history of [a] fruit” (58)

Much of the literature published by and about Burbank during his lifetime made a point of emphasising this visionary ability to “see new varieties of future plants when he looks at old varieties” (Burbank *Harvest* 39); a process akin to the trans-temporal cryptobotanical vision advanced by Ruskin and others in the previous chapter, though with a very particular set of aims. Whereas Ruskin, Verne and Wells adopted a more passive approach, imaginatively spectating the past and future of plant life with an exploratory intent of mapping the unseen – Burbank’s mission as a horticulturalist was to envision and then seize the direction of a plants’ individual and species-wide history and redirect it along lines he himself deemed correct. Of course, plants had always been able to be manipulated physically, through grafting, pruning and manual selection, but the ability to pull apart a species’ history was the kind of control that breakthroughs in theories of heredity enabled, and what lent horticulture the kind of totalizing imperial overtones noted by Sackman and Voskuil.

The cryptobotanical colonizing of plant heredities was articulated by Burbank in language reminiscent of narratives of imperial conquest, whereby the current inhabitants of a contested land were deemed to be ignorant of the kinds of prosperity that could be generated by the regimes of the colonizer and

therefore must be displaced; for instance, an extract from one of his seed catalogues of 1898 reads:

> Untamed Nature thinks only of the perpetuation of its species. The wild plants of field and forest luxuriating in the warming rays of the summer sun, extract from the soil the nourishment and vitality essential for the completion of their little round of life; and then having passed through their short cycle of existence, from the bursting bud to the ripened fruit, they droop and die...The pattern of nature is spread out with glorious possibilities, but the individual efforts of the plants to raise themselves above their kind are abortive...Improvement and progressive development begin with man (*New Creations in Fruits and Flowers* 13)

Echoing Ward, “untamed” plant life is shown to be squandering the productive resources made possible by its capturing of the sun’s rays – they are “luxuriating” in the summer sun, rather than ‘saving’ or ‘storing’ it for human use, as imagined previously. As if idleness were not bad enough, Burbank also shows the inefficiencies endemic in the struggle for existence, as any plants that did happen to possess potential to improve or ennoble their species are soon crushed beneath the yoke of nature. “The mere struggle for a precarious existence” monopolises all its “strength and powers” while the “arbitrary laws of nature” starve the plant of “the opportunity to cultivate the beauties and refinements of a new life” (*New Creations* 13). The intervention in plant life is mandated by the highlighting of wasted potential, painted in even starker colours by the personification of vegetables, possessed of “individual effort”, desirous of a new life and wanting in “opportunity” to better serve human wants and needs. The corrective influence of the horticulturalist clears a path for them to realise their full potential and tease out the as-yet-unseen “glorious possibilities” that lie locked away in the plant’s genes. The utility that Burbank saw in these plants became an increasing fixation for him, and while other writers might have been content with the application of horticultural metaphor or imagined fanciful solutions, Burbank was adamant that a literal application of his principles of plant heredity could produce vegetables that had the power to remedy the social, even existential crises of the day.

Spurred on by commercial success as well as the wider recognition of his achievements from scientific authorities, media commentators and even

the foundation of a Luther Burbank Society in 1912, Burbank felt sufficiently buoyed to move beyond his small catalogues of the 1890s and begin to propagate his worldview through the publishing of a number of fully-fledged books[36]. Ostensibly these books were labelled as practical guides for the amateur horticulturalist or pages of biography, but invariably they contained numerous asides and references in which Burbank was free to imaginatively pursue issues far beyond the walls of the garden, including his pet subject of the future utility of plant breeding for human development. For instance, in a prefatory note to the collection *How Plants are Trained to Work for Man* (1921), Burbank demonstrated an acute understanding of plants as historical objects and the transformative effects of cultivation:

> Nature [...] has time without limit, but man has immediate need for better and still better food, houses and clothing, and our present state of civilisation depends largely upon the improvement of plants and animals which have been [...] made by man, and future civilisation must more and more depend upon scientific efforts to this end (Burbank, *How Plants* 27).
>
> [What is more] All these slow processes of nature can be accelerated almost indefinitely through a sympathetic knowledge of plant life in general, and the wise application of this knowledge to the attainment of the special results desired (Burbank, *How Plants* 26).

Again, we see the same tropes that are familiar to imaginings of future plant life: time, efficiency and the obligation for the re-organising of the natural world along the lines of expedited material progress. Burbank's urgency appears to paraphrase Damstruther's decree from *Pearson's:* "Civilisation must have the thing it wants, at the moment it wants it", and Plant breeding in his words becomes a means of truncating time and bringing forward the schedule of material progress. To express the imminence and logical necessity of these improvements, Burbank frequently provided figures of what could be expected

[36] A number of these works were published in the years leading up to and immediately after Burbank's death in 1926, ostensibly placing them in outside of the historical range of this study, however being born in 1849, Burbank is near-indisputably a product of nineteenth century thought, and much of the work published at the end of his life in the 20's echoes much of his earlier material. Though it is needless to say there had been an inestimable change in wider social contexts and scientific developments following the First World War, Burbank's methodology and ideology remain largely the same as they were at the very start of the twentieth century.

of even the most modest augmentation of agrarian production. For instance, the selective breeding of a strain of corn that produced just one grain more to each head would generate an additional much-needed “6,000,000 extra bushels of corn” (Burbank *How Plants* 43) to feed an expanding population and economy and hasten the march of progress towards a world of perfect abundance.

Mary Bowden identifies this same belief in an imminent horticultural revolution in Wells’s *The Time Machine*, with the Traveller remarking on the progress of horticulture “by selective breeding; now a new and better peach, now a seedless grape, now a sweeter and larger flower”. However, any progress being made is at a humble pace, “We improve them gradually, because our ideals are vague and tentative, and our knowledge is very limited; because Nature, too, is shy and slow in our clumsy hands”. This perceived “inadequacy” (612), Bowden notes, will be done away with as horticultural methods improve, the Traveller ruminates:

> Some day all this will be better organised, and still better. That is the drift of the current in spite of the eddies. The whole world will be intelligent, educated, and co-operating; things will move faster and faster towards the subjugation of Nature. In the end, wisely and carefully we shall readjust the balance of animal and vegetable life to suit our human needs (Wells, *Time Machine* 31)

Of course it is worth noting that this initial burst of positivity from the Traveller is followed by Wells’s own pessimistic anticipation of what this total mastery over nature will mean for the human race – the atrophy of the Eloi. However, Burbank eschews concerns of the removal of environmental factors of competition by having the same improving methods that perfect his potatoes and peaches turn to work on people too. By including people alongside plants as subjects of cryptobotanical cultivation, both can be improved indefinitely without one outstripping the other.

These intersecting issues of time, plants and mutual cultivation have been the subjects of recent extended critical enquiry. Elizabeth Chang in *Novel Cultivations*, shows how readers of nineteenth century fiction can “think more carefully about cultivation’s bounds of time and space” (6-7),

interrogating the word and act of cultivation and unpicking the various ontological and literary alterations it implies:

> [E]ach of these alterations are also significant in that they occur at a pace that is held to be artificial and conscious rather than natural and innate. To cultivate, then, is to call attention to an intervention that reorders representative relationships, between part and whole, specimen and collective, but also reconfigures temporally causal relations, between beginning and end, seed and plant (Chang *Cultivations* 7).

When Burbank and others call for a new form of plant life to enact change, an imaginative cultivation of plants takes place – a cryptobotanical "reordering" of natural configurations. What is so fascinating about Chang's attentiveness to the phrase is not only her unpicking of the chronological dimension, but also the extent to which cultivation never happens in isolation – that is, it directly affects "relationships". The examples provided are comprehensive and open up the scope of her investigation – but for the interests of the current chapter the one I wish to consider foremost is the "prompting of human cultivation" (7). As suggested above, Burbank frequently advocated a holistic reordering of heredity that cultivated, animals, vegetables and people; the result of which would make the raised production figures cited above appear a mere prelude of what humanity could expect if we fully interpolate the lessons being taught to us by the revelations of horticulture:

> notwithstanding the occasional sneers of the ignorant, these silent forces embodied in plant life have yet a part to play in the regeneration of the race which by comparison will dwarf into insignificance the services which steam and electricity have so far given[37] (Burbank *How Plants* 43).

In order to unlock this revolutionary evolutionary energy, more transformative than the effects of steam and electricity, Burbank began to set forth a regimen of universal horticulture that could improve *all* life - a fascination that would persist for the rest of his life.

The Training of the Human Plant

[37] In the process placing himself as more worthy of praise than other contemporary like Thomas Edison to whom he was frequently compared.

Horticulture and eugenics have a long shared history and Burbank was far from the first to draw edifying comparisons between the two. Grant Allen, for instance, in *The Story of Plants* (1895) wrote that “the study of plants” serves as an ideal “first introduction to the great modern principles of heredity” (5) and held great promise for bearings on human progress. However, Burbank took these notions further in 1906, when he published a kind of treatise-cum-manifesto on heredity and racial improvement called *The Training of the Human Plant*. Initially appearing as a magazine article, the piece generated such interest both in America and abroad that it was speedily published as a book in 1907 (Pandora 506). Burbank prefaces the book with his wealth of experience in bringing out the best qualities in plants, and how these very same techniques can be used to modify human characteristics toward a greater degree of perfection as one might do a raspberry or primrose, proposing “the adaptation of the principles of plant culture and improvement in a more or less modified form to the human being” (Burbank 4-5).

His advice of how to achieve this varied from the rather wholesome and innocuous ideals of allowing children to play outdoors and spend time in nature, to the more alarming regimentation of reproduction, specifically pairing off couples based on their genetic qualities and “removing” what he saw as undesirable or degenerate qualities. Burbank justified these extreme measures by referring to the results he had been able to reap through his work with plants:

> I have come to find in the crossing of species and in selection, wisely directed, a great and powerful instrument for the transformation of the vegetable kingdom along lines that lead constantly upward (Burbank, *Training* 4).

There is here something of a reiteration of the lines moving upward as sketched by Wells’ Professor Redwood in *The Food of the Gods*, published just two years before Burbank’s book. Both texts articulate in no uncertain terms the possibility and desirability of progress that is not just linear, but vertical – reaching ever-higher degrees of material abundance and perfection. Burbank even dedicates a chapter to this, titled simply: ‘Growth’, speaking to a contemporary obsession at the turn of the century to not just maintain the kinds of progress seen in the previous century, but to transcend it with the

creation of “the finest race ever known” (*Training* 11). As noted in previous chapters, the productivist energy and vitality that were associated with plants were essential in the conception of such an unceasingly upward trajectory, but modern varieties also served as blueprints of how one could guide and manipulate a species to imagined ideals of perfection.

What is being advocated in *The Training*, though never in name, is the science of eugenics. The theme is recurrent in Burbank’s work and eight years later in *Luther Burbank his Ideas and their Practical Application* the reader is treated to this paragraph from a chapter titled: ‘The Bearing of His Work on Human Life’:

> The new science of Eugenics, named after Sir Francis Galton, has received an amount of attention in very recent years that it could not possibly have hoped to receive [...] even twenty years ago. And it cannot well be doubted that the demonstrations as to the possibility of improving the races of valued plants by selective breeding made at Santa Rosa [...] had their share in calling public attention to the possible benefits that may accrue from the systematic and intelligent application of the principles of heredity (*How Plants* 351).

Others joined their testimonies to Burbank’s influence in the field, with John Harvey Kellogg, the health mogul seen in the first chapter and founder of the Race Betterment Foundation, frequently praising Burbank for the eminently relatable character of his work on plants, especially from the standpoint of an advocacy for eugenics. The following is taken from a 1918 letter in which Kellogg entreats Burbank for some photographs of his specimens to use in a forthcoming eugenics publication:

> It is not simply the wonderful contributions of economic value which you have made but your astonishing success in [...] open[ing] up to the world the most inspiring hope for the betterment of the race and the final development of a super-man. It is the mission of Eugenics to open up these great facts to the minds of the common people [... your work] would very forcibly illustrate the improvement which may be made by the working out of biologic principles (Kellog, Letter to Luther Burbank).

In this instance Burbank’s work is not simply styled as an illustration of the theory of eugenics, but an active advertisement for it, with Kellogg citing his

work with plants as raising consciousness and sympathy in the public for the cause of eugenics through experiments with horticulture. This awareness of the eugenic element in plant breeding is so significant because it enables us to go back through much of the material produced by Burbank and other popular scientists who worked with plants and reread them in a new, admittedly discomforting, light. If it is true, as Burbank and Kellogg suggest, that breakthroughs in horticulture served the purpose of softening the image of eugenics and highlighting the potential rewards of such a system, then it is fair to say that the vegetable imaginaries conjured by Burbank and others through experiments with plants were initial fantasies of universal biological control, supporting and building the case for eugenics.

It is worth noting here that the extent and impact of Burbank's engagement with eugenics is one that biographers frequently dispute. For instance, Jane S. Smith in a chapter from her biography *The Garden of Invention* (2009) dedicated to Burbank's *Training of the Human Plant*, asserts that "Burbank was never really an active eugenicist" (190), depicting him as a figure on "the liberal fringe of the eugenics movement" who "did not want to limit or guide fertility" (191). Others opt to rationalise it by means of comparison, such as in Peter Dreyer's *A Gardener Touched with Genius* (1993), which sees Burbank's support and association with eugenic ideals as an inevitability of the historical context of California in the 1900s, where "only a saint with a preternatural grasp of future trends in genetics" (160) might have avoided association with ideas and individuals deemed repellent by modern standards; in which case Vernon Kellogg (1867-1937 – no relation to John Harvey), a close correspondent and at times collaborator of Burbank's, was indeed a clairvoyant saint. Despite being a professor of biology at Stanford at the beginning of the century and therefore moving in circles that included its founding president, the vociferous eugenicist David Starr Jordan (1851-1931), Kellogg maintained a staunch scepticism of eugenics, warning of its propensity towards militarism and publishing *Headquarter Nights* (1917) a text that warned of what he saw as the alarming rise of social Darwinism in contemporary Germany[38]. Kellogg wrote to Burbank after the book edition of

[38] Kellogg's presience is in fact twofold in this regard. Globally, the *Human Plant* was only translated into one other language, a German edition dubbed *Die Zucht der Menschenpflanze* in 1926, which, in combination with the work of other prominent Californian eugenicists

the *Human Plant* was published in 1907 expressing a degree of caution over the extent of his equivalence of plants with people in the text, stating: “personally, I am a little afraid of analogies, because they are so plausible and too often seem to be the real thing instead of a very good imitation” (V. Kellogg, letter to Luther Burbank) - specifically fearing that the work could be seen as justification or advocacy for applying the methods of horticulture to people. Burbank seemed not to have borne this critique to heart, for he continued to use increasingly literal horticultural analogies in his writing on human heredity. During his paper at John Harvey Kellogg’s Second National Conference on Race Betterment in 1915, he uses his experiments on plants to explain how to achieve “permanent results” in racial improvement through the “*selection of the best individuals* for continuing the race” (Burbank Betterment 50), before using examples of corn, pine trees, plums and poppies in order to explain how it would be possible to create a new race of super humans.

Revisiting the *Human Plant* adds further weight to this reading and shows the efficacy of cryptobotanical fictions mobilised for eugenic ends, seen in even clearer detail when it is presented in reverse. To act as something of a foil to the lofty potential of a botanised populace, Burbank asks his readers to contemplate what would happen if horticultural principles were inverted: “Suppose we blend together two poisonous plants and make a third even more virulent, a vegetable degenerate, and set their evil descendants adrift to multiply over the earth, are we not distinct foes to the race?” (*Training* 58-9). The thought experiment posed by Burbank would have been a somewhat familiar one to many reading publics in the early twentieth century. From the 1880s onwards there had been a proliferation of tales of ‘Plant Horror’ in a number of periodicals and by the turn of the century depictions of malignant, overly-fecund and dangerous plants had become a mainstay of the popular imagination (Keetley 7). Stories like Kate and Hesketh Pritchard’s *The Story of the Grey House* (1898) and *The Gray Weed* (1905) by Owen Oliver depicted weeds or other kinds of poisonous plants that swiftly overrun previously domestic spaces, killing innocent inhabitants and jeopardising civilisation itself. The question is of course, returning to Burbank, what the invocation of these frightful plants are achieving in his imagined forays into evolutionary futures?

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including Starr Jordan, was used to build a scientific case for the national eugenic policies of the early Third Reich. [CITE]

Throughout the *Human Plant* there is an insistence from Burbank not only of the direct applicability of knowledge of plant heredity to human reproduction but also the fostering of an air of equivalency between the human and plant; that what is true of one is true of the other and that the achievements possible with plants can easily be duplicated by humans too. With this being the case however, it means that the horrifying vision of a host of poisonous "vegetable degenerates" over-taking the globe could equally be a great hoard of degenerate individuals, physically deformed, criminally-minded and endlessly multiplying until they threaten the global eco-system.

It is here that the value of examining the cryptobotanical metaphor is best expressed. By referring to plant life as a stand-in for humanity, Burbank is simultaneously able to show the feats that are possible through careful breeding and the nightmare scenarios that emerge when those with undesirable traits are allowed to reproduce. Not only are these ideas easier for his readers to imagine, building on already established notions of the potential of plants as wondrous or horrifying beings, but they are also far more palatable than the perceived consequences of human eugenics. Burbank himself acknowledged that the systemic destruction of ineffectual test subjects, which is a perfectly innocuous part of the plant breeder's methodology, cannot be applied to human children and "such a principle is monstrous" (54). However, this disavowal does not prevent Burbank from maintaining the horticultural project and, through euphemism and metaphor, he is able to insinuate a vision of a human world governed by heredity:

> Every species of plant, animal, or man descends to destruction and annihilation if the weeds are allowed to breed unchecked. The best must sooner or later be overcome by the vastly greater fecundity of the weeds. Do not deceive yourself with platitudes as to moral training. It is useless unless moral breeding is an accompaniment (Burbank *Harvest* 377-8).

This fantasy comes to a head in Burbank's autobiography *The Harvest of the Years*. Though published near the end of his life in 1927, it reflects predominately on the period of his ascending fame from the 1880s to the 1900s and details his frustration at the perverse ignorance to what he perceives as the panacea of managed heredity. In a final plea for his imagined

future Burbank presents the horticultural process in chronological terms, expressing it as a process of moving through time and advancing towards an end goal of imagined perfection:

> We breed animals and plants with ever-increasing care, jealous of their heredities, thoughtful of their environments, cultivating them, preventing bad crosses, eliminating the unfit, and, under Nature's incomparable ordinances, slowly but steadily working toward the millennium of beauty, utility, strength, and productivity that we can see in the far distance for them all. And yet the most precious and the most important children on the planet we breed by chance, from parents thrown together by a process as haphazard as a badly constructed lottery (*Harvest* 136).

Throughout all of Burbank's work is an insistent returning to the botanical. It is the plant kingdom that can provide all of humanity's material wants, it is the plant kingdom that gives us the framework for controlling our biological destiny and it is the plant kingdom that we as a species must emulate if we wish to meaningfully progress towards the kind of enlightened millennia he saw so clearly. Cryptobotany in this sense opens up a view to a future where plants lead the way as examples of beings that can be rationally and selectively bred. The process of horticulture offers a fantasy of total control where we are able to determine the course of biology, and in Burbank's case history, towards a vision of utopia.

Before concluding, there is a danger that in focusing so intently on this case study of the usage of cryptobotany in the work of Burbank and applying literary analysis to texts he both directly and indirectly created, it is possible to fall into the trappings of biography or intentional fallacy. Ultimately, when considering Burbank's personal correspondence in tandem with works published for, by and about him, it would appear that his standpoint on a negative eugenics informed by plant breeding – his 'human horticulture' – was relatively fluid, often varying in accordance with the expected audience for his remarks, thus making it difficult to reach a singular position with which to judge the work. In effect, however, this question of authorial intent on Burbank's part is of minimal concern when examining the wider contexts of his experimental writings; what *is* of concern is how these seeds of cryptobotanical imaginaries

of human horticulture that he helped sow grew into an unsettling harvest of ideas.

The Garden State: *Herland* and the Horticultural Utopia

So far we have seen the extent to which Burbank's pleas for readers to acknowledge the potential of plant life engaged the reader's imagination in the manner of fiction and openly invited speculation on how the human race may be changed and improved by adopting the principles of horticulture. However, it is impossible to meaningfully discuss the imaginative impact these fictions had without recourse to the novelist's craft. Examining the feminist utopia *Herland* by fellow Californian Charlotte-Perkins Gilman (1915) it is possible to see how the ideologies and methods espoused by Burbank translated from speculative prose to speculative fiction. This reading will seek to delve into the horticultural logic of the life processes that make the all-women society of the Herlanders possible, examining them in relation to the works seen so far in the chapter to see how such scientific breakthroughs were used to imagine utopic and radically different versions of nature and culture. In doing so, we will be able to better understand how the contemplating of new plant forms through cryptobotany was deployed to subsequently imagine better, more advanced societies of female emancipation, whilst consistently supporting the contemporary notion that such imaginings with plants provide an endorsement for eugenic principles.

The connections between Gilman's utopia and Burbank's writings are myriad and have been noted in multiple studies. Each lived at opposite ends of the state, with Burbank's agricultural Eden of Santa Rosa in the north, while Gilman resided in the Los Angeles neighborhood of Pasadena from 1894 until her death in 1935 and like any member of California's learned circles, would have been familiar with Burbank's work. Critics have even gone as far as to say "*Herland* imagined how nature could be reshaped by emulating Burbank" in his vision for a horticultural utopia (Endersby, 'Biotopia' 14), with Gilman even describing the isolated all-female kingdom as being peopled by a group of "lady Burbanks" (Gilman 76). Indeed, in the world-building of *Herland*, Gilman makes repeated asides to emphasise the integrity of cultivation and how the principles of horticulture are literally ingrained into the landscape.

Indeed, this description from Sackman of Burbank's legacy, could equally serve as a plot summary for Gilman's novel, so closely do the two align:

> Here was the California plan for utopian development: place an enterprising people in a natural Eden, watch them make improvements, and then allow them to apply their ingenuity to human beings themselves. Both plants and people would be burbanked toward perfection (Sackman 63)

Written from the perspective of several American adventurers as they explore the isolated nation of Herland, Gilman takes pains for the reader to experience their surprise at the apparent perfection of the hidden nation's horticulture, whereon they remark that "the most conspicuous feature of the whole land was the perfection of its food supply" (102). The striking nature of this perfection of agriculture is the depth to which the Herlanders have been able to overhaul organic systems. We learn that entire forests have been "reset with fruit or nut-bearing trees" (94), turning them into a "mighty garden" or "truck farm", with "towering trees […] under as careful cultivation as so many cabbages" (44). This view of the nation as a macro-garden emulates previous utopias where plants offer bountiful quantities of food and resources; however, where it differs from these Edenic visions of natural abundance is that the trees and plants of Herland are not especially fruitful by nature, but rather are trained and modified over centuries to become the hyper-productive orchards we see in the novel. In one striking instance, the Herlanders provide an anecdotal history of a species of inedible tree that was so aesthetically pleasing, the foresters could not bear to destroy it with the others and instead selectively bred it across multiple generations until it could produce edible nuts and earn its place in the orchard. While they decide to salvage this lone species, all others that are deemed to be of no use, or even worse: "enemies of the food supply", are eliminated as all available land and biomass are "reset" along productivist principles and turned to account in the service of food and materials.

The sprawling scale of such a systemic and meticulous 'improvement' of plant eco-systems requires more than a mere understanding of conventional horticultural principles, but rather necessitates a new kind of vision and polity that can be organised around communitarian principles and

the limitless organic plasticity of plants. Like the rhizomatic networks of a forest or a sprawling connectivity of travelling vines, citizens of Herland are "themselves a unit, a conscious group; they thought in terms of community. As such their time-sense was not limited to the hopes and ambitions of an individual life. Therefore they habitually considered and carried out plans for improvement which might cover centuries" (104). In other words, by behaving like plants themselves, a non-egoistic ecology rather than a collection of individuals, they are able to mobilise their human labor to unlock the full potential of the plants around them, selectively breeding and "replanting" entire forests – feats that strike the individualistic male visitors as extraordinary. This appreciation of futurity and deepening of scope allows the Herlanders to engage with plant eco-systems that take centuries to form and truly grasp the timelines of soil depletion and other similar factors in order to curate and maintain "a perfect scheme" (104) of continual abundance. Indeed, sustainability and sufficiency are the absolute ends of Gilman's novel and the women of Herland pursue them at all costs.

Only through the mastery and emulation of plant life are such models of sustainability possible, showing the seductive promise that plant life was able to hold. In concurrence with other productivist imaginings with plants, this radical curation of ecological systems serves as a perfect fictional embodiment of the resituating of the frontier of progress from outward geographical expansion to inward biological manipulation. Every factor of the Herlanders' lives, from their isolated topography enclosed by precipitous mountains, to the fact that they must reproduce asexually without the introduction of external genetic material, precludes outward expansion as a means of acquiring capital and therefore necessitates that all life must come from within and be sustained by what is already there. However, rather than this breeding an entropic or degenerating state, they are able to reorder the ecological fabric within and around them along principles of progress and growth. In order to attain these ends, the Herlanders adopt a set of values reminiscent of Burbank's plea above, with "ethics based on the full perception of evolution" (Gilman 124). As such, they are able to uncover the secret to continuous improvement dreamed of in previous narratives, for "life to them was Growth; their pleasure was in growing, and their duty also" (124), or as put by one of the citizens "Progress too, remember; Growth, always and always" (137).

Herland owes many of its thematic concerns to a less well-known predecessor *Mizora: A Prophecy* written by Mary E. Bradley Lane between 1880-81. Part of the long tradition of hollow earth fictions, the book follows a contemporary Russian woman as she descends to an all-female utopia that exists beneath the Earth's surface. While it cannot be said that Bradley Lane was responding to Burbank's writing on horticulture in the same way that Gilman was, her novel shares many of the concerns of Gilman's with regards to the all-female utopia's civilizational purity and agricultural prowess, particularly the "very fine [...] fruit" they are able to produce. As noted by Elizabeth Chang in her reading of the novel, the material and cultural prosperity of Mizora are "so tightly bound together with forms of organic and horticultural cultivation that the two cannot be distinguished in the novel's exposition" (Chang, Hollow Earth 393). In its descriptions of the Mizorans' agriculture, there is a climate of optimism that pervades the entire scene, often linking the narrator and other women with their superlative vegetable environment:

> It beat with a strong, warm pulse of life through all nature. The orchards budded and bloomed, and mellowed into perfect fruition their luscious globes. The fields laughed in the warm, rich light, and smiled on the harvest. I could feel my own blood bound as with a new lease of life at the first breath of spring (Bradley Lane 77).

In this survey of pomological paradise the reader is shown an almost hyper-abundance of nature's bounty – with fruit and flower simultaneously throbbing with health and vitality. The sublime energy of green nature teems throughout and even the narrator herself seems to photosynthesise "the warm, rich light" as it begins to impart in her the same "new lease of life" that the plants of the orchards enjoy. The evocative mention of blood coursing alongside the "luscious" and "perfect" plant life captures what is rooted deep within the subtext of both *Mizora* and *Herland* – that the prosperity of the botanical kingdom can be shared and incorporated by humans once the same principles used to elevate the former are allowed to penetrate the human body and likewise raise it up to greater degrees of biological perfection. While Chang describes this unifying of human and plant cultivation as "a pseudo-Darwinian scheme", I believe that, as with Gilman and Burbank's own utopian visions of

human and plant life, there is more than mere Darwinism at play; instead we see a human horticulture of eugenics.

The same blurring of lines between plant and human improvement in *Mizora* are repeated in *Herland* as Gilman explains in her history of the country how their work with plants inspired their own experiments with human genetic manipulation. As the Herlanders discovered and interpolated the principles of a collective ecological existence and managed horticulture, Gilman unveils how this familiarity with the means of insuring endless improvement in plants through managed heredity naturally resulted in them turning these findings inwards. Or in other words, since they were able to mobilise their human labor to unlock the full potential of the plants around them, the labor of plants was likewise able to unlock the full potential of the citizens of Herland, by providing an exemplary model of how to go about improving stock. Abigail Mann for instance in a recent presentation on '"Vegetable Excess": Botanical Excess and Civic Models in Charlotte Perkins Gilman and Olive Schreiner' notes the willing equivalence between the human and plant in Gilman's survey of the dream all-female society:

> They experiment on trees and their own bodies as a means of creating a better society. Thus botanical manipulation is not simply of national concern, but manipulating plants symbolizes active civic participation, tending to the social body. Country as garden, citizen as gardener: the Malthusian overtones make the two almost inseparable (Abigail Mann *INCS 2018*)

Indeed, such a deep and far-reaching knowledge of the capacity of their land to sustain life makes such Malthusian overtones of paramount importance. The three American adventurers express embarrassment that their homeland's patriarchal systems of agriculture must rely on the sheer size and "extent" of arable land at their disposal to sustain "the – admitted – carelessness with which we had skimmed the cream of it" (105). For the enclosed and isolated Herlanders, by contrast, there is a hyper-awareness of the natural constraints to such progress, and it is on the pretext of this Malthusian struggle for such finite space that they are able to embark on their project of "'negative Eugenics'" (Gilman 95) to "breed out [...] the lowest types" (107). In this way, Gilman's concerns with sustainability of agrarian systems

become inseparable from the act of sustaining the race, and the Herlanders deploy techniques of horticulture to combat entropy from without and within to create a truly utopic state of horticultural and racial perfection.

As Jim Endersby notes, Herland is a "biotopia" lifted almost verbatim from Burbank's writings[39], where all living beings are under a ceaseless process of sublimation that is underscored by what "they had found in their work with plants, and fully proven in their own case" (102). When confronted with this organic yet rigidly organised system, the adventurers cannot help but feel the contrast with the products of their own system of panmixia, evoking the contrast between glasshouse flowers and feral weeds:

> Those nation-loved children of theirs compared with the average in our country as the most perfectly cultivated, richly developed roses compare with—tumbleweeds. Yet they did not *seem* "cultivated" at all—it had all become a natural condition (98).

This botanical metaphor of roses and weeds was a stock eugenic argument of the period, intended as a ready means of comparison between an undisciplined and regulated means of reproduction. What is significant perhaps in *Herland*'s use of the metaphor is the attendant awareness of Herlanders' contradictive status as "cultivated" beings and Gilman's negotiation of that category. Returning to Elizabeth Chang and her own dissection of cultivation, she remarks that through the act of cultivation, we render "the overall act of being alive no longer necessarily a self-supporting and intuitively-managed affair" (*Novel Cultivations* 7), with the spontaneity and haphazard nature of organic, hyper-fecund Darwinism, as described by Ward, replaced by a complex apparatus of scrutiny and regimented reproduction in order to best further the aims of the horticulturalist – with Herland essentially becoming a human potting-shed. As stated elsewhere, Gilman's overriding concern with the utopia of *Herland* is seemingly its sustainability and self-sufficiency – creating a "perfect" system of life that can rely entirely on natural principles – practically independent of external influence. As Chang demonstrates however, cultivation explicitly takes something outside of natural conditions and it thus becomes reliant on the continued intervention of a third

[39] "humans could be sure that if they were to model themselves on Burbank and take charge of evolution, it would only require 'two or three close-linked generations to make human beings far more superior to us as we are to apes' (Biotopia 14)

party to survive. While these two poles of the novel, artificial cultivation and natural self-sufficiency, may seem like a paradox they are in fact mutually dependent halves of the same botanically-inspired ideology. As with Ward and Burbank, there is a faith in the transformative power of evolutionary forces whereby the co-ordinates of life can be rewritten in the plastic matter of living tissue, “we must provide the right conditions [...] that great pushing life-force of Evolution [will do] the rest’” (Gilman qtd in Endersby, Biotopia 13).

In this respect, plants were the perfect analogy for this sustained evolutionary change, owing to their perceived ability to absorb and retain the effects of cultivation. Elizabeth Chang comments on the dawning recognition within the nineteenth century of “the increased speed with which a plant erases its own origins, shifting itself from exotic to hybrid to naturalized specimen in botany and fictional narrative with ever-increasing ease” (Chang *Novel Cultivations* 20). Acclimatisation societies and horticulturalists the world over were successfully adapting plants that were being propagated and ultimately thriving in new conditions. In the plastic form of the cultivated plant, there seemed to be hope that initial acts of artificial cultivation could yield an organism that bore all the qualities one could desire but behaved like, and for all intents and purposes *was* a perfectly natural being. The young girls of Herland are thus products of Gilman’s own cryptobotanical naturalisation, born under the artificial auspices of a system of negative eugenics that had nonetheless “become a natural condition”.

Having examined *Herland* within the contexts of the works and ideas that preceded it, Gilman’s tale can be seen as part of a synthesis of decades of writings on the social promise of horticulture. The utopian archipelago of *Herland* becomes a speculative, cryptobotanical space where the latest breakthroughs in science and progressive social thought are given free rein, and the result is a tantalizingly bucolic picture of health, prosperity and progress that lies just out of reach. By merging people and plants in a manner similar to that advocated by Burbank in *The Training of the Human Plant,* both the green environments and women of *Herland* stand as testament to the principles of human horticulture – embodying the malleable forms and heightened perfection that was imagined to follow from generations of controlled heredity. However, for all of Gilman’s attentive care in her

worldbuilding of Herland, there remains the incongruity of Herland's position as a 'natural state'. By playing up the naturalistic elements of their respective utopias, Burbank and Gilman are able to sideline the human and moral costs incumbent on a system of negative eugenics. Though both speak somewhat openly on the process of elimination of the unfit, it remains couched in cryptobotanic metaphor and shielded as part of a perfectly organic process that must occur. It is only when the realities of a human horticulture are properly scrutinized that the insidious reality of the process can be uncovered.

The Training of the Inhumane Plant: T.H. Huxley and Negative Eugenics

Writing in 1894, over a decade before Burbank or Gilman's utopian imaginings, T.H. Huxley (1825-1895) outlined the pernicious effects of speculative cryptobotany when applied to human relations through the use of a gardening thought experiment in the preface or 'Prolegomena' to *Evolution and Ethics*. In all of the positivist narratives examined in this chapter, the gardener or nurseryman is a figure of benevolent mastery, taking the crude material of plants and soil and making them into new and ever-greater states of perfection. However, Huxley's account interrogates assumptions made about the both the plants and the perceived beneficence of the gardener. The text is superficially concerned with the dual means of contending with the struggle for existence that are seen in the world today; there is the "cosmic process" – in short natural selection – the Darwinian idea of competition for resources; and then there is what Huxley describes as the "horticultural process" – the process of creating artificial conditions to foster specific species or traits that would not necessarily be able to thrive in a state of cosmic nature. Where Gilman is able to square the circle and have these two forces of cultivation and 'natural behaviour' exist in tandem, Huxley's cosmology diverges, showing a world where the two forces, knowingly or not, are forever in conflict and constantly vying for supremacy:

> Not only is the state of nature hostile to the state of art of the garden; but the principle of the horticultural process, by which the latter is created and maintained, is antithetic to that of the cosmic process. The characteristic feature of the latter is the intense struggle for existence. The characteristic of the former is the elimination of that struggle [...] The tendency of the cosmic process is to bring about the adjustment of

> the forms of plant life to the current conditions; the tendency of the horticultural process is the adjustment of the conditions to the needs of the forms of plant life which the gardener desires to raise (13).

It is from the realities of this struggle that Huxley is able to infer conclusions that Burbank and Gilman's utopian visions cannot see.

Though the work begins innocently enough with the image of a gardener tending to some plants in a greenhouse, Huxley makes the connection that Burbank, Gilman and Ward[40] similarly make – linking the 'horticultural process' to the logic of eugenics – drastically expanding the scope of his inquiry both subjectively, from the plant to the human, and spatially, from the domestic to the imperial, reasoning that "the process of colonization presents analogies to the formation of a garden which are highly instructive" (16). The reader is thus asked to "imagine that some administrative authority, as far superior in power and intelligence to men, as men are to their cattle" is given charge of a colonial outpost at the furthest corners of the empire, "he would proceed in the same fashion as that in which the gardener dealt with his garden" (17). This extrapolation of measured horticultural principles begins simply enough with the administrator organising the collective energies of his settlers, suggesting that like a garden "the best interest of the community would be best served by increasing the proportion of persons who possess such qualities, and diminishing that of persons devoid of them. In other words, by selection directed towards an ideal" (19). With a gardener's eye for teleological growth:

> the administrator might look to the establishment of an earthly paradise, a true garden of Eden, in which all things should work together towards the well-being of the gardeners: within which the [...] coarse struggle for existence of the state of nature, should be abolished; in which that state should be replaced by a state of art; where every plant and every lower animal should be adapted to human wants (19-20).

This utopic vision by Huxley seems to anticipate common themes found in much of the speculative and utopian thinking based on horticultural principles

[40] Elsewhere Ward shows a sceptical ambivalence towards the principles of eugenics, most notably in his contestation of the logic of Francis Galton's Hereditary Genius, however it cannot be denied that in his contempt of the natural economies of chance reproduction and evolution, he seems to be advocating an introduction of teleology to biology – which is of course the essential definition of eugenics.

seen in this chapter. Through the total imposition of measured artificial and rational principles it would be possible to tame the savage extravagances of natural economy to sustain a perfect homeostasis. Huxley allows this fantasy to endure for a number of paragraphs before introducing the rather disturbing conclusion of such a reality, “when the colony has reached the limit of possible expansion” and a Malthusian correction of “surplus population” must ensue. How can the perfect “state of art” fend off the incoming threat of the recommencing “fierce struggle for existence” (21)?:

> Supposing the administrator to be guided by purely scientific considerations, he would, like the gardener, meet this most serious difficulty by systematic extirpation, or exclusion, of the superfluous. The hopelessly diseased, the infirm aged, the weak, or deformed in body or in mind, the excess of infants born, to be put away as the gardener pulls up defective and superfluous plants (21).

The monstrosity of this measured human horticulture negates the previous utopic vision as Huxley confirms “this logical ideal of evolutionary regimentation – this pigeon-fanciers polity – is unattainable” (23). He argues this on a twofold basis. One being that in practice the ability to judge abstract virtues like moral character and societal worth along scientific precepts is impossible – doubly so for the limited powers of human intelligence; but also that the level of moral compromise necessary to enable this wilful “extirpation” of one’s fellow creatures would be so barbaric that it would threaten the very bonds of civilisation itself. Thus defeating the purpose of maintaining an earthly paradise at such a cost.

Concluding with Huxley’s damning indictment, this chapter has endeavoured to represent the full range of the applications of horticulture at the turn of the twentieth century. The newly discovered and fruitful promise held by plant improvement generated cryptobotanical fantasies of futures where plants and people could both partake in the perfecting benefits of horticulture; creating utopian visions of a world of controlled heredity where growth, progress and health could be guaranteed to last indefinitely. Plants formed the ideal blueprint for these fantasies of cultivation not only because of their noted plasticity and the miraculous feats that ‘wizards’ such as Burbank had been able to achieve with them, but also due to the fact that plants, as

non-sensate creatures, offered none of the moral difficulties that arose when dealing with more complex organisms; providing vegetable euphemisms as abstracting apparatus for discussing the unpleasant realities of eugenics. In these fantasies, horticulture offered something of a garden trellis to new ideas about human evolution, providing a pre-fabricated conceptual framework to support the case for human horticulture as well as giving inspiration for what techniques and outcomes one could expect, whilst simultaneously shading the endeavours from too close scrutiny – using botanical metaphor of ‘weeds’ and ‘brambles’ to allay fears of inhumane treatment. However, other cryptobotanical fictions sought to use the same techniques of metaphor to uncover the human costs that ideologies of horticultural eugenics obscured, revealing the uncomfortable realities of a world where humans and plants become inter-changeable. In the following chapter, this idea of revealing the unseemly elements of a ‘human plant’ is pushed even further as we encounter writers dealing in the ecoGothic entanglements revealed by evolutionary theory.

Chapter Five – Animal, Vegetable, and Everything in Between: Inter-species Entanglements in Victorian Cryptobotany

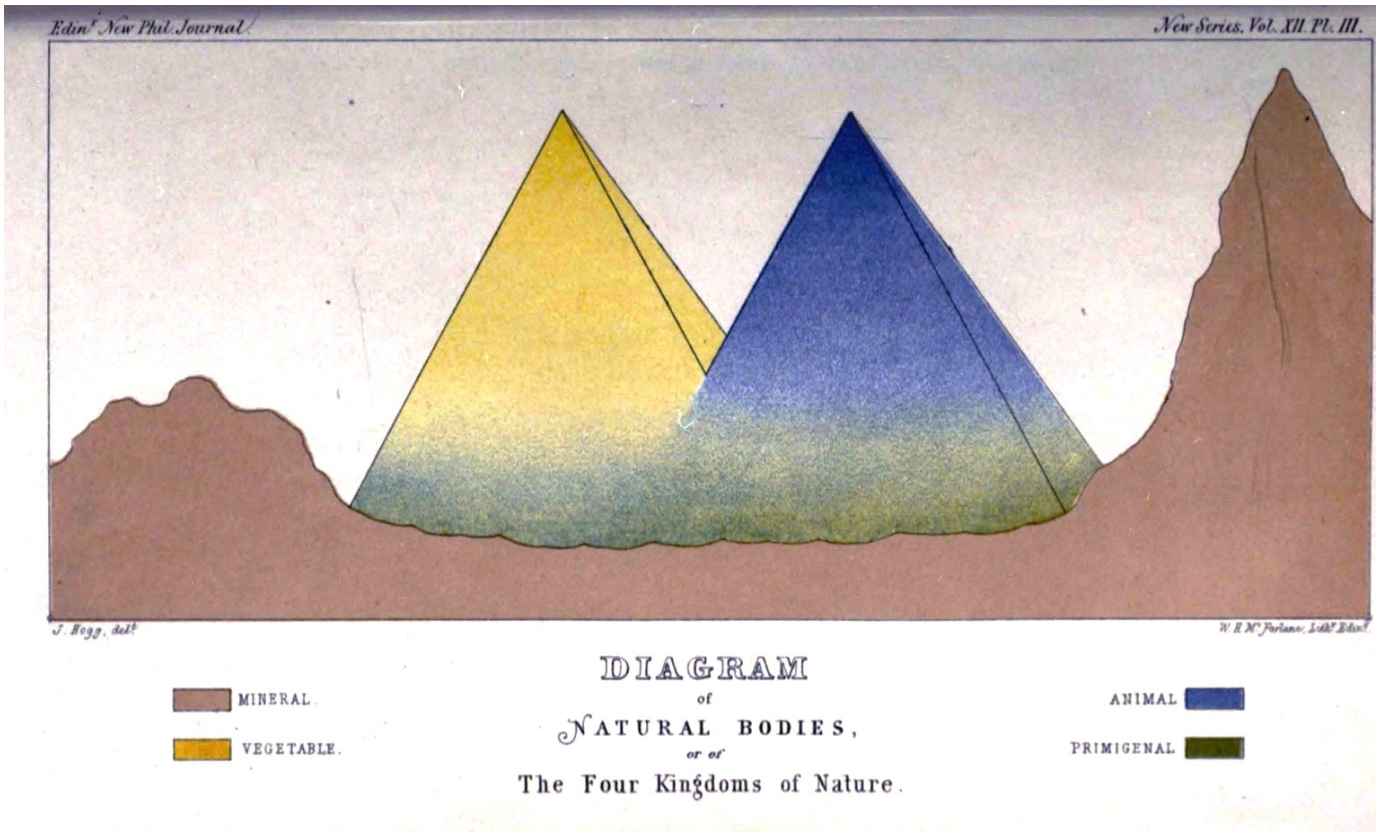

Fig. 5.1 Plate 3 from John Hogg's 'On the Distinctions of a Plant and an Animal, and on a Fourth Kingdom of Nature', which appeared in *The Edinburgh New Philosophical Journal*, 1860. Image courtesy of Wikimedia Commons.

Regnum Animale, *Vegetabile* and *lapideum*: more commonly known to us as the animal, vegetable and mineral kingdoms. These were the three orders of life laid out in 1735 by Carl Linnaeus, the "father of modern taxonomy" (Schiebinger 5) to encompass all natural phenomena on the planet. The aim was to provide an ordered system of categorisation, characterised by a series of clear divisions and distinctions. This task, however, would prove anything but simple. The unruly complexities and contradictions of the natural world were immediately evidenced by Linnaeus' addendum to his kingdoms, like the subclass of "zoophytes"—ambiguous 'leftover' organisms, like coral or protozoa, which are seemingly plant *and* animal at once—and then further underlined by the reams of taxonomic literature produced in the following centuries, in which scientists struggled to wrangle countless new species into

Linnaeus' rigidly compartmentalised system, demonstrating that what were once thought of as absolute and impassable boundaries between forms of life were actually far more permeable than first imagined. This chapter serves as an exploration of the discursive treatment of this hybridity between plants and animals in the nineteenth century - beginning with the taxonomic debates of the period before progressing to the fictional creations they inspired. In doing so it intends to show how popular cryptobotanical imaginings of animal-plant hybridity filled in the gaps of scientific consensus that were produced by discoveries of strange, unaccountable specimens that were neither wholly animal, nor plant. The monstrous vegetable creations that ensued varyingly embodied both the visceral anxieties and fears of an 'ecogothic' imagination, and a belief in the potential for a new epistemology that could better represent the diversity of the natural world. Together, the scientific works and the stories they inspired signalled a departure from the certainties of the enlightenment; a depiction of a natural world with blurred edges – from which all manner of strange and 'unnatural' beings could emerge.

With its dual-attentiveness to uncanny portrayals of non-human life and the latent terror they can inspire, the contemporary critical discourse of the 'ecogothic' has often been retroactively applied to Victorian ecological anxieties. The term, understood here as a formal and critical acknowledgement of the overlapping of natural phenomena with the malignant visions of the Gothic imagination, is particularly useful in its unravelling of familiar and 'natural' renditions of ecology. Dawn Keetley and Matthew Wynn Sivils' introduction to *Nineteenth Century Ecogothic* (2018) highlights the consistent splicing of natural elements within the ecogothic, 'interpenetrating' and 'intertwining' species together in unfamiliar and sometimes violent ways that "challenge humans' own vaunted ability to shape their world" (7). A process that, as we shall see, was commonplace in the fiction of the period. In 'Defining the Ecogothic', the introduction to their 2013 collection *Ecogothic*, Andrew Smith and William Hughes highlight the "crisis of representation" (2) in nature as a constitutive feature of the ecogothic, citing a fear of an "ambivalent" and "blank" natural world devoid of rational meaning or governing principles.

Plants in particular are noted by Smith and Hughes for their disturbing evasion of definition – an idea that has been later explored by other critics working within the field of the ecogothic. Dawn Keetley, for example, makes the case for an especial consideration of 'Plant Horror'. She argues that the plant world's "refusal of known categories" (8) enables them to "lurk perilously close to the very definition of the monstrous" (8). Such monstrosity is not strictly the kind embodied by the large, anthropomorphic creatures most readily associated with horror and the Gothic, but can more accurately be understood as a latent threat or complication to systems of knowledge, or to quote Georges Canguilhem's 'Monstrosity and the Monstrous', "the existence of monsters calls into question the capacity of life to teach us order" (134). This indecipherable nature of plants stems in part from their sheer difference from humans as organic beings; their lack of a discernible face or body, their static nature, apparent passivity and their unique means of nutrition mean that they are existentially estranged from human beings in a way that is far more pronounced than any animal. It is precisely this "alien nature of the plant", as Elizabeth Chang argues in 'Killer Plants of the Late Nineteenth Century', which is able to "challenge the gap between vegetable and human" in narratives that confront the reader with agentic plant-life (Chang, 'Killer Plants' 85). Therefore, a cryptobotanical specimen that could simultaneously inhabit both the plant and animal kingdoms presented an uncanny subject: something that is both familiar and otherly, sentient and inanimate, inert and predatory.

This chapter provides insight into the shifting terrain of biological knowledge in the late nineteenth century by interrogating the cryptobotanical imaginings of plants of the period through the lens of the ecogothic. Beginning with specific examples from scientific debates of what constituted an animal, vegetable and everything in between, it reads these early speculations as an ancillary precursor for the ecogothic imagination – tearing down old categories and opening up room for new theorisations of the two kingdoms and humanity's place within them. The second section examines the relationship between these taxonomic conflicts and the literature of the period, especially the Gothic's sensational and disquieting tales of animalistic plants. Works of Gothic short fiction such as *Carnivorine* by Lucy H. Hooper (1889), as well as full length genre fiction novels Richard Jeffries' eco-post-apocalyptic Romance

After London (1885), have been selected to illustrate the full range of ways that discoveries in biology of the period were reconfigured into tales of monstrous vegetation that served to complicate the long-held anthropocentric belief in humanity's place as being above the biological entanglements of animals and plants. In doing so, I set out to contribute not only to a more nuanced picture of the shifting terrain of the Victorian understanding of nature, but also to demonstrate how these nascent ideas of the natural world continue to persist, even up to our own historical moment of "biogenetic revolution"[41] (Žižek x). Though separated by a century, what emerges when examining the scientific accounts alongside Gothic stories of the late nineteenth century is the familiar feeling of a perceptible departure from the certainties of the enlightenment: a depiction of a natural world with blurred edges – from which all manner of strange and 'unnatural' beings could materialise.

The Middle Kingdom

In the following century, the classificatory kingdoms were practically bursting at the seams. New specimens were arriving daily from expeditions to the tropics and advances in microscopy revealed ever more nuanced and ambiguous forms of life that seemed to evade classification under the existing system. It was becoming increasingly apparent that what were previously thought of as absolute and impassable boundaries between forms of life were actually far more permeable than imagined; with none more so than the border between plants and animals. These ideas began to circulate through scientific journals, out into periodicals and newspapers before finally finding their way into the sensationalist, gothic and speculative fiction that thrived in the Victorian period. Here they found fertile ground in the popular imagination, engendering a new vision of the natural world that saw plants merging with animals in increasingly complex and terrifying ways as the century wore on.

Interestingly, over one hundred years later, the ecofeminist and critic Stacy Alaimo argues that we *still* need "more capacious epistemologies" (2). Alaimo's theorisation may seem anachronistic within the historical contexts of the nineteenth century; however, as will be demonstrated, many of the primary sources detailed here reward—and in some ways even anticipate—a

[41] Meaning the application of scientific breakthroughs of genomic mapping through the alteration or synthesis of organisms; identified by the philosopher Slavoj Žižek as one of the potential "four riders of the apocalypse" (Žižek 2011 p.x).

retrospective reading a using modern ecogothic framework. Alaimo's, theorisation of 'transcorporeality' is especially useful in conceptualising the "interconnections, interchanges, and transits" (2) that were found to exist between previously incompatible life forms such as plants and animals in the nineteenth century. Her definition of transcorporeality from *Bodily Natures: Science, Environment, and the Material Self* (2010) describes the enmeshing and inter-penetration of 'human bodies and nonhuman natures' (2). However, by expanding the term from the explicitly anthropic, to a relational entanglement of all living natures, transcorporeality can be used to capture the fears of chaos that accompanied the various theories of inter-species relations and universal common descent that abounded at the time.

Though the term transcorporeality is a recent invention, many of its essential ideas—such as the inevitable imbrication of the human and the non-human—find expression in the Victorian period. For instance, in 1859 with the publishing of Darwin's theory of natural selection and the revelation that organisms were defined by their adaptation to their environment, setting the scene for an ensuing view of a disorganised natural world in a constant state of flux. The implications of Darwin's theory dealt a significant blow to classical taxa, already buckling under the combined weight of new and unaccountable species, and the vacuum of understanding that followed provided an opportune moment for issuing challenges to previously unquestionable classificatory systems. One such proposition came a year later from the naturalist John Hogg (1800-1869), who published a paper adding a fourth kingdom to Linnaeus' triadic system in order to properly house and organise the intermediate beings that strayed between plants and animals. Hogg was careful to frame his proposition not as an attempt to undo the work "of the illustrious Swede" (Hogg, 1860: p.220), but merely as an update to reflect changes in understanding. By Hogg's own admission, "the *definitions* given by Linnaeus must at this day be considered as insufficient and much too concise" (220); therefore, in order to maintain the project of classification, it was necessary to make allowances to accommodate the fugitive species caught between kingdoms.

Hogg's solution to this perceived deficiency was to create a new precinct of classification, the '*Primigenal* kingdom'. The name, a variant on the

Latin *primigenius*, meaning literally ‘first birth’, was chosen as the kingdom was to contain the most primitive, indistinct microscopic and unicellular organisms that make up the “lower [...] or primary organic’ lifeforms, including ‘those formless or amorphous beings” (223) that permeated the boundaries between vegetable and animal. Hogg imagined his fourth kingdom existing ‘beneath’ or ‘between’ the two kingdoms of vegetable and the animal at the point where the “line of demarcation between [...] these two kingdom” (223) was at its most blurred. To illustrate his point, Hogg translated these abstract taxa into a graph (*fig.1*: Hogg 1860), constructing the two great pyramids of organic life. Hogg harnesses the gradation of angle and hue to show the degrees by which the two classes of animal and vegetable diverge or mingle at different stages. The graph is a small marvel of colour and form, as Hogg harnesses the gradation of hue in his attempt to show the degrees by which the two classes of beings diverge or mingle at different stages of classificatory ‘perfection’. He explains:

> The *blue* indicates the animal kingdom; the upper or dark blue signifies the more perfect condition of animality; whilst in both pyramids, as the beings descend toward their base, they lose by degrees their chief characteristics respectively; and this is designated by the paler yellow and paler blue; and at length these two colours gradually blend or unite, and so constitute together the colour *green* in the base, common to both pyramids (224)

Though intended to shore up the distinctions between plant and animal, Hogg’s graph can also be read as an indictment of attempts to definitively separate the animal from the vegetable. Indivisible from the immediate scientific context of Darwin’s *Origins*, it displays a distinctly *evolutionary* progression of natural selection in the two kingdoms of animal and vegetable in organic life. Having the murky *Primigenal* kingdom as the common ground from which the two pyramids spring forth suggests that they share a common ancestry; the name *Primigenal* establishes the proposed kingdom’s position as progenitor of both orders of life. With these indistinct and ambiguous kingdoms peopled by amorphous and mysterious organisms acting as the mutual base, the more “perfect” specimens higher up the pyramid necessarily rest on shaky foundations. They are not only born, originally, from disturbingly ‘imperfect’

and nebulous life forms, but seem—when we look at the graph's open and intangible variations in colour—potentially vulnerable to degeneration and transmutation of beings between the two kingdoms, via the avenue of their connected lower levels.

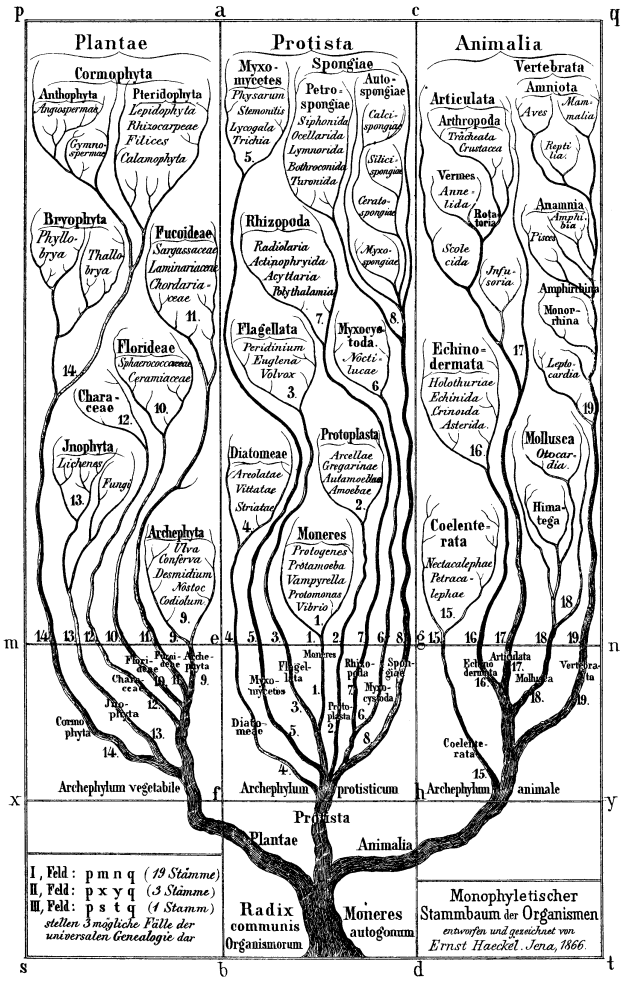

Fig 5.2: Monophyletischer Stammbaum der Organismen from Haeckel's *Generelle Morphologie der Organismen.*

In this respect there is more than a touch of the *transcorporeal* about Hogg's diagram. As Alaimo states, the inclusion of "*trans* indicates movement across different sites", thus the shared point of contact between the two kingdoms becomes a conduit, "emphasising the movement across bodies" and "reveal[ing] the interchanges and interconnections between various bodily natures" (2).[42] The fourth kingdom served as a challenging, indistinct, almost *Gothicised* classificatory space, providing avenues into both animal and vegetable subjectivity and potentially allowing beings to occupy, or even colonize parts of the other kingdoms' territories. A point of acute anxiety in a century plagued with fears of colonial unrest and invasion.

The concept of a shared heredity further complicated the supposed binary of plant and animal, and after Hogg many biologists attempted to establish exactly where the two diverged and to what degree the extant characteristics of plants and animals were preserved. One such attempt was made by Ernst Haeckel (1834-1919) in his works *Generelle Morphologie* of

[42] Such a reading is enriched when one considers which 'bodies' are being referred to in Hogg's diagram; if we read Hogg's pyramids themselves as two inter-mingling combinatory bodies, there is an obvious shared co-mingling that can be read as transcorporeality. But it is worth noting the pyramids are representative, and are therefore constituted of all the millions of different species that fill the respective taxa of 'animal', 'vegetable' and 'primigenal', who are themselves transcorporeal, blurring into one another through evolutionary progress and in the case of the primigenal, often living inside other larger organisms. Thus both on the macro- and micro- scale, the graph demonstrates the repeated inter-penetration and complex co-relations between the three kingdoms.

1866 and its popular science counterpart published two years *The History of Creation* – an English edition appearing in 1876. Haeckel adopted a similar approach to Hogg, proposing a modal shift in classification with the kingdom of *Protista* - this time from Ancient Greek: *prôtos*, meaning first or original, an early or primitive approximation of existing forms. Like Hogg's, this kingdom contained the troublesome indeterminate beings that were neither immediately plant nor animal, like sponges and micro-organisms. Haeckel likewise placed the kingdom between animals and plants, displaying them as branches of a tree, as opposed to Hogg's shaded Pyramids. All three branches spring from a common root, a kingdom for "single-celled organisms" he called *monera*[43], from which "*all many-celled animals and plants were originally derived"* (Haeckel 40). Despite providing an intermediate kingdom and suggesting a common ancestor, Haeckel maintained that the divisions between the kingdoms remained absolute "in several distinct lines" (Sapp 40). These conceptual lines prevented branches from crossing and intersecting in an attempt to curtail the disquieting nuances of cross-kingdom transcorporeality that are possible in Hogg's model.

Haeckel's conception of these natural kingdoms with hard borders can be understood in connection to his commitment to what he called "knowledge of the Natural System" or "the *pedigree* of organisms", which he considered the "highest problem of biology" (37). He described natural history as "structural"; a network of "*blood relationships*" (36) that could be traced, understood, delineated, and most importantly, categorised. Haeckel took particular issue with Darwin on this ground, stating that he only expressed "his conjecture[s]" and treated the issue of origins "in a general way", with no attempt to "carry it out specially" (37) – that is, systemically. Haeckel's tree of life conveyed an idea of clear progression and association, the organic form showing a recognisable line of evolution, with each kingdom and stage remaining neatly within its ordained quadrants, bypassing the blurred entanglements of plant-animals in Hogg's pyramids.

Haeckel's systematic division, however, becomes impossible to maintain when one reaches the base of the tree and the *monera*, "the most ancient root of the animal and vegetable kingdom", which Haeckel admitted

[43] Again, adapted from the Greek *mónos*, meaning 'single' or 'solitary', reflecting their single-celled composition.

was “common to both” (41). In order to retain his divisions, Haeckel downplayed the living credentials of this ancient root, “considering [*monera*] to be more closely related to inorganic crystals than to nucleated cells” (Sapp 37). What is more, he argued that the very nature of *monera* meant that they have disappeared for ever from the Earth, explaining: “We lack, and shall ever lack, the indispensable paleontological foundations” on account that “the original parents of all subsequent organisms”, were formless blobs of matter “not in any way capable of being preserved in a petrified condition” (39). With this permanent erasure, Haeckel simultaneously explains away the lack of fossil-record evidence for his theory and relegates the only beings that posed a threat to his organised “pedigree[s]” of life – all while maintaining the neatly divided system of organic life and sustaining the incumbent hierarchies and anthropic exceptionalism therein.

Haeckel’s rationalising and compartmentalising of evolutionary lineages can be better understood if we return to considerations of the ecogothic. Dawn Keetley and Matthew Wynn Sivils in their ‘Approaches to the Ecogothic’ (2018) unpick how the ecogothic incites a fear of humanity’s evolutionary origins; “develop[ing] the dictum that the present remains in thrall to the past” and presenting us with an alien and discomforting view “into our pre-human (and nonhuman) origins” (5). They argue that such considerations lead us to the discomforting realisation that our “inexorably inherited” past “marks us in particular *as animals*, and it is a past that persists vestigially within us” (5). However, as demonstrated, the imagined evolutionary timeline could extend far beyond Darwin’s apes, so that people could just as easily consider themselves ‘*as vegetables*’ – an even more dehumanising and existential threat than the kinship of primates. To allay such fears, Haeckel dextrously manoeuvres our common ancestry into the darkest recesses of prehistoric time; or to put it in psychoanalytical terms, so often utile in discussions of the gothic, the super-ego of classificatory discourse pushes the traumatic idea of a shared progenitor of plants, animals [and people] into the pre-historic id, allowing us to retain a sense of distance and superiority to the rest of the natural world. This reassuring narrative may have been part of the reason for

the immense popularity of Haeckel's theories[44], but his public acclaim did not translate to an institutional acceptance by the scientific community; few taxonomists or natural historians could accept his seemingly arbitrary division of *protists* or the untellable origins of *monera*, and the establishment opinion remained in favour of the two-kingdom model.

The inability to settle on the criteria for an intermediary kingdom did not address the problems of taxonomy and the spectre of hybrid forms continued to stalk popular and scientific discussions of animals and plants. The complication gave rise to the classificatory group "*problematica*" in the period, used to describe organisms that did not fit into existing orders of animals and plants. T.H. Huxley in his essay "On the Border Territory Between the Animal and Vegetable Kingdoms" (1876) dubbed the eponymous borderline a microscopic "no-man's-land" (177) where none could authoritatively tread, affirming that "the advance of biology [...] tended to break down old distinctions, without establishing new ones" (169). What many came to view as an insurmountable problem echoed Hogg's own struggle sixteen years earlier and Huxley remarks in his conclusion "that the difference between animal and plant is one of degree rather than of kind, and that the problem whether, in a given case, an organism is an animal or a plant, may be essentially insoluble" (195). The rhetorical "degrees" used by Huxley echo the visual gradients of Hogg's diagram, suggesting that the problem of ambiguity in classification could not be confined to those mysterious, indeterminate beings that explicitly embody both animal and vegetable characteristics. Like a contagion, the exposure of one group compromises all, and therefore all plants and animals are implicated by association, creating a cloud of uncertainty that obscures their true origins and relations.

While the respective kingdoms were haemorrhaging species at the base thanks to the ambiguity of their 'lower' organisms, they faced an equally damaging assault from the top. The research by Charles Darwin into higher plants that 'ate' live animals, ultimately published as *Insectivorous Plants* in 1875, caused a sensation as it seemed to bestow upon plants the power of predation and even a primitive kind of will. The work also presented further

[44] *The History of Creation* was republished in all the major European languages and became a sensation, eclipsed only by his follow-up work *The Riddle of the Universe* of 1899, which sold "100,000 copies in its first year" (Sapp 2009, 29).

evolutionary trouble by highlighting the “remarkable accordance in the power of digestion between the gastric juice of animals” and the acids secreted by certain carnivorous plants – implying, if not a common ancestor, then at least an analogous evolutionary process “adapted for the same purpose”, a fact he described as “a new and wonderful fact in physiology” (Darwin 134-135).

The ability for plants to consume and ‘eat’ was so significant because of the threat it posed to the established points of differentiation between plants and animals. For instance, Hogg’s definition of animality hinged on the exclusivity of digestion in animals and the progressive divergence of flora and fauna as they attained ‘higher’ stages of biological complexity; both of these were to be disproved in the ensuing decades. As the American botanist Asa Gray questioned in his review of *Insectivorous Plants* in 1876: “when plants are seen to move and to devour, what faculties are left that are distinctively animal?” (Gray 308). He expands:

> It is the naturalist, rather than Nature, that draws hard and fast lines everywhere, and marks out abrupt boundaries where she shades off with gradations. However opposite the parts which animals and vegetables play in the economy of the world as the two opposed kingdoms of organic Nature, it is becoming more and more obvious that they are not only two contiguous kingdoms, but are parts of one whole.

Though it is dangerous to infer the intent or individual reception of these works, the impression engendered from them is consistently one of vanishing certainties. The visual and written language of commentators like Hogg, Huxley and Gray constantly refer to an idea of indistinctness, blurring or gradual shading; where one being, or class of being, almost imperceptibly can blur into one another. By these accounts, the idea of plants and animals merging becomes increasingly easier to conceive.

By the turn of the century these ideas had reached their fever pitch. Francis Darwin, son and collaborator of Charles, became one of the most vociferous exponents for a new view of biology that placed plants and animals in ever closer relation. In 1880 he had co-authored a study with his father, *The Power of Movement in Plants*, where both Darwins concluded that ‘it is hardly an exaggeration’ to say the roots of plants function ‘like the brain of one of the lower animals’ (Darwin 573) – allowing plants to encroach on sentience, the

final frontier of exclusively animalian characteristics. These themes were later developed in a lecture titled ‘The Movements of Plants’, delivered to the British Association in 1901 and reprinted in the journal *Nature* that same year. The lecture builds on the analogy of a ‘plant-brain’, claiming that within the vegetable ‘we may recognise the faint beginnings of consciousness [...] rudiment of desire or of memory, or other qualities generally described as mental’ (Darwin, F. ‘Movement’ 51). ‘There is nothing unscientific’, he continued, ‘in classing animals and plants together from a psychological standpoint’ (53), hinting at, as described by Chang, the “possible thoughts of plants” (‘Killer Plants’ 86) and the psychic unity of animal and vegetable life. By entering, even speculatively, into the idea of a plant psychology, Francis Darwin’s claims go further than any other author examined here in arguing the extent to which animals and plants are kin. His ideas signified a departure from more rigorously evidence-based studies towards a more conjectural approach to the inner workings and origins of organic life, expounded by figures like Sir Arthur Conan Doyle. Tapping into this appetite for the esoteric, Francis’ lectures caused something of a sensation and were extensively reported on in both international newspapers and esoteric periodicals like *The Theosophist*, the famous Madame Blavatsky’s journal of the occult. In all such reports there was a recurrent fascination with the potential forms that sentient or otherwise remarkable plants could take, and as new discoveries pushed at the limits of botanical knowledge, it became clear that such speculations could no longer be contained to strictly scientific modes of enquiry.

Hybrid Fictions

Indeed, the seed of plant speculation was found to be ideally suited to the murky climate of Gothic fiction and captured the imagination of a number of writers. Much of the recent critical engagement with historical plant fictions have focused on how discoveries in plant science directly influenced in such narratives, with Jane Desmarais in her recent work *Monsters Under Glass* (2018) makes the case that Darwin’s discoveries “stimulated [...] writers to use monster plants to encode evolutionary anxiety” (216-7). Such an assertion is clearly evidenced by Algernon Blackwood’s 1912 Gothic novella, *The Man Whom the Trees Loved*, explicitly engages with contemporary

scientific theories and discourses. The story, sees the protagonist David Bittacy literally consumed by the love felt for him by a sentient forest, set into motion when Bittacy reads an article in *The Times* describing "an address by Francis Darwin before the Royal Society", whom we are told is "president, you know, and son of the great Darwin"[45] (Blackwood 79). Quoting Darwin's lecture, Bittacy recites: "If we accept this point of view [...] we must believe that in plants there exists a faint copy of *what we know as consciousness in ourselves*" – emphasising the latter part, we are told at this point by the narrator that Bittacy 'had italicised the last phrase' (80). Blackwood's meta-textual dual-emphasis of formally italicising the text and then, in an aside, adding that it was Bittacy himself who placed the emphasis signifies the full import of Darwin's words on the progression of the narrative. Indeed, Darwin's conjecture clearly had an influence on Blackwood himself, as he takes pains to directly quote from *The Times* article, clearly marking it as a source of inspiration for this tale of sentient vegetality.

In terms of its role within the plot of the story, the article in *The Times* 'bridge[s]' the 'gulf' (Blackwood 33) separating the animal and vegetable, or rather *human* and vegetable, creating a point of access for the forest to advance, embracing and absorbing Bittacy in mind and body (143). It is with particular reference to the merging of consciousness that Chang notes the efficacy of "fantasies of unification between plant and human" in producing sensations of horror, with the "resulting hybrid [being placed] at the far outer limits of not only the narrative, but consciousness itself" (Chang, 'Killer Plants' 93). In this vein, Blackwood takes the superficially romantic concept of 'losing oneself in nature' and applies it literally, subverting it into a Gothic vision; creating a conscious environment that overpowers the solitary human psyche and subsumes it. The drama of the story centres on the ascendancy of the unorthodox ideas about human-vegetable relations, which manifest in the sentient and animate forest. Crucially, the malign presence of vegetable life is acknowledged as 'something that usually stands away from humankind, something alien' (133). It is only when the malign vegetable presence insinuates itself into Bittacy's home, heart and mind through the

[45] Darwin was in fact president of the British Science Association, not the Royal Society, however *The Times* article and the speech it was covering were both real, and Blackwood's quotations are exact: see *The Times* September 3rd 1908 p.7

novel ideas of cross-species communication that it is able to assert itself, growing in size and influence and usurping the natural order of plant passivity.

The Man Whom the Trees Loved serves as something of a warning against the power of new ideas and the way they are able to transform our environment, giving it a new and terrifying power over the characters of the story. Blackwood's story was not alone in this regard however, and speculative fiction of the late-nineteenth century abounded with tales of pursuing a unification or perversion of natural forms. This plot was often given form through characterisation in the figure of the mad scientist, who serves as an embodiment of the pernicious effect of meddling scientific influences on the natural order. I want to examine how this figure of the 'mad scientist' is used to personify new ideas of the natural world that sought to conflate the animal, vegetable and human, introducing them into the fictional universes of Gothic stories. Since the hubris of Victor in Mary Shelley's *Frankenstein* (1818), the mad or over-ambitious scientist has been a mainstay of Gothic fiction, gaining in traction as scientific cultures became more broadly disseminated in the periodical press. Anne Stiles' examination of the trope, 'Literature in *Mind*: H.G. Wells and the Evolution of the Mad Scientist', establishes the archetype as symptomatic of a 'cross-fertilization between literature and scientific ideas' (2009, p.320). In Wells's case in particular, he was shown to be 'greatly inspired by his biology teacher [...] Thomas Huxley' and 'his emphasis on the brutality of natural selection', depicting the Mad Scientist as a product of a 'massively over-evolved brain' (319) with the cold logic of the evolutionary struggle for existence. It is worth appending here that although 'Huxley's pessimism' (319) over the cosmic process of natural selection was certainly an influence on Wells and others, the debates on hybridity, of which Huxley was an active participant, played an equally integral role in the composition of the Mad Scientist figure, who literally eroded the distinctions between species that their real-world counterparts were effacing discursively. The most obvious instance of this is *The Island of Dr. Moreau* (1896), with the eponymous character being perhaps the archetypal mad scientist of the late Victorian era. Moreau's attempt to blend and merge animal and human consciousness, and subsequent exploration of the 'perplexities of entanglement' (Glendening 592) in Darwinian ecologies, have been the subject of critical inquiry for many years. However, Moreau was not alone in his mission to merge or unite

organisms in abominable bodies, with other individuals reaching further afield – beyond the animal kingdom – for their experiments.

Four years before Wells' Island, a horticultural pre-cursor of sorts appeared in the form of a short story by Maud Howe Elliott, *Kasper Craig* (1892). The titular plant scientist is portrayed as a singular obsessive and a product of the intellectual climate that was seeking to deconstruct the boundaries of animal, human and plant. From the very beginning of the narrative "at a London flower show" (Howe 189) the story conflates and mingles different classes of being through simile and metaphor. The "gorgeously-dressed ladies" pass among the flowers "like so many brilliant butterflies" (189) and are soon transformed through the talk of the protagonist, Leonard Ebury, and Kasper Craig into "human flowers" (190). It is at this point that Craig reveals his belief in a vitalistic affinity and unity between natural beings that transcends the common boundaries of animal, vegetable and mineral – again taking his cue from the personal adornment of a member of the crowd:

> The lady and the bird belong, indeed, to the same class of beings. She wears the colors of his plumage, and imitates his graceful posturing – and see, further, how this woman has found her kin in the other kingdoms. She wears diamonds, hard, sparkling stones, whose glitter masks their shallowness; and she carries camellias: Showy, scentless, heartless as herself (190).

Craig's cosmology reflects the scientific debate of the time, albeit rather crudely, in his apparent advocacy of what Gray termed the 'law of continuity' (190), 'solidarity of organic Nature' (323), or to use Craig's own terms: 'the great law of harmony, which runs through all nature' (Howe 190), connecting subjects in the animal, vegetable and mineral kingdoms. Howe's presentation of these ideas however, packaged as they are with Craig's own hostile misogyny, immediately signals the dangers of his worldview to Ebury and the reader. Despite being a self-professed 'student of nature' (190), he holds much of it in contempt, showing disdain for flowers and gemstones esteemed by many, not to mention his preternatural hatred of women. It is this disdain he feels that allows him to violate social and scientific norms in the treatment of both his prized experiment and close female relative.

Somewhat perturbed by the botanist's eccentricities, Ebury is nevertheless enticed by the promise of money and the affections of Craig's niece, Mary Heather, and agrees to assist him in a prospective orchid hunt to Sumatra. In anticipation, Ebury is shown the orchid collector's specimens, with the most prized being a 'savage-looking flower!' with petals formed in the shape of an 'open mouth and throat', appearing to 'almost have a human look' (197). Seeing Ebury's fascination, the Professor explains the origin of the flower:

> It is allied to the *dionaea muscipula*, which, as you know[46], feeds upon insects. But this flower has a much more highly-developed organism. In evolution, it is as far from the Venus's fly-trap as you are from the river-drift man[47]. Linnaeus, and Gray, and all the famous botanists between them, have failed to establish the line between animal and vegetable life. There is a good and sufficient cause for this: the line does not exist. There is no break in the chain of creation. [...] This hybrid is the result of the experiments of thirty years of my life. Step by step, I have raised the standard of its race's organism [...] If we could produce an animal-flower, with more animal attributes even than the *dionaea*, should we not have found the link in the chain that binds the two kingdoms together? Would not the man who should produce that flower, be remembered with Galileo, with Newton, with Darwin? (Howe 197).

Craig's frenzied monologue reflects a desire for fame and knowledge often seen in the Gothicised Faustian scientist; what is significant is the referral again to real botanists, Gray and Linnaeus, and the touchstone of contemporary evolutionary parlance and the idea of filling in 'missing links'[48] in the fossil record. The Professor's project of finally uniting the two kingdoms of plant and animal resonates with the gradational vision of the 'origins of species' as shown by Gray and Hogg above and is seen in the formal anthropomorphism of the flower's gaping 'mouth' connoting a floral-human subject with the means of consumption, communication and even [sexual] desire.

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[46] And indeed, Howe's readers would have known, for it was one of the species cited by Darwin in *Insectivorous Plants*, describing it as 'one of the most wonderful [plants] in the world'.

[47] A then-common term for pre-historical or Neolithic man.

[48] The term was coined in 1890s, after the discovery of *Homo Erectus* by Eugene Dubois and quickly appeared in works by Charles Lyell, T.H. Huxley, Darwin and Haeckel.

These various floral embodiments of social and taxonomic transgressions ultimately coalesce into a scene where the plant vampirically feeds off Mary Heather's blood. Visiting her days later, Ebury sees that the flower has become 'a robust and vigorous plant, standing boldly forth from the bark on which it bloomed', the 'faint rosy tinge' has 'deepened and spread over the whole flower', its mouth is 'scarlet' and its 'throat with its cruel spikes' is 'spotted here and there with flecks of dark red' (200). In contrast, Mary herself is pale, cold to the touch and near-death as the plant draws life from her – the Stokerian tableau corroborating with recent criticism that states "the terror of the monstrous hybrid [plant] fixates on its penetrative capabilities, and in this respect it shares attributes with other aggressive hybrid monsters, including the vampire" (Desmarais 167). With the publication of *Dracula* just five years earlier, the signalling of the figure of the vampire is of particular symbolic value as a byword for the refutation of natural order. Simultaneously alive and dead, human and animal, of the past and the present and sexually perverse, evoking the vampire in connection with the orchid, Howe is able to signal through a kind of teratological shorthand the level of abomination Craig has been able to produce.

However, the orchid is not solely reliant on the borrowed plumes of other anthropic monsters and Howe also takes pains to demonstrate its innate monstrosity that is uniquely vegetal. One means of achieving this is the language of sexual indeterminacy that surrounds the plant, with it varyingly embodying both an overbearing phallus, 'standing boldly forth', and a *vagina dentata,* with its open throat and 'cruel spikes'. The hermaphroditic quality of the orchid reflects the long-standing knowledge that plants possess the equivalent of both male and female sexual organs, which, as Maja Bondestam notes in 'When the Plant Kingdom Became Queer', were often 'charged' with 'sexuality and sometimes objectionable lechery' (123). The sexualised description of the plant's newfound virility in tandem with its menacing vampirism is able to invoke a spectrum of fears and anxieties: as a potent and parasitic being drawing the vitality from innocent subjects, as an embodiment of contemporary fears of sexual transience and decadence, and as evidence of an unknown, malign environmental sentience. In T.S. Miller's *Lives of the Monster Plants* (2012) he proposes that 'the monster plant may point to a deep unease about the boundary between taxonomic kingdoms' (461) and this

is certainly substantiated by the kind of monstrosity seen in *Kasper Craig*. In the context of the debate surrounding the evolutionary proximity of human and vegetable, the vegetable 'vampirification' signifies a parasitic hybridity where the plant subject draws closer and closer to the human in form and likeness while robbing its prey of their vitality, showing a new ghastly form of evolution where plants may be more 'alive' than people.

Confronted by this horrifying prospect, Ebury seizes the orchid and tramples it 'into a bleeding mass' beneath his feet (200), destroying the only surviving subject of the Craig's lifework. Ebury's extirpation of the troublesome plant functions as an act of foreclosure, forcibly removing it from the narrative and actively curtailing all further mention of the orchid in an effort to re-establish social and biological norms, symbolised by his anticipated union with Mary. As they flee the house, Mary's brother begins to insist on the Gothic hybridity of the plant, stating '"You and I know the flower was a-"', before Ebury interrupts him with a warning of '"Hush, boy"' (202), urging him to forget, or at least repress, the ordeal. The refusal to admit mere mention of the plant as *creature* enforces a level of forced closure and denial amongst the characters, implying that with the foiling of Kasper Craig's designs, natural order is restored, reinforced and is once again unquestionable.

Numerous other narratives from the period similarly focus on obsessive scientists, plant monsters, and the destruction of anything that threatens the stability of ordered nature as we know it. 'Carnivorine' (1889) by Lucy H. Hooper appeared in the women's periodical *Peterson's Magazine*, detailing another everyman adventurer, Ellis Graham, here sent to Rome by a woman desperate to retrieve her son, Julius Lambert, who she believes has been seduced and entrapped there by a young woman by the name of Carnivorine. It transpires that the titular character is no woman, but a monstrous plant of Lambert's own creation. This initial misapprehension, whereby the mother mistakes her son's entanglement for a romantic tryst, is further emphasised throughout the story in order to consistently draw attention to the questionable status of the Carnivorine itself, as well as to the dubious nature of Lambert's obsession with it. This indeterminacy is the seat of "the horror and the hysteria" found in 'Carnivorine' and plant horror as a whole, as Jane Desmarais notes, such affect was "generated by the dissolution of

boundaries – female/male; human/plant – and uncanny resemblances between ostensibly different categories of organism" (167). Tellingly, on discovering the plant, Graham, in surprise, muses: 'this, then, was the object of my poor friend's affections – this ghastly shape, not yet wholly animal, yet scarcely vegetable, with the form of a plant and the appetites of a beast of prey' (338). Even by the story's close, Graham still looks on the creature as a disturbing hybrid: a 'vegetable-animal or animal-vegetable' (339), the struggle of deciding which kingdom's characteristics get precedence reflecting the extent to which the Gothic Carnivorine confounds conventional classification.

Much like Kasper Craig, Lambert 'tried to perfect a demonstration of the link between the vegetable and the animal kingdom', believing mythical creatures like hydras and dragons *were* real, but had 'degenerated into trees and plants' (337-338). His subsequent method to 'resuscitate the animal in the plant' (338) involved putting the plant on a high-meat diet, drawing from a common contemporary belief that protein, especially meat, could impart a kind of savage virility to the beings that consumed it, reintroducing the carnivorous vitality that had been lost in the evolutionary process. His methodology has a basis in the scientific literature of the period and Hooper explicitly mentions that Lambert has "studied the discoveries of Warming[49] and Darwin" (338), demonstrating an awareness of contemporary figures in plant science. Beyond these direct references, there is also an awareness of a deep genetic past, akin to Haeckel's tree of life, which animates the evolutionary backwaters and streams that bisect the two kingdoms in Lambert's experiments. By redirecting life through these forgotten channels, it is imagined that Lambert can re-establish a connection between the two kingdoms and even migrate a being from one to the other. The result is a picture of evolutionary lineage, not as neat lines of descent, but chaotic and sprawling networks that bisect classifications; a disturbing view with the potential to yield deeply unsettling hybridised forms of life.

Shortly after tracking down the errant Julius, Graham is soon faced with the titular specimen, seated in a giant tub at the centre of a glasshouse:

[49] Eugenius Warming (1841-1924) was a Danish botanist and Ecologist. His 1895 textbook *Plantesamfund* (*Oecology of Plants*) was cited by many in the 1890s including Arthur Tansley and helped establish the discipline of ecology with an English translation of Warming's work appearing 1909.

> a strange plant – a hideous shapeless monster: a sort of vegetable hydra – or, rather, octopus – gigantic in size and repulsive in aspect and in coloring. So immense were its proportions, that it filled by itself the whole space of the conservatory. It consisted of a central bladder-shaped trunk or core, from which sprang countless branches – or, rather, arms – [...] Each arm terminated in an oval protuberance which had a resemblance to the human eye (338)

Unlike in *Kasper Craig* or other similar narratives, Lambert's monster does not immediately resemble an orchid or flytrap and its 'spongy', 'shapeless' body actively resists identification. The first description the reader receives is of its sheer alien otherness, 'gigantic' and 'hideous' before trying to assign organic characteristics to its various features; even then, Graham has to variously borrow from both animal and vegetable traits, oscillating between the two as he fumbles to recognise 'branches', 'arms', a 'trunk', and a 'bladder'[50]. It is not until Lambert tells us that it 'is a Drosera'[51], which he has carefully 'developed into this unheard-of size' (p.338), that the plant's genetic origins are ascertained. Canguilhem in his work on 'Monstrosity and the Monstrous' explains how, in the conception of living beings, "consistency expresses itself through resistance to deformation and a struggle for the integrity of form" (2008 135), and therefore an ambiguous or inconsistent form, as exhibited by the Carnivorine, qualifies it as a "monster", which is exactly how Graham describes it after seeing the creature. Lambert brushes off the accusation, explaining that "for science, there is no such thing as a monster" (Hooper 338); a possible reference to the experimental physiology of "teratology", in which "scientist[s] of the nineteenth century claimed to fabricate real monsters" through deliberate manipulations of embryos to better understand the "secret[s]" of the "causes and laws" (Canguilhem 143) that determine organic life. In such a light cryptobotany becomes a tool with which to cultivate abominations – creating beings intended to test and even break the boundaries between categories of life.

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[50] Indeed the bladder, a superficially animal organ, was at the time also synonymous with carnivorous plants. The *Utricularia* or 'bladderwort' was an aquatic plant famously described by Darwin and Asa Gray in the 1880s. Gray in particular remarked on its abject nature, describing in detail its 'bladdery sacs' (p.323) and that the plant 'prey[ed] on garbage' [i.e. dead flies] unlike its non-carnivorous 'relatives [who] "live cleanly" as nobler plants should do' (p.324-325), marking the bladderwort as something of a deviant.

[51] Commonly known as a sundew.

Lambert only intends to further pervert the form of his creation by next endowing it with the power of locomotion, providing the creature with, “a pair of paddle-like feet or paws like those of some misshapen antediluvian animal” (p.339). This final bipedal detail, added to the already abominable form of the Carnivorine, causes it to more closely resemble a medieval grotesque than any modern scientific subject. The anachronism of its hideous shape is further emphasised by the reference to its ‘antediluvian’ appearance – referencing the time period before the great biblical flood when all manner of strange and abortive creatures were thought to have roamed the earth, before they were drowned by God, who saved only the ‘good’. This epithet marks the Carnivorine for imminent destruction[52] and once Graham sees it tearing apart Lambert’s corpse, he promptly fires a pistol into its central core, killing it instantly. In death, the reader is treated to a last, visceral union of Lambert and the Carnivorine as the plant spews forth “a stream of reddish sap that looked like blood” that “mingle[s] [...] with a ruddier crimson – the life-blood of my unhappy friend” (339). Returning again to Alaimo, the merging of the fluids achieves a final and very literal ‘transcorporeality’; joining the human and monster plant in a bodily union foreshadowed by the initial mistaken sexual misdemeanour between Lambert and the Carnivorine. The mixing of blood provokes a sense of physical horror at the idea of contamination, allowing the life-forces of the two beings to ‘mingle’ and permeate, while Hooper’s focus on the chromatic similarity of the hues of ‘reddish’ sap and ‘crimson’ blood posits the extent to which Lambert had succeeded in bringing a plant into the realm of animality.

The narrative concludes with Ellis righteously burning the remains of the hybrid, lest it should be resurrected ‘by curious scientists of the future’ (339), concluding that though ‘the annihilation of my friend’s discovery may be a loss to science [...] humanity will only have cause to rejoice in the destruction of the Carnivorine’ (339). The text again presents the idea that the interests of humankind are at odds with the fatal and meddling curiosity of scientists who

[52] The language shows the plant to be an aberration not only from a biblical standpoint, but also a scientific one. To quote from the above-cited Eugenius Warming and his *Plantesamfund*, “Every species must be in harmony, as regards both its external and internal construction [...] when these undergo a change to which it cannot adapt itself, it will be expelled by other species or exterminated” (Warming, 1909, p.2).

seek to conflate and combine incompatible beings. In this light we are able to see the other more mitigating and self-containing effect of the ‘mad scientist’ trope at work, clearly marking the hybrid creatures they produce as artificial and bred under the most perverse conditions to undermine the otherwise normative rules of nature. The mad scientist is thus rendered as something of a conservative plot device, a straw man for the perceived deviance or perversity of modern scientific thought. In other words if, according to Lambert, ‘for science, there is no such thing as a monster’ (Hooper 338), for nature and society, there still most certainly is. If monstrous plants are a human-made phenomenon, as opposed to a freak occurrence of nature, it is possible to maintain, or even reaffirm, human control of the hierarchies and boundaries of nature by policing and attenuating the malign, or merely eccentric, caprices of a few individuals. Characters like Julius Lambert and Kasper Craig provide a means of mollifying the ecogothic anxieties of hybridity and hostility in nature thrown up by phenomena like carnivorous plants, deflecting the issue by having vegetal monstrosity develop from a flaw in character, rather than a flaw in nature – making it far more easy to correct, or even laugh at.

With just a few minor touches, therefore, it is easy for narratives to veer from an eco-gothic exploration of a complex and insurgent plant-life into a good-natured romp, or even farce, as in H.R. Garis’ ‘Professor Jonkin’s Cannibal Plant’; summarised in *The Argosy* where it appeared in 1905 as “a triumph in cultivation which threatened a tragedy in mastication” (164). The story tracks a by-now familiar route with Professor Jeptha Jonkin filling the role of the over-ambitious and mal-adjusted man of science. Prof. Jonkin is described as an almost over-productive botanist and plant breeder, “continually striving to grow something new in the plant world” (164) – in the instance of this narrative, it is of course a flesh-eating plant that occupies his labours. He developed this giant pitcher plant by “dieting the blossoms” on incrementally larger fare - first from flies to minced beef, then diced pork, “choice mutton chops” and finally several “porterhouse steaks” (166) a day. His methodology, fantastic as it may seem, was actually common practice in the period, with even Darwin himself feeding his insectivorous plants on cubes of “roasted beef” (Darwin *Self Fertilisation* 245), though one would not be surprised to learn the plants did not thrive on this diet. In Garis’ tale however, the swelling portions of nutritious pig, sheep and cow signified both an

increase in strength and vitality, as appetite for meat so commonly did for the Victorians, but also a change the material composition of the pitcher plant itself. By deriving its biomass exclusively from animal, specifically mammalian, proteins – the plant becomes a kind of hybrid of sorts, in the sense it is literally composed of animal flesh[53].

As one might expect, this expansion of appetite persists until it is the Professor himself that is on the menu. A scene of comic violence ensues, wherein Bradley Adams, a friend of the Professor, walks into the greenhouse to see him leaning over the plant trying to feed it before observing: 'He went head first into [...] the eating apparatus of the strange plant, his legs sticking out [...] Then he disappeared entirely. Adams didn't know whether to laugh or be alarmed' (Garis 167). The farce continues as Adams is commanded to use chloroform to sedate the plant to spare it any violence or harm from the axe, proclaiming 'I would rather have let it eat me' (p.168), as he protects his prize specimen. In his explicit privileging of his force-grown plant-pet above his own life, Professor Jonkin is the most extreme of the several mad plant scientists here shown, and thus the narrative veers towards parody. Any suspense or fear of mortal danger is perpetually frustrated by the caprices of the Professor, which inject a mediating layer of humour to alleviate the tension, even as he is suspended within the jowls of the plant monster. When Adams prepares to leave, he sees Jonkin 'dreamily' examining the flower before admonishing it as 'naughty', declaring that it will not get 'any supper or breakfast' (p.168). This infantilisation of the monstrous plant confirms the limited impact that this kind of plant horror can elicit. The absurdity of both the plant itself and its creator inhibit a meaningful interrogation of the boundary between plant and human – with any potential danger firmly confined to the vicinity of the fictional hothouse.

Examining similar narrative trajectories, both in the nineteenth century and elsewhere, T.S. Miller identifies this same self-containment as a distinct strand within gothic plant texts as a whole, reading it as an inherent characteristic of the genre: "vegetable monsters in fiction represent a

[53] This logic of essentially 'you are what you eat' was frequently applied in reverse in the nineteenth century when discussing vegetarians, where they would be depicted as resembling, or even becoming, the fruits and vegetables they consumed. *Judy* described the "true type of perfect vegetarian" as having "Carroty hair, turnup nose, gooseberry eyes, a potato-trap mouth, a largely developed apple in his throat, a rye neck and a pear of ears [of corn]" ***Judy*** (London, England), Wednesday, July 12, 1882; pg. 15

disruption that also works to contain itself, [... the] narratives reinforce hierarchy by positioning the monster as evil, aberrant, an error to be corrected" (Miller 462). To argue this, and read *all* monstrous plants as inherently self-defeating, is misleading, as it ignores the narrative contexts from which these plants arise. Certainly, in the instance of *Kasper Craig* and the other stories shown thus far, the plants are confined by their status as artificial beings, in some respects, literally, as they are each raised in glasshouses. However, in the case of stories where plants develop their monstrous or otherly qualities in a state of nature, rather than by human hand, such innovations cannot be regarded as 'unnatural', but rather as a result of evolutionary processes. What is far more disquieting and effective as a form of eco-horror, is the interpolation of the revelations of Gray, Darwin and others into the vegetable kingdom – where a reader is presented not with a one-off freak of nature bred especially in a far-off conservatory, but the revelation that even the most mundane and humble of vegetables, the potato for example, has within it the seeds of consciousness and the will to conquer or overtake other life forms.

Samuel Butler's *Erewhon* (1872) presents a world of opposites – depicting a far-off nation where morals, justice and technical progress all work in reverse. In this topsy-turvy narrative, it is fitting that there should likewise be a plant that behaves like an animal, as the Erewhonians seek to warn the reader about the reader of the cunning intelligence that can exist out of sight, even in the most commonplace of vegetable life:

> Even a potato in a dark cellar has a certain low cunning about him which serves him in excellent stead. He knows perfectly well what he wants and how to get it. He sees the light coming from the cellar window and sends his shoots crawling straight thereto: they will crawl along the floor and up the wall and out at the cellar window; if there be a little earth anywhere on the journey he will find it and use it for his own ends. What deliberation he may exercise in the matter of his roots when he is planted in the earth is a thing unknown to us, but we can imagine him saying, 'I will have a tuber here and a tuber there, and I will suck whatsoever advantage I can from all my surroundings. This neighbour I will overshadow, and that I will undermine

By “crawling”, “see[ing]” and “saying”, Butler endows the humble potato with the faculties of movement, thought and feeling – to say nothing of its propensity for consumption. The passage renders the potato monstrous in its apparent divergence from our everyday understanding of vegetable life, but this monstrosity is not achieved by the hand of a scientist, but by the authorial shifting of perception to truly see the horrifying, naturally occurring life-force that had been present all along. Such a reversal, rendering familiar and safe natural beings unfamiliar and alien is a fundamental criteria of the ecogothic.

In this way, Butler’s text functions as a lens to undo the effects of “plant blindness”, as identified by James Wandersee and Elizabeth Schussler, the historic “inability” for individuals “to see or notice the plants in one's own environment, leading to the inability to recognize the importance of plants in the biosphere and in human affairs” (Allen 926). The passage and the *Book of Machines* in general serve as a warning against the possibility of what were once thought of as non-animate entities developing consciousness and threatening the social and natural order, based on human primacy. Though the book itself explicitly deals with machine sentience, foreshadowing the crisis of ‘artificial intelligence’ encountered today, Butler’s imagined text shows a deep consideration on the potential for ulterior modes of being, one that can perceive within the simplest of organisms the germs of consciousness. This, I argue, shows a truer ‘gothicised’ depiction of the ideas expressed by Gray, Darwin and others and is thus far more effective, and therefore demanding, than the other iterations of plant horror.

The success of Butler’s narrative as an ecogothic text can in part be ascribed to its unknowing corroboration with Dawn Keetley’s ‘Six Theses on Plant Horror’[54]; particularly its dual acknowledgement of plants’ “absolute difference” on one hand, and their disconcertingly humanoid attributes on the other. The other tales achieve this rather crudely, through a formal mashing of animal and vegetable such as mouth-orchids or vegetable-octopi; creating brand new species’ that do indeed bind the two kingdoms of life together, albeit by a single thread. By contrast, Butler’s endowment of consciousness and agency, even will, to a purposely commonplace plant, opens up the

[54] (1) Plants embody an absolute alterity; (2) Plants lurk in our blindspot; (3) Plants menace with their wild, purposeless growth; (4) The human harbours an uncanny constitutive vegetal; (5) Plants will get their revenge; and (6) Plant horror marks an absolute rupture of the known.

compartmentalised view of biology, forcing a paradigmatic shift in how we conceive hierarchies and boundaries in nature, where the animal and vegetable kingdoms are not merely linked, but woven together.

Where Butler focuses in on an individualised portrait of a single plant's consciousness and conquests, *After London; Or, Wild England* by Richard Jefferies (1885) provides a speculative glimpse at a world in which plants have retaken the Earth *en masse*. Set many years in the future after an unspecified catastrophe has decimated human life, *After London* shows a neo-medieval world of the distant future where, like the Erewhonians, Londoners of the future have lost all forms of technology and live a feudal existence in a landscape dominated by forests. Jeffries devotes the opening pages of the novel to describing the changes that have taken place in the landscape, establishing the central role plant life will take in the narrative, as well as the power it has gained with humanity's demise. Readers learn immediately that "It became green everywhere in the first spring, after London ended, so that all the country looked alike" (Jefferies 1), erasing and undoing centuries of cultivation with a green blanket that only tightens its grip on the land:

> overrun with couch-grass, and where the short stubble had not been ploughed, the weeds hid it. So that there was no place which was not more or less green; the footpaths were the greenest of all [...] the long grass, caught the feet of those who tried to pass through. Year by year the original crops of wheat, barley, oats, and beans asserted their presence by shooting up, but in gradually diminished force, as nettles and coarser plants, such as the wild parsnips, spread out into the fields from the ditches and choked them. Aquatic grasses from the furrows and water-carriers extended in the meadows, and, with the rushes, helped to destroy or take the place of the former sweet herbage. Meanwhile, the brambles, which grew very fast, had pushed forward their prickly runners farther and farther from the hedges till they had now reached ten or fifteen yards. The briars had followed, and the hedges had widened to three or four times their first breadth, the fields being equally contracted. Starting from all sides at once, these brambles and briars in the course of about twenty years met in the centre of the largest fields (Jefferies 2-4)

Jeffries vision of a newly re-wilded nature affords us a glimpse of a kind of ecogothic plant reverse-colonisation. In every space available, plants expand their vines and tendrils, “asserting their presence” and supplanting previous inhabitants by spreading across the land – with traversable space rapidly “contracting” until “By the thirtieth year there was not one single open place, the hills only excepted, where a man could walk” (5). Accessibility is the most basic form of control, you need to be able to at least reach a place if you wish to assert any kind of power over it. However, with the dawn of a new greener England almost all of the country is now barred to humankind, presenting a view, almost unthinkable in the nineteenth century, of an England colonised and controlled by an external force. In the context of this thesis it is also of note that it is not just people that the wild plant life displaces but also other, non-native, plant life. As the indigenous brambles and grasses begin their march across country and city they overwhelm and quash the beautiful and useful plants introduced throughout the nineteenth century. With the lack of an attendant gardener, the non-native and selectively bred varieties are found to be too weak to hold their own and swiftly become extinct. This vision of a crude and feral nature drowning out the supposedly superior plants raised by human hand directly contravenes the fantasy of a ‘naturalised’ and self-sustaining horticulture as dreamed of by Gilman and Burbank in the previous chapter, where it was imagined that improvements made by the processes of horticulture could be sustained indefinitely.

This loss of refined and cultivated plants is naturally accompanied by a loss of the knowledge of plant heredity and husbandry necessary to create them. With but a handful of small settlements of people remaining, literacy and scientific understanding are all but entirely lost, with hearsay and folklore filling the void left behind by empirical science. For example, the reader learns of tales of the “Dreaded […] graceful ladies of the fern”, dryad-like creatures who allegedly populate the wild meadows and clearings, their “lower limbs and body hidden by the green fronds, their white arms and shoulders alone visible” (Jefferies 204) leading wanderers to their doom in the forests. Jeffries’ inclusion of such cryptobotanical creatures is not necessarily for the purpose of having the reader believe that in the distant future such half-human, half-fern monsters really exist, but rather to demonstrate the re-mystification of green nature that occurs when scientific fact is removed. In the new ‘dark

ages' of ignorance 'After London', fears and uncertainties of the unknown create new cryptobotanical forms that become real to the once-more superstitious populace, living in fear of an untamed natural world.

Finally, it is worth noting that narratives did not need to travel to remote kingdoms at the ends of the Earth, or far into a distant post-apocalyptic future to encounter strange and confounding cases of cryptobotany. *The Snake's Pass* by Bram Stoker (1890) is able to locate eerie and uncertain forms of life within the marshes of contemporary rural Ireland. Presented as a property for potential real-estate speculation, the marshland is unveiled to be an ambiguous and uncertain mess of an eco-system where unheard of species lie beneath the surface. On receiving a tour of the land, a prospective investor learns from the agent that "You can imagine how devoid of knowledge we are, when I tell you that even the last edition of the 'Encyclopaedia Britannica' does not contain the heading 'bog' " (71). The ignorance that surrounds the landscape means that the festering is impervious to penetration, either physically through multiple failed attempts to drain or sanitise it, or epistemologically as the two try and fathom precisely what is 'a bog'. Yet enough is known about its processes to render it truly horrible, hybridised space:

> You may call it [...] a 'carpet of death! ' What you see is simply a film or skin of vegetation of a very low kind, mixed with the mould of decayed vegetable fibre and grit and rubbish of all kinds which have somehow got mixed into it, floating on a sea of ooze and slime — of something half liquid half solid, and of an unknown depth (Stoker 76).

As with vegetable creatures like the 'Carnivorine', it is the indeterminacy of the marshland that renders it horrifying – with the bog unable to even settle on a single state of matter, oscillating between solid and liquid. The visible vegetable "skin" of mould and filth is but a veil that cloaks the hidden depths of the fetid landscape, concealing from sight untold categories of life that could be animal, vegetable, mineral, or all or none of the above. In this sense Stoker deploys the 'hidden plants' of cryptobotany to mobilise the imagination into guessing what lies in the "ooze and slime" beneath the thin layer of rotting vegetable matter, of which so little can be known.

Crucially in these narratives where nature itself is gothicised it is the revealed *lack* of knowledge, rather than mastery over plant life that is the cause of the horror. Whereas in previously noted texts monstrous forms of cryptobotany must be made by the terratological desires of individuals with a preternatural knowledge of plant life, in *Erewhon*, *After London* and *The Snake's Pass* the strange unknown forms of cryptobotanical plant life materialise independently of human action and indeed actively resist attempts to understand or categorise them. As Jesse Oak Taylor notes in his reading of Jeffries' novel, this "resistance to human comprehension precludes the possibility of history proceeding according to an inherently anthropocentric narrative arc" (Oak Taylor 128) and therefore the uncanny and unsettling depictions of plant life are intended as a cautionary warning against human hubris. While this eco-critical reading is certainly valid, I would append that when comparing such tales to the other speculative narratives cited in the previous chapter it is revealed they are using cryptobotanical imaginaries for two very different ends. In tales where plant monsters are the product of intervention in natural laws, it is the perverse, even over-active imagination of the mad scientist in question that is to blame for manifesting the aberration – by contrast, the unknowable or unforeseeable plant forms in these latter texts reveal that our imaginative faculties are inadequate to fully grasp the kinds of forms and features the vegetable kingdom can manifest – leaving us in ignorance of what we cannot imagine. In other words, our cryptobotanical imaginaries are not perverse enough.

Returning one last time to the scientific literature of Asa Gray, there is a revelatory moment in 1874 when he asks: "what is now to be thought of the ordinary [plants]" that possess what we now understand as features of carnivorous plants[55]? "Their number is legion" and yet "no one ever imagined" that so many plants could possess the power of digestion[56]. His language implies an urgency to redress this misrepresentation of plant physiology, but beyond this general dissatisfaction with the minutia of taxonomy, it expresses an awareness of a poverty of imagination in the contemporary conceptualisation of biology. For too long people had been clinging to the

[55] These include internal bladders, porous leaves, adhesive hairs and burrs, etc.
[56] albeit in the most rudimentary of forms.

structured certainties of Linnaean, enlightenment natural history and were therefore made blind to the at-times nuanced and intermediary forms that exist in a Darwinian, evolutionary world. To fully articulate and appreciate such forms, it is necessary to embark on something of an imaginative leap in order to encompass the range of species and properties of plants and animals – evinced by the generalised "conjectures" of Darwin, which so frustrated Haeckel. This experimental means of viewing nature in turn resonated with other speculative cultural phenomena, like the gothic fiction and theosophical movements of the *fin de siècle*, latching on to the idea of latent [evolutionary] connections between drastically different species, enabling a kind of communion between life-forms previously thought impossible.

Reading a kind of Gothic imagination into the scientific literature and methodology of the *fin de siècle* is a controversial assertion and one that cannot be built solely on one botanist's remonstrance on intellectual short-sightedness. However, Gray's own appeal to the ability to conceive of more than what can be seen was not alone and there was a distinct strand of natural history scholarship that embraced the imaginative faculty as a existential constituent of biology[57]. The Austrian botanist Anton Kerner Ritter von Marilaun, (1831 – 1898), known in scientific circles as "the poet-botanist", was a similar advocate. Published in English in 1902, his *Natural History of Plants* was hailed as a textbook for its consolidation of the principles of botanical knowledge accumulated by the end of the nineteenth century and he used the introduction to situate the discoveries of the age within a lineage of botanical thought and the potential future of the discipline. In his words, the nineteenth century botanical process was one of "unfolding the hereditary connection between the thousands of different sorts of forms [...] tracing the history of plants and vegetable life all over the earth" (16-17). Yet for this speculative endeavour of tracing lineages, "all the different departments of botany are accordingly more or less limited to description" (17) nevertheless there was a way to circumvent these limitations:

> The desire to represent all processes as effects, and to demonstrate the causes of such effects – a desire which is at the very root of modern research – finds at least partial gratification in tracing a phenomenon

[57] I'm drawing on Herder not so much to substantiate my point, but to provide a holistic and authoratative view of the science of the period

> back to its proximate cause. In the mere act of linking ascertained facts together, and in the creation of ideas involving interdependence among the phenomena observed, there lies an irresistible charm which is continual stimulus to fresh investigation [...] It is impossible to overrate the value and efficiency of the transcendent gift of imagination when applied to questions of Natural History (17).

By figuring "imagination" as a quality of "extreme value" (18) in Natural History, Kerner opens up the potential for reading the heretofore ascientific cryptobotany as integral to the natural sciences. At the turn of the century he is able to break down the disciplinary boundaries that were already being erected between the natural sciences and the creative arts, positing the notion that is one again gaining critical traction: that "scientific knowledge about plants calls for a visual and embodied mediation of plant being – through human imagination and imaging technologies – that goes beyond the production and practices of scientific objectivity" (Meeker & Szabari 9). In this respect, the projects of experimental plant science and speculative, gothic fiction are one and the same: to achieve a more fully realised vision of plant life that brings it closer to the human – though this proximity is seldom benign.

Returning to Keetley and her interrogation of our vexed relationship with plants, she affirms there are "scant calls to take a plant's point of view" (6); yet this is precisely what Butler and others achieve, admitting that a plant's experience, both existentially and evolutionarily, "is a thing unknown to us, but [one] we can *imagine*" (emphasis added). It is the imaginative catalyst that gave rise to new kingdoms and lineages of life that also created blood-sucking orchids or locomotive sundews; the ability to conceive of new or ulterior living beings brought plants and animals together in novel and sometimes disquieting ways. In the context of this thesis, these instances of cross-kingdom hybridity in Victorian fiction reflect a period of biological uncertainty, when the new frontiers of Darwinian heredity threatened long-held anthropocentric exceptionalism with our nonhuman ancestry – and the cryptobotanical imagination was the means by which these strange frontiers were explored. As we approach the final chapter of this thesis, cryptobotany will once again be used to conceive of alternative ways of being that recall fears of atavism or degeneracy, however rather than evoking–fears of a

sentient or unknowable plant life hidden in our past or future, it will reflect the anxiety of the contaminating influence of vegetation in the *fin de siècle*, when a floral mania was gripping the nation.

Chapter Six – Becoming a Pansy: Queer Cryptobotanical Obsessions

Fig.6.1 *Punch*'s Satirical Portrait of Oscar Wilde. *Punch* (London, England), Saturday, June 25, 1881; pg. 298.

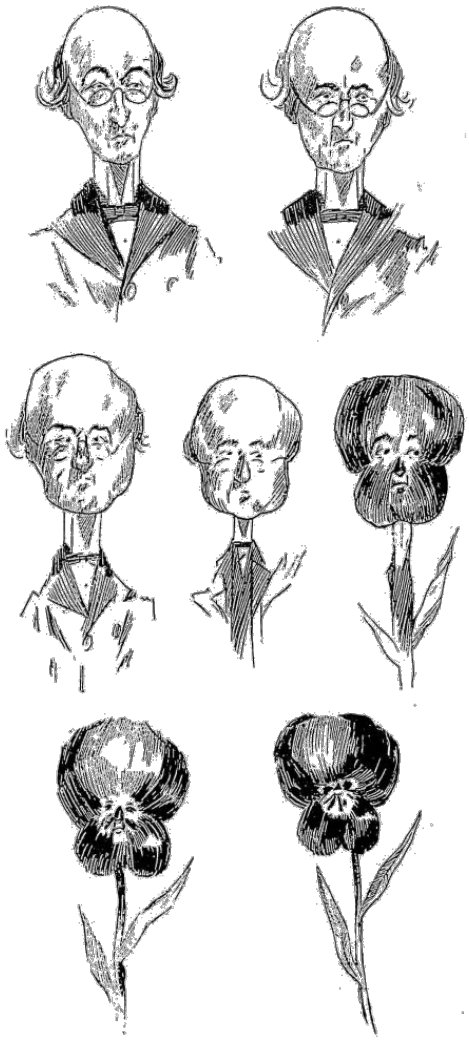

Fig.6.2 'Evolution of a Pansy-Grower' *Judy* (London, England), Wednesday, September 16, 1896; pg. 758.

There is a world of difference between the 'human plant' of Burbank and Gilman's imaginings and the two subjects detailed above. Whereas Burbank's analogies of a botanised public reflected images of children growing in health and beauty in the outdoors, caricatures such as these played upon fears of people being contaminated by the seductive charms of flowers; falling prey to aesthetic refinement, weakness and, crucially, effeminacy. This final chapter examines how plant life became styled as the cause of an unnatural mania of degenerate, deranged or otherwise queer figures of the *fin de siècle* period. Central to this analysis is the figure of the 'floraphile': an individual whose love of plants transcends what is deemed healthy or normal and who

instead becomes ‘obsessed’ with flowers, rendering both themself and the plants they love as unnatural and queer objects. Tracing the floraphile through a number of satirical portraits, it moves on to explore how their unnatural desires were used to complicate, pollute and even undermine normative moral and narrative trajectories in *Allan and the Holy Flower* (1915) by H. Rider Haggard and Joris-Karl Huysmans’ *A Rebours* (1884).

Beginning with a close-reading of Haggard’s long-neglected work, I propose a queer rereading of the role of plant-life in the novel as a perverting influence that works to destabilise both what Mary-Louise Pratt dubs the “imperial order” (3) and certainties that typically underscored imperial romance or adventure fiction; ultimately tying this wider botanical warping of perception to the novel’s treatment of a specific case of ‘orchidelirium’ in the character Stephen Somers, who bears the traits of an inveterate botanophile. While orchidelirium was a passion for the rare and exquisite beauty of tropical orchids, pteridomania was the pursuit of native ferns, with the most prized being those which demonstrated ‘monstrous’ or abortive features, rather than beauty. This amateur vegetable teratology is reflected in the reveries of Des Esseintes in Huysmans’ novel as he attempts to manufacture plants for aesthetic qualities that defy the ordinances of nature. In doing so I will examine the fraught anxieties around deviating from ‘the natural’ in botanical nature and how such departures were used to signify queer or otherwise undesirable modes of being.

Essential to the readings of this chapter is an understanding of rare plants and the manias they inspire as signifiers of ‘queerness’. The term is taken to mean not just the effeminacy or decadent mannerisms of the newly discovered and much-maligned homosexual of the 1890s, but also any traits that were deemed to deviate from acceptable norms or behaviours that were seen to be unproductive or injudicious. By interrogating the queerness of strange plants, I hope to add to previous chapters in which the *naturalness* and productive benefits of plants have been discussed at length. My aim is to demonstrate that plant life was not only imaginatively reconfigured in the service of humanity or capital in speculative fictions, but was also through varying literary channels shown to be a source of degeneracy, atavism and

even danger as plant life lured individuals away from healthy, normative pursuits into a hothouse of inversion, monomania and emasculation.

Jane Desmarais notes how “rampant vegetable matter” (80) became part of the visual language of parody in English publications that sought to denigrate “aestheticism and decadence” along with any other behaviours they “regarded as ridiculous and pretentious, and representative of the moral ‘flabbiness’ of the *fine de* siècle” (82). The examples that began this chapter come from *Punch* and its sister-publication *Judy* are no exceptions, both highlighting the proximity of animal and vegetable life to show people becoming one with plants. The first depicts Oscar Wilde, immortalised as the ubiquitous aesthetic icon, the sunflower. The choice of having Wilde become a flower was no doubt influenced by the premiere of Gilbert and Sullivan’s *Patience,* which had its first staging a mere two months prior to the illustration in April 1881. In both the opera and the illustration it inspired, much is made of the aesthete’s love and over-identification with flowers; for instance, Reginald Bunthorne – Wilde’s fictionalised double in the opera – sings a lyric teaching the audience how to be aesthetic, which includes cultivating a “love” for vegetable nature:

> [A] sentimental passion of a vegetable fashion must excite your languid spleen,
> An attachment a la Plato for a bashful young potato, or a not- too-French French bean
> Though the Philistines may jostle, you will rank as an apostle in the high aesthetic ban
> If you walk down Piccadilly with a poppy or a lily in your medieval hand.
> And ev'ryone will say, As you walk your flow'ry way,
> "If he's content with a vegetable love which would certainly not suit me,
> Why, what a most particularly pure young man this pure young man must be!” (Gilbert 209)

Though yet to be mired in the later scandal of the trials of the 1890s, Wilde’s sexuality still comes under scrutiny in both satirical depictions. Bunthorne’s overt love for flowers and plants on one hand shows a kind of lack of sexuality, which he refers to in conceit as ‘purity’; however there is more than a hint through his ‘platonic love’ for a bashful young potato, of a kind of vegetative licentiousness that is not made plain but nevertheless marks out

Bunthorne [and Wilde] as distinctively queer[58]. The same features are present in the illustration, as a sunflower Wilde is made 'other' and most assuredly different from his peers. Though his vegetative state would suggest a kind of sterility, the reference to the 'waste' from which plants derive their nutrients puts to mind the sordid aspects of plant life, namely their imbibing of effluence and their "'sexually unconventional'" (Bondestam 116) means of reproduction.

The second shows the 'evolution' of a pansy-grower, whose prolonged and obsessive exposure to his favourite plant gradually erodes his human features as he becomes a pansy himself – incorporating both the over-refined nature of the obsessive horticulturalist, and the confused ideas of environmental factors in evolution prevalent at the time. Behind both comedic illustrations, there is more than a hint of anxiety over their subject matter, specifically in relation to the emerging discourse of degeneration. Both Wilde and the pansy-grower serve as stock representations of the kind of modern man that brought about fears of nationwide enervation at the *fin de siècle*; effete, with little appetite for the 'red-blooded' pursuits of sport, combat or women, instead pursuing typically 'feminine' hobbies such as floriculture and interior design. In moving between the supposedly once-firm binary of masculine and feminine, they are also depicted as straying into the intermediary space between the animal and vegetable; becoming less-than-human in the process. The human-plant, or plant lover, thus becomes a signifier of an individual who is something other to the common herd of human animals; like a plant they exhibit little-to-no conventional appetite, movement or sexuality; however in their strangeness they are imagined to harbour unknowable perversions that subvert the norms of everything from sex to aesthetics.

Allan Quatermain Doesn't Like Flowers

The language of mental pathology has been used throughout history to colloquially diagnose those with a preternatural obsession with certain varieties of flowers, with crazes given names like 'tulipmania[59]' and

[58] Indeed it is a flower, the green carnation, worn as a corsage, was co-opted by Wilde and others in-the-know as a code for homosexuality in the 1890s and beyond; when asked about its origins, he remarked, "I invented that magnificent flower" (Desmarais 76). See also Noel Coward's song 'Green Carnation' from his 1890s period operetta *Bitter Sweet* (1929).

[59] The term given to the Dutch South Sea Bubble when merchants and investors speculated vast quantities of money on rare tulip bulbs. Nineteenth century readers would be most

'orchidelirium' in order to convey the extreme lengths collectors would go to secure rare specimens. Partially owing to their exotic origins and the hothouse environments they were grown in, orchid collectors in particular garnered a reputation in the nineteenth century for being subject to a "sinister and decadent passion" (Beekman xv). Many an ecogothic tale of the variety seen in the previous chapter such as H.G. Wells' 'Flowering of the Strange Orchid' (1894) revolved around the singular obsession of an orchid maniac, and it frequently ended in their demise. Perhaps in order to rectify this, tales of 'plant hunters' frequently appeared in boy's adventure periodicals of the period. In his cultural history of the orchid, historian Jim Endersby sees these texts as an attempt to inculcate an idea of masculinity into the pursuit of orchids, arguing that "these stories seem to propose that – as long as they remained great and white – hunters could pursue flowers as readily as lions and not compromise their manliness" (Endersby, *Orchids* 183). However, I argue in this chapter that even swashbuckling tales of manly adventure are to varying degrees perverted by the plot device of rare flora and the maniacs whose boundless levels of desire and capital underscore the narratives of such plots.

On the surface, *Allan and the Holy Flower* reads much the same as other narratives of imperial romance of the period. It transpires that there is an exceptionally rare, and vaguely supernatural, orchid growing in a village in darkest Africa. A healthy plant would be worth £20,000 to the right buyer, and so Allan Quatermain and a band of explorers head into the African interior to recover the specimen, encounter some mysticism and adventure, save a damsel or two and return triumphant, wiser and richer. So far so conventional. What differentiates Haggard's text from other similar narratives of orchid missions, which according to Endersby's review of the literature were "hyperbolic masculine(sic)" romps in "cliché-infested jungles" (179), is its reflexive awareness of the strangeness of flora and how the framing of an adventure novel around the pursuit of a flower is, for want of a better term, a bit queer.

The novel opens with Quatermain already prefacing that this story is somewhat atypical of an adventure story, immediately addressing the reader from the first line: "I do not suppose that anyone who knows the name Allan

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familiar with the mania through Charles Mackay's *Extraordinary Popular Delusions and the Madness of Crowds* (1841).

Quatermain would be likely to associate it with flowers, and especially with orchids" (Haggard 1). The opening continues to upend our expectations as it progresses to the first action scene of the novel, where Quatermain is stalking game in the jungle and comes across a fellow predator unawares:

> To this moment I can remember exactly what I saw. There was the granite water-worn boulder, or rather several boulders, with ferns growing in their cracks of the maiden-hair tribe, most of them, but some had a silver sheen on the under side of their leaves. On one of these leaves, bending it down, sat a large beetle with red wings and a black body engaged in rubbing its antennae with its front paws. And above, just appearing over the top of the rock, was the head of an extremely fine leopard. As I write, I seem to perceive its square jowl outlined against the arc of the quiet evening sky, with the saliva dropping from the lips (Haggard 4).

The passage is a study of naturalism, with each ecological subject of Haggard's own 'tangled bank' presented in detailed perspective and coming straight from the classificatory discourses outlined in this thesis' previous chapter; the inversion of special hierarchies in this vignette become glaringly apparent. The passage begins with the mineral kingdom, the granite boulders, lingering on their multiple forms before Quatermain's attention is guided to the vegetation growing between them. The pteridomaniac's ferns then capture his gaze, taking time to identify the variety as maidenhair, though expressing some uncertainty about the other silver-backed specimens. Then we finally progress to the animal kingdom, but only to its lower [invertebrate] ranks, through the guise of the red-winged beetle, where we are given a close-up account of its minute movements as it attends to its antennae. Only then, after paying increasingly rapt attention to the preceding representatives are we presented with the leopard, albeit in a cropped form, with only "the head" being shown. The deliberate foregrounding by Haggard of these seemingly inconsequential details immediately signals that *The Holy Flower* is not your typical adventure. Rather than privileging the immediate cause of danger, the predacious mega-fauna is left impressionistically half-sketched in favour of a marked and seemingly unproductive fixation on the minutia of the natural world. A meta-textual critique of the misguided energies of the orchid

collectors themselves, who dwell in excruciating detail on the colouration of individual flowers at the expense of all else.

This focus on a subverted perspective crops up again a few pages later when Quatermain first sees a specimen of the eponymous orchid, preserved and dried in a carrying case. It is given a theatrical unveiling, evocative of the infamous mummy unwrappings by the likes of Thomas Pettigrew[60] and Bram Stoker's *The Jewel of the Seven Stars* (1903); the specimen being wrapped in layer upon layer of mats, woven grasses, blotting paper and old newspaper and encased in multiple sarcophagi-like boxes. At last, Quatermain is brought face to face, as it were, with the flower:

> Even in its dried state it was a wondrous thing, measuring twenty-four inches from the tip of one wing or petal to the tip of the other [...] In colour it was, or had been, bright golden, but the back sheath was white, barred with lines of black, and in the exact centre of the pouch was a single black spot shaped like the head of a great ape. There were the overhanging brows, the deep recessed eyes, the surly mouth, the massive jaws – everything. Although at that time I had never seen a gorilla in the flesh, I had seen a coloured picture of the brute, and if that picture had been photographed on the flower, the likeness could not have been more perfect (Haggard 11-12).

Again, the reader is treated to a further detailed description and Quatermain's shifting perspective as he remarks on his impressions of the flower. What is noteworthy, besides the flower's unprecedented size, is the mimicry shown by the plant and its ability to deceive[61]. Referencing the supposedly objective and truthful medium of photography, Quatermain's avowal that through a camera's lens the plant would be indistinguishable from a real-life gorilla throws the idea of objective classification into disarray; it creates an uncanny sense of indeterminacy akin to the animal-plant hybrids of the previous chapter. Indeed,

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[60] A surgeon and antiquarian made famous for demonstrations where he "ceremoniously unrolled" the remains of ancient mummies to in private parties and public lectures (Dawson 170). Egyptologists continued the practice of mummy unwrapping into the twentieth century, with noted practitioners being Grafton Elliot Smith and Margaret Alice Murray (who performed the last semi-public mummy unwrapping in 1910), though these were wholly academic affairs devoid of the spectacle of Pettigrew's performances.

[61] The phenomena of inter-species mimicry was one of the great problems presented by Darwinian evolution and many naturalists of the nineteenth century posited theories of evolution to suggest how the mechanism developed, the most famous being Henry Walter Bates.

in his creation of the cryptobotanical specimen of the Holy Flower, Haggard is able to imbue the imagined plant with an array of unnatural and queer properties as a means of providing foreshadowing the kind of entanglements Quatermain will encounter in pursuit of the flower.

These issues of perception and the limitations of sight, necessarily bring this chapter into dialogue with scholarship on nineteenth-century visuality and Kate Flint's seminal work on nineteenth century perception *The Victorians and the Visual Imagination* (2000). Of greatest significance in regard to the *Holy* Flower is what Flint calls "that slippery, intriguing borderline between the seen and the unseen – that which lies out of sight" (xiv) and how Haggard treads that borderline with the plants in his narrative. Ordinarily in more straightforward examples of the Victorian imperialist adventure novel the over-arching feeling is one of mastery and "surveillance", with "practices of codification and classification" making the strange and exotic visible, knowable and controllable (Flint 13). Flint mentions Haggard as an example of fictional barriers to sight in imperial romance, citing the role that "distant illegible environments" and "fantasy landscapes" (155-156) play in entombing and obscuring the characters of *King Solomon's Mines* in darkening caves and crypts. However, the obfuscation we encounter in *The Holy Flower* is of a more subtle yet consistent kind. Plants function as a barrier to knowledge and a constant signifier of a dearth of reliability within the narrative and there is a repeated engagement within the *Holy Flower* where plant life plays tricks on the sight of British adventurers.

Recent scholarship has begun to question what it means to centre a narrative around vegetation and Elizabeth Hope Chang is one of a number of modern critics who are engaging with the role of environment, particularly plant-life, in Victorian novels of romance and adventure. Her article 'Hollow Earth Fiction and Environmental Form in the Late Nineteenth Century' turns to Haggard's novel as an example:

> adventurers are surrounded, explicitly or implicitly, by plants and plant life subject to manipulation and cultivation and equally resolve to transform the landscape via their personal industry. Aside from the heavy tropical vegetation that generally blankets the setting of many adventure novels, plants often set in motion the action, as in H. Rider

> Haggard's *Allan and the Holy Flower* [...] The wildness of landscape that is so frequently the precondition of the late-nineteenth-century romance, then, must be understood to exist in competitive parallel with the increasingly (and already) cultivated spot in which adventures are actually taking place (391).

Chang's argument has been cited elsewhere in this thesis**,** but it bears elaborating here as it offers a productive approach to thinking about the role of environs in late-Victorian romances. The article argues that the genre of Romance fictionally generates an environment, which by the nature of narrative, comes to us ready-cultivated – in the sense that it is called into being by the minds of the author and reader. However, her summation and inclusion of *Allan and the Holy Flower* in these discussions of cultivation risks effacing the peculiarities of the narrative with regards to its relationship with its environment. For "cultivation" to take place in an environment, it would suggest that one possesses the necessary control and knowledge of the terrain, flora and fauna to assert dominion over it and, as stated above, it is certainly true that at its rudiments the novel exhibits a standard imperial project of botanic commodification and cultivation that seems to suggest such dominion. However, a close reading of the text affords countless examples where, rather than providing straightforward instances of a knowable and exploitable nature, plant life consistently retains an elusive, even disorientating, air – hiding from, deceiving and resisting the imperial gaze of Allan Quatermain at every turn. This is truly where the *crypto-* in cryptobotany enters the forefront, as the literally 'hidden' aspects of plant life make their presence felt, distorting perception and causing the narrative to veer into unexpected directions. The slippery, resistant and queer nature of plant life in *The Holy Flower* is put to a very specific use within the text, where the myopic fixation of a floral mania routinely destabilises the co-ordinates of the narrative. At key parts of the narrative, vegetation provides means for concealment, distortion even hallucination and it is here that the sense of queerness is derived. Challenging the notion that the natural environment of Romance is pre-determinately cultivated, thus throwing the reliability of the human senses into question.

The orchid remains a contentious and ambiguous signifier throughout the narrative, oscillating between falsehood, with its duplicitous mimicry, and truth, offering material proof to Quatermain when he hesitates in doubt: “I wonder whether the whole thing is a lie, no; not a lie, an hallucination. It can’t be – because of that orchid. No one can explain away the orchid” (23). The inability to “explain away” the orchid through rational thought, or directly comprehend it through conventional methods of visual classification means that it, and by extension the other plant-life of the narrative, exist in this indeterminate, queer space that continually confounds perceptions. For instance, when Quatermain presents the dried orchid to a collector in London, the man demands visual confirmation: “In the name of the goddess flora let me see it!” When the plant is offered for inspection, he “look[s] at it till I thought his eyes would really start out of his head” – even this repeated and intense looking is not sufficient and he questions, to Allan’s great consternation, “You haven’t faked it Mr [...] Quatermain, have you?” (32). Even in these moments of intense scrutiny, the orchid retains its queer mystery. As Lynn Voskuil has noted in her recent contribution ‘Victorian Orchids and the Forms of Ecological Society’, the potent destabilising effect of the orchid was known and acknowledged in Victorian orchid literature, noting that “these accounts often stress the moment of discovery as a sensory-laden experience that transports and sometimes even overwhelms the seeker [...] underscor[ing] the disorienting effects of orchids on humans” (Voskuil 25). This power of orchids to overwhelm and disrupt the senses is certainly played upon by Haggard, who frequently uses orchids and vegetation more generally as red herrings or a means of concealing, or otherwise altering and confounding, perception.

Another scene occurs with the heroic arrival of ‘Brother John’, Quatermain’s vegetarian, American witch-doctor companion just as Allan and his retinue are about to be executed by firing squad. Across the shooting range, Quatermain espies him cloaked “with a wreath of flowers – I noted in disgust that they were orchids – hanging in bacchanalian fashion from his dinted sun-helmet over his left eye” (187). Quatermain takes the flowers to signify that he has lost his mind, admitting “my brain swam and seemed to melt into a kind of confusion” causing him to “see all sorts of queer things” and that “Of course I knew that I dreamed” (186). This state of literal orchidelirium, a mental disturbance caused by orchids, not only reaffirms the uncertain

nature of the orchid as a phantasmagorical symbol, but also presents it as visual trigger that can destabilise one's perception, whereby "all sorts of queer things" can enter the mind; an idea that will be developed in time as we turn to *A Rebours*. This perturbation can explain the otherwise rather puzzling "disgust" that Quatermain experiences on identifying the type of flowers in the wreath. In the *Anatomy of Disgust* (1997) by William Ian Miller, the presence of disgust "convey[s] a strong sense of aversion to something perceived as dangerous because of its powers to contaminate, infect, or pollute by proximity, contact, or ingestion" (Miller 2). In a story already saturated with orchidaceae, Quatermain is by now familiar with, and is repulsed by, the weakness and queerness of sensation that the plant can solicit and wishes to avoid further contamination of his senses by the noxious presence of the flowers.

It is here worth turning once more to Lynn Voskuil's study of Victorian orchid culture and its nuanced appreciation of the potential cross-species subversion. In her concluding pages, she posits that "orchid literature" had the potential to raise "significant questions about species relationships and ontology", even going so far as to "challenge[...] humanist ideas" of exceptionalism and superiority (Voskuil 31). While Voskuil then backtracks somewhat, acknowledging that the "imperialist framework of nineteenth century global operations made it very difficult to question the certainty of British – and human – exceptionalism, with the result that horticulturalists retained a firm, dominant role in most orchid literature" (32) – I would suggest that it is here that the study of fiction gains vital importance. While it may indeed be the case that imperial pressures were such that they precluded any more ambiguous depiction of human-plant-nature relations in horticultural texts, as has been shown consistently in this thesis, the nature of speculative fiction, particularly cryptobotany, gave authors free reign to experiment with ideas and forms that were not compatible with the stricture of scientific or realist prose. The cryptobotanical subject, in the case of Haggard's text, the Holy Flower itself, can thus be used to explore all manner of taboo or otherwise contentious concepts and this is precisely what occurs in the novel's climatic passage, with the acquisition of the living orchid setting in motion a series of events that challenge the limits of the human.

Having been teased throughout the narrative with dried specimens and folklore surrounding the Holy Flower, in chapter sixteen we are finally treated to the sight of the plant 'in the flesh' to the great wonder of the party – forcing even Quatermain to remark it was "the most lovely plant, I should imagine, that man ever saw" (304). The problem then emerges of how to spirit away this eight-foot orchid. In order to intimidate the Pongo tribe who worship the flower into letting them make off with it, one of the party suggests that Hans, Quatermain's Khoisan manservant, don the flayed skin of the gorilla deity they had recently slain and impersonate the creature as they make their getaway, proclaiming that Hans and the ape "are like two brothers already" (309). Throughout the narrative Hans is the subject of physical and verbal abuse; consistently described by Quatermain in racialised terms, with the equating of him to the gorilla being simply the latest, albeit the most blatant, of many dehumanising slurs in the text. So begins a ghastly spectacle where Hans is corporally bound up in the gorilla's skin and where he must pose as the ape while they make their escape. In the service of furthering the realism of this otherwise burlesque scene, Haggard pays meticulous attention to the logistics of their escape, taking pains to explain how Hans moves and operates firearms whilst wearing the skin, "pok[ing] [...] his fingers through the skin of the gorilla's arms" (330), evoking a mental picture of a hand literally embedded in the fur of the ape. The scene plays on the worst aspects of imperialist racial politics, aligning indigenous Africans with apes and implying a bestial or lesser-evolved state.

However, there is too great an element of the abject and uncanny in the passage for it to be solely played for laughs. Details such as the fingers through the fur and the overpowering and suffocating "heat and stench of the skin" solicit a troubling disgust rather than mirth or a sense of superiority. As much as imperial ideology would disavow such a fact, the discoveries of heredity in the nineteenth century had shown that the idea of distinct and fixed racial types was a fallacy. By having him embody the hollow flesh of a gorilla in an attempt to conflate his identity as a native African with that of an ape, such an act cannot, and does not, leave his white companions unscathed. All are implicated in this Darwinian spectacle of human origins, provoking a sense of collective unease at the proximity of the human to the simian. This can be at least partially attributed to the disruptive influence of the orchid. On a practical

level, its existence is what requires the donning of the flayed skin, forcing the performance of human apehood. However, beyond the immediate conditions of its transportation, it has already been demonstrated that orchids, especially *the* orchid, produce a disorienting effect that can blur and infringe the lines between categories of life. Thus, by having a man inhabit the skin of a gorilla, the novel reflects an anxiety of the descent of man, racial categories are of course invoked in an attempt to contain the dehumanising display to indigenous peoples; however, as will be demonstrated, these attempts by Quatermain and others prove unsuccessful as they are repeatedly confronted with atavistic imagery indicating their collective animal origins in their pursuit of the flower.

The racialised pantomime of the gorilla-human is compounded with another case of ambiguous human-primate embodiment as they dig up the Holy Flower. Entangled in its roots, they discover a skull that “may have belonged to a woman of a low type [...] its general appearance reminded me of a gorilla”, and indeed it is rumoured that she was the “wife” of the recently slain creature (311). They quickly wrap up the flower and remove it and the detail of the skull is quickly passed over; however, when considering the skull’s presence at the very heart of the narrative, situated beneath the eponymous flower, it gains a deeper significance. Once again there is the issue of the skull’s indeterminate origin, gorilla or human, which re-treads the same imperialist anxieties of race and origin discussed above, though this is perhaps of secondary interest in comparison to where the skull is found – its location at the base of the giant orchid calling to mind the metaphorical trees of hereditary lineage discussed at length in the previous chapter. The potency of the vegetable form as a map for species’ progress is well known, as the biologist and historian of science J. David Archibald notes, the “tree constitutes the single most powerful and most often used image of evolutionary history” (Archibald 22). The rooted orchid can thus be used to express existential fears regarding the superiority or fragility of humanity: “are we the pinnacle of creation [...] or do we fit as one small twig on the vast tree [...] of evolutionary relationships?” (Archibald 200). Haggard’s placement of the insoluble and seemingly primordial skull at the plant’s base thus seems to provide a physical reminder of the adventurers’ common ancestry. As Quatermain attempts to salvage and better identify the bones, he admits he is

unable to “make a proper examination of these remains” (311), their inscrutability owing in part to the pervasive presence of the orchid, and the fundamentally alien nature of the deep past – a temporality only the flower can experience. Such uncertainty and confusion contribute further to the precariousness of Quatermain’s identity as a ‘civilised’ human that is apart from the entanglements of wild nature it precipitates a crisis of origins.

This crisis culminates mere pages later in Quatermain’s murderous altercation with the Motombo, leader of the Pongo tribe and previously described by him as a “strange object” with “all the appearance of a very bloated toad” (264). Having spent the last pages assessing the various racial typologies of skulls and bodies, Quatermain stands over the man’s corpse and begins a phrenological and physiological analysis:

> akin to the great god ape [...] he bore a most remarkable resemblance [...] Indeed if their heads had been laid side by side at a little distance, it would not have been too easy to tell them apart with their projecting brows, beardless, retreating chins and yellow tushes at the corner of the mouth (329)

In a passage reminiscent of the initial confusion he felt when confronted with the verisimilitude of the gorilla pattern on the orchid’s flower at the start of the novel, Quatermain takes stock of the similarities between them and swiftly latches onto pseudoscience in an attempt to relegate the Motombo to the rank of an ape, for “to think it [the Motombo] was human was awful” (265). Here then is a seemingly clear-cut act of imperial, racist ideology, an attempt to dehumanise a perceived other, in order to expel the mere idea that Quatermain could be of the same species as such an individual. However, as the novel has gone through such great lengths to demonstrate, visuality is a shaky foundation for any set of assertions, and can be undermined at the slightest notice. Indeed, the evocation in the quote of the orchid’s own resemblance to a gorilla immediately undermines the proposition that just because a visage (be it floral or human) resembles something it must be related or in some way connected to the same. Instead, the “awful” realisation occasioned by the simian flower and the anthropoid cadavers Quatermain encounters is the slippery network of entanglements that encompass *all* organic beings – the ecogothic “transcorporeality” mentioned in the previous

chapter. Therefore, if Quatermain is showing abhorrence of the similarity between the Motombo and the gorilla, that same loathing cannot but be directed at his own body's connections to atavistic or inhuman origins, signified by ever more violent corporeal signs: the flayed skin, the woman's skull and the Motombo's corpse.

In pursuit of the Holy Flower, the adventurers are made to confront their own entanglements in wild nature. Whilst the ideology of imperialism as articulated by Haggard attempts to disavow any connections between the white protagonists and the ambiguous remains they encounter, it cannot preclude the uneasy sensation that their vaunted humanity is contingent and indistinguishable from the 'savage' life they continually attempt to classify and denigrate. The spectre of Darwinism haunts the pages from the discovery of the orchid to the party's final death-defying escape, and finds articulation through the queer presence of the flower. In the midst of the farce that is instigated by its removal, Quatermain and the reader are repeatedly confronted with lurid and abject hybridisations of human and simian forms that play upon imperialist attitudes to race in order to destabilise the categorical limits of the human. From its simian 'face' to the swooning torpor and mania it induces, the orchid permeates the erected boundaries and hierarchies placed between subject and object, throwing the reliability of categories and even individuals' faculties into doubt and confusion.

However, the locus of the 'queerness' that punctuates the novel's plants is not rooted solely within the vegetation itself, but also in the eye of the beholder; more specifically, the eye of the orchidmaniac. Much of the scholarship on visuality in the nineteenth century has documented what Martin Willis has described as the "historical fragility" (1) of vision as a source of knowledge within the period. There was an awareness that peculiar subjectivities are wont to distort or even wholly fabricate visual phenomena, resulting in illusions or greatly embellished visions that do not match reality. As stated, *The Holy Flower* is a novel in which the visibility of plants is a repeated source of instability, and it is therefore worth considering not just the plants themselves, but the eyes that are fixed upon them, as being responsible for the numerous vegetable mirages in the text. This focus on anthropic vision is not to suggest that the distorting effect of plant life is in fact a mere fault of

weakened human faculties; rather it belies an anxiety that a desire and unnatural fixation on plant life can infect and pollute the subjectivity of narrative, pushing it towards an unnatural 'queer' view of nature that is at-odds with the demands of masculine imperial modernity.

Within modern eco-criticism, the act of 'looking at plants' has come under a great deal of scrutiny. James Wandersee and Elizabeth Schussler in their 1998 coinage of the term 'Plant Blindness', have called attention to our species-wide propensity to marginalise or ignore the green aspects of our environment in favour of animals because we have evolved to see plants as less of a threat and therefore not as worthy of attention (Wandersee 82). However, as shown in the close reading of Quatermain's encounter with the ferns and the jaguar, *The Holy Flower* challenges this assertion, presenting an alternate subjectivity where, rather than being blind to plants, the narrative focuses in on them with a blinkered fixity. This is owing to the narrative centrality of the orchidmaniac, a class of person who has devoted themselves to the pursuit of rare flowers and who underscores Quatermain's entire mission.

The very existence of an individual who is willing to pay £20,000 for an orchid bulb creates the market demand that sets the plot in motion, and as Quatermain heads to London in pursuit of prospective buyers we are afforded a look into the strange world of the "opulent orchidists" (27). The abrupt move from darkest Africa to the metropolis is punctuated by Haggard with a string of asterisks and the narration that "now the story shifts away to England. (Don't be afraid, my adventurous reader, if ever I have one, it is coming back to Africa again in a very few pages)" (24). This wry warning, that those who thirst for adventure are to be momentarily disappointed, is intended to prepare the red-blooded reader of imperial romance for an unpleasant experience, for not only is the narrative entering the prosaic domesticity of England, but Quatermain is about to attend a most unmanly gathering: an orchid auction. The shadowy environs and queer characters he encounters make for one of the strangest passages in the novel. Quatermain is shown to be clearly out of his element, making a number of blunders and misapprehensions that seem at-odds with his otherwise masterful persona as an adventurer – clearly intended to mark him as a man apart from those he encounters.

The orchidists themselves seem to mirror the qualities of the flowers they so covet in the fashion of the “evolution of the pansy grower” in that they, like the orchids, resist identification and have the power to mislead with their appearance. On entering the auction hall populated with “knots of men” gathering around a number of specimens on display, Quatermain notes that they seemed “a kindly-faced set of people, and I took a liking to them” (29). We later learn from Stephen Somers, who becomes Quatermain’s companion for the ensuing adventure, that in fact they are “Dreadful people, orchidists, so jealous” (31), “who would murder you and throw your body into the Thames for that flower” (34). The knowledge that individuals could be possessed enough to stake fortunes, even commit murder, for the sake of a mere flower suggests appetites and morality that are at odds with convention. This impression of seemingly pathological, even homicidal, eccentricity is not stymied by Somers himself, who goes into rapturous fits at the sight of the dried specimen Quatermain has with him, asking “oh! Heavens, is it possible that such a thing can exist in this imperfect world?”, before admitting “I’m not mad really, except perhaps on this point” (32). Indeed, the mental state that orchidelirium inspires is referred to continually as madness in the text and Quatermain’s other orchid-obsessed companion, Brother John, is likewise described as “one of the strangest characters in all of South Africa” (7) and who “was universally supposed to be mad” (8). The implication being either that those who are mad can so dedicate themselves to the pursuit of plants, or that the love of flowers causes one to become mad. In either case, the state of orchidelirium is clearly a queer state of being, one that is as removed from the natural, wholesome and everyday as the rarefied and artificially cultivated blooms that they desire.

The queerness of orchid collectors is not limited to a less-than-sound mental state, but also manifests itself in non-normative and non-masculine behaviours which, like the popular portrayals cited earlier, vary from effeminacy to an undisciplined disregard for one’s person and one’s finances. These traits are reflected in Haggard’s tale once more by the queer affectations of Stephen Somers, most obvious being his apparent financial incontinence. Called away from the auction where he first meets Quatermain, Stephen leaves behind his gardener, a Mr Woodden, with strict instruction to secure one of the lots, an “*Odontoglossum Pavo*” - “whatever it cost” (35). Quatermain remains behind and observes the bidding, watching the flower

fetch bids in the thousands and believing the buyers are bidding in shillings – the hammer falls and we swiftly learn from a rather shell-shocked Stephen “I thought it was two thousand three hundred shillings, but it appears it was £2,300” (41). We later learn of the inability for any of the party to fathom the true value of the orchid when Stephen sells it on at a considerable loss. The failure to accurately appraise its market value stands as further testament of the illusory and misleading nature of orchids, but also the financial incontinence of its admirer, the orchidist. Removed from the act of purchase both consciously, in his ignorance of the sum of money, and physically, by his use of a proxy, Stephen exhibits a blithe ignorance, divorced from responsibility as a product of a pampered upbringing and decadent tastes, a judgment that is cemented by the appearance of his father.

Sir Alexander Somers enters the auction room bristling with outrage, described as “a fine-looking, stout man” (41), Quatermain later notes his surprise that such a man could father a child of Stephen’s temperament, proclaiming “I had not the slightest idea that this – big gentleman [...] was your intimate relation” (42). This disparity in physical appearance from “stout” manhood is seconded disdainfully by his financier father who rages against his son’s unorthodox and unmanly caprices on learning of the purchase of the orchid:

> You don’t even spend your money, or rather my money, upon any gentleman-like vice, such as horse-racing or cards or even – well, never mind. No you take to flowers, miserable, beastly flowers, things that a cow eats and clerks grow in back gardens! (46)

Stephen’s floral desires are here coded as specifically queer in their deviance from the normal behaviour one might expect from a gentleman in his position. The typical ‘red-blooded’ pursuits of gambling and implied whoremongering are contrasted to the herbivorous appetites of cattle and the domesticated, petit-bourgeois pastimes of lowly clerks. In the manner of the aesthete cartoons depicted at the start of the chapter, Sir Alexander gives Stephen his own floral epithet, crying: “you-you cucumber!” (47). The inference here is the same as the cartoons of Wilde and other Victorian depictions of floralised subjects: effeminate, lily-livered and queer; the cucumber in particular

connoting an individual that is insipid, cold and wet, in contrast to the rather meaty, ruddy-faced Sir Alexander.

Through the generational conflict between father and son, orchid-fancying is placed in opposition to the paternalistic desire to conform both to normative masculine pursuits and to a productive, capital-generating career, as we learn Sir Alexander has been repeatedly trying to get Stephen to join him in the family business:

> My respected father has made so much money that he thinks I should go and do likewise. Now I don't see it. I like flowers, especially orchids, and I hate bullion-broking. To me the only decent places in London are that sale-room where we met and the Horticultural Gardens (49)

This taste for the floral and disdain for bullion is coupled with an air of cultivated frivolity. Throughout the remonstrance from his father Stephen is able to maintain his composure, but affects an effete manner, speaking "sweetly" and "gently, as he fanned himself with a pocket-handkerchief" (46, 48). These foppish mannerisms are the final red flag as it were, signalling that here is an individual with sorely misplaced affections and in need of straightening out. It is also the final straw for Sir Alexander, who disowns Stephen for his inveterate floramania, cutting off his allowance and kicking him out of the family villa in Twickenham to fend for himself.

The denunciation by his father serves as the catalyst that propels Stephen, Quatermain and the narrative back to Africa – with Somers arguing that since he has nothing left in England he may as well try his luck on the Dark Continent. Jim Endersby notes in his reading of the novel how "Stephen grows in courage and stature during the adventure" (183) and indeed it is plain that the real goal of the novel is not to simply procure the rare orchid, but to acquaint Stephen with the death-defying adventure and romance only to be found in Africa, in order to cure him of his orchidelirium and 'make a man of him'. During action-packed episodes there are incidents in the narrative where Somers exhibits exceptional courage or fortitude, and even instances where his floramania, "my ruling passion" (Haggard 91), is somewhat redeemed, serving a useful and manly purpose. For instance, by scaling a palm tree in order to observe what he suspects is an orchid, he is able to spy and flag

down a British man-o-war, which is able to intervene at the last minute to save them from a gang of slave traders they are about to be overrun by.

However, while it may have situational uses, by the novel's denouement we can be in little doubt that Stephen's orchidelirium remains pathological and must be cured. This view is provided by Quatermain himself when he and Stephen finally catch sight of the Holy Flower:

> if this orchid astonished me, its effect upon Stephen, with whom this class of flower was a mania, may be imagined. Really he went almost mad. For a long while he glared at the plant, and finally flung himself upon his knees [...] I hate to see a grown man make a fool of himself. There's only one thing in the world which justifies *that*, and it isn't a flower (305).

Quatermain's condemning of Stephen's misallocation of affection and 'foolishness' echoes Sir Alexander's own frustrations with his son, with both of them euphemistically referring to the pursuit of women as the only worthy direction of a man's money and passions – not the queer and embarrassing love of flowers – hinting at the inevitable conclusion to Stephen's adventures. In the penultimate chapter dubbed 'The True Holy Flower', we see the induction of Stephen into normative masculine life, occurring after risking his life in a death-defying battle in which he loses the Holy Flower and wins a fiancé.

The long-lost wife of Brother John and her daughter that had been abducted by the Pongo tribe and are to act as caretakers of the Holy Flower and to make their escape with Quatermain and the others. When Stephen is almost mad with grief at the flower being taken back, the daughter, Hope Eversley, consoles him at the loss of the plant, stating "the fairest flower is here [...] for I am that flower which you found in the island of the lake" (350). In this avowed substitution of wife for orchid, it is implied that all of Stephen's preternatural yearnings for rare and exotic flora were simply a displaced desire for a good woman; indeed Quatermain informs us that their union is to serve as the telos of the whole narrative: "It was a pretty scene, and one that to my mind gave a sort of spiritual meaning to the whole of an otherwise rather insane quest. He sought an ideal flower, he found–the love of his life" (351). This final aside from Haggard's narrator serves as a fitting overview of the

vexed position that *Allan and the Holy Flower* treads as a botanical imperial Romance. Framing the narrative at its beginning and end are confessional moments from Quatermain acknowledging that the surprising, even "insane" nature of going to such lengths in the pursuit of a flower, and that to embark on an adventure motivated solely by the unnatural floramania of an eccentric, is to jeopardise the masculine credentials of both the plot and its characters with the queer influence of orchidelirium. We can see the perverting influence of the floral fixation throughout the text with the numerous instances where empiricism, the reliability of the human senses, crumbles under the influence of the orchid and in erratic behaviour of men made slaves to plants. This is all forcibly placed under wraps at the conclusion as Quatermain imparts the true "spiritual meaning" of the text to be the conventional marriage plot, thus resolving the issues of queer appetites by reaffirming a woman's hand as the only object that is truly worthy of a man's obsession.

So where does this leave us at the novels' end; is the masculinising mission of Stephen Somers a success? In the epilogue we learn that Stephen ends up having a large family with Hope, inheriting his father's title and stature – becoming a "prosperous" and "heavy" patriarch (383). So in body at least, Stephen appears to have become a model of manhood. However, as the orchid has shown, appearances are not all they seem, and his spirit remains a different issue. In the last pages we learn that Stephen was able to secure a handful of seed from the flower before it was recaptured by the Pongo tribe and has spent his married life cultivating the seedlings in his greenhouse. Years later after the events of the novel Quatermain visits the now Sir Stephen to see "three noble, long-leaved plants which sprang from the seed of the Holy Flower" (383). While they are yet to bloom, Quatermain expresses his fear "of what will happen when they do":

> It seems to me as though when once more the glory of that golden bloom is seen by the eyes of men, the ghosts of the terrible god of the Forest, of the hellish and mysterious Motombo, and perhaps of the Mother of the Flower herself, will be there to do it reverence. If so, what gifts will they bring to those who stole and reared the sacred seed? (383-384)

In this final speculation Quatermain acknowledges both the power the orchid possesses over the “eyes of men” and the potential ghostly return of the three deathly remains he encountered in Pongoland: the gorilla-skin, the skull of the unknown woman and the tribesman’s corpse. In doing so he confirms not only the resistant potency of plant life in the narrative – its presence in Stephen’s greenhouse and affections seemingly robbing his official, ordained ending of its “spiritual meaning” – but also the notion that the imperial and biological anxieties the flower solicited are about to return on English soil[62]. As he appends in a last, hurried post-script that he has learned the “plants are *showing for flower*” (384), hinting at the potential havoc the queer blossoms may yet wreak.

The culminating effect of botanical life in *Allan and the Holy Flower* is thus to instil a kind of ‘crisis of representation’ of plant life. Both explicitly and implicitly referencing the means and conventions the nineteenth century developed in order to objectively catalogue and structure both the natural world and adventure fiction. Haggard’s novel repeatedly depicts empiricism as an insufficient means of perceiving and understanding the natural world, and that individual perception is highly susceptible to being undermined by the covert machinations of plant life. Interspersed between stock scenes and characters from the tropes of adventure fiction, Haggard dots the text with queer narrative slippages where the expectations of both Quatermain and the reader run into blockages, mirages and quagmires caused by the problematic status of plant life, which we experience literally through the eyes of Quatermain and the other characters as a distortion or limitation of sight. The inclusion of these elusive plants is able, as similarly asserted by Katherine Bishop, to “confront the hegemony of human perception (sic)” (Bishop 8) and demonstrate the queer subjectivities that can be born from intimate contact with strange and fantastical plant life.

Artificial Flowers: The Queer Blooms of *A Rebours*

If *Allan and the Holy Flower* is an attempt at salvation for the figure of Stephen, the overly refined dandy with too much money and perverse

[62] There are number of detailed and well-argued pieces on transplanted exotic plants acting as a lightning rod for nineteenth century British fears of imperial gothic and the revenge of nature/indigenous people. See: Elizabeth Hope Chang’s *Novel Cultivations* (2019), Jane Desmarais’ *Monsters Under Glass* (2018) and Cheryl Blake Price’s "Vegetable Monsters: Man-Eating Trees in Fin-de-Siècle Fiction" (2013) to name but a few.

appetites, then Joris-Karl Huysmans' *A Rebours* (1884) is its antithesis, in which an inveterate botanophile is given unlimited licence to indulge every caprice. Huysmans' book dedicates chapters to all forms of pleasure that were at the disposal of its wealthy protagonist Des Esseintes: travel, sumptuous repasts, luxurious commodities and crucially, flowers. Flora is accepted by Huysmans as one of the essential forms of beauty and we are told that when Des Esseintes was young, his "passion...had originally embraced all flowers without distinction of species or genus" (82), however as time wore on and the process of refinement worked its toll on his sensibilities he latterly finds that:

> For a long time now he had despised the common, everyday varieties that blossom on the Paris market-stalls, in wet flower-pots, under green awnings or red umbrellas. At the same time that his literary tastes and artistic preferences had become more refined [...] his love of flowers had rid itself of its residuum, its lees, had been clarified, so to speak, and purified (82).

The aesthetic considerations of the text are paramount, placing the otherwise purely sensual and visual beauty of flowers on a par with painting or literature and setting plant life up as an art form that can be altered and remade to fit the edicts of taste. When speaking of Des Esseintes' "distaste...[that] hardened into disgust" (82) for the everyday flowers of Paris markets, it is not simply their commonplace nature that excites his contempt, special attention is paid to the "wet flower-pots", "green awnings" and "red umbrellas"; the fore- and background to the plants conspire to render them distasteful. Such due attention paid to the subject, its setting and how the colours, textures and materials interact with the flowers in question broadcasts the highly aesthetic nature of the text, displaying the decadents' impetus to focus and expend vast quantities of emotional or creative energy on the minutia of aesthetic or sensory perceptions. It is through the eye of the designer that such details rise into full importance, and through the guise of the novel the reader is guided through the process of curatorially improving the raw, haphazard products of the botanic kingdom and re-ordering them into perceptively finer specimens. Much as Huysmans seeks to turn the crude, visual descriptions of realist fiction into the sumptuous, overwrought work of a decadent novel. Such acts resonate entirely with the process of cryptobotany.

This decadent drive to ‘gild the lily’ and enhance commonplace natural beauty by artificial means took centre-stage in Oscar Wilde’s essay ‘The Decay of Lying’. Originally appearing in an 1889 edition of *The Nineteenth Century*, ‘The Decay’ sought to defend, even celebrate, the falseness of art and its deviation from natural realism – suggesting that individual caprice and contrivance surpasses the established norms of ‘natural taste’:

> Enjoy Nature! I am glad to say that I have entirely lost that faculty. People tell us that Art makes us love Nature more than we loved her before […] My own experience is that the more we study Art, the less we care for Nature. What Art really reveals to us is Nature's lack of design, her curious crudities, her extraordinary monotony, her absolutely unfinished condition (Wilde 1071).

For Wilde, the feared degradation of the taste for artifice, which critics feared was occurring in the period, was absolutely necessary for the arts to flourish. Indeed, “if something cannot be done to check, or at least to modify, our monstrous worship of facts, Art will become sterile and beauty will pass away from the land” (1074). If this was indeed the case, then cryptobotany, as the pursuit of the flora of the imagination and an open refutation of realism, was for Wilde the quintessential form of decadent artistic expression; taking the crude “unfinished” work of nature and improving upon it as the artist sees fit.

Wilde’s vaunting of the act of embellishment also forges a further connection between the cryptobotanical imagination and the queer imagination in the *fin de siècle*. In the emergent medical discourse of sexology, there was explicit reference to plant life as a model for both healthy and pathological sexuality. In the modern edition of the foundational text of nineteenth-century sexology, Heinrich Kaan’s *Psychopathia Sexualis* (1844), Benjamin Kahan argues that “the early history and emergence of sexuality is deeply structured by its engagement with botany” and that “at the core of the human subject […] we find flora” (22). Indeed, Kaan begins his work on sexual pathology by describing the sexual system, not of humans, but plants – which serves as a base map for the rudimentary mechanics of sexual reproduction, adherence to which is the means to a ‘healthy’ sexuality. It is when sexual behaviour deviates from the ‘natural’ meeting of gametes of pollen and stamen resulting in new fruit, that sexual pathology occurs and “in every distortion of the sexual

instinct it is the imagination that supplies the path that fulfils it, contrary to the laws of nature" (82). As such, in accordance to Kaan and others, all instances where perversion occurs can be seen as a case of "a disease of the imagination" (82), where the ingenuity of the human mind finds the means to corrupt ordinary sexual reproduction by inventing new forms for it to take. When read in this context, cryptobotany can likewise be seen as radically queer – in the sense that if the standard reproductive models of botany are used as the basis by which normativity can be assessed and enforced, the creation of new cryptobotanical plants creates precedent and narrative space for queer individuals who, like the strange plants they are linked to, deviate from accepted standards of normativity.

This is certainly the case for Des Esseintes, who while in a floral reverie, slips into a lucid dream involving a lasciviously augmented plant hybrid of his own devising. In an almost direct refutation of Kaan's pleas for sexual orthodoxy based on the healthful norms of nature, Des Esseintes' sexual and cryptobotanical imagination spawns a woman bedecked in various plant species that simultaneously adorn and constitute the erogenous zones of her body: "Nepenthes pitchers hung from her ears", "her lips took on the fierce red of the Anthuriums[63]; the nipples of her bosom shone as brightly as two red peppers" (Huysmans 91). As if these lurid colourings and protuberances were not in themselves sufficient markers of a diseased body and mind, his fantasies switch "from vegetation to the Virus" as the figure reaches forward with a carnal embrace, "black Amorphophalli[64]" lunge from the sides while "savage Nidularium[65] blossom[s] between her thighs, with its swordblades gaping open to expose the bloody depths" as he gazes into "the hideous flesh-wound of this plant" (91-92). By taking a commonplace metaphor, that of feminine and floral beauty, and transforming them into a vision of sexually ambiguous and polluted depravity, Huysmans seems to confirm Kaan's warning that to experiment imaginatively with natural forms necessarily leads to sexual aberration – however, rather than this being something to be

[63] Also known as laceleaf lilies, they're known for their waxy leaves, lurid red colouring and prominent stamens.
[64] An tropical form of lily with a large phallic stamen that protrudes from the the petal folds, hence the name.
[65] A spiny, ridged succulent resembling an aloe – its central leaves are often a red or fuchsia colour.

condemned and shied away from, Des Esseintes appears to seek out corrupted flora to fuel this imaginative metamorphosis.

Before his dream encounter with the plant-woman, Des Esseintes begins his collection of plants by admiring the "flowers of charm and tremulous delicacy...kept warm in palaces of glass, princesses of the vegetable kingdom, living aloof and apart...kept alive with cunning attention in artificial tropics" (82-3). These aristocratic blooms are set in contrast to the "poor", "vulgar" weed-like plants that grew in garret window-boxes and the "pretentious, conventional, stupid flowers...that go with the cream-and-gold drawing-rooms in new houses" (82-3), and serve as an initial point of exclusive discrimination, whilst also facilitating a further dig at the evils of bourgeois taste. Such plants are prized not only because of their rich beauty, but the degrees to which one must go to get them bloom and keep them alive. In the climate of France they are, to all effects, artificial – a product of human ingenuity held in "exile" from their natural surroundings. Artifice and intervention is emphasised repeatedly; the recurrence of "kept", with its connotations of control and retention against external [natural] influences. This refers to their carefully "regulated" environs, but also their reproduction, which in the case of rare imported species would be handled mechanically by human intervention as opposed to the natural apparatus of pollination, in order to ensure the retention of specific inherited characteristics.

A further layer of decadent irony is thus added when considering the metaphor of such plants as aristocratic. The laboured, contrived and often semi-sterile reproduction of hot-house plants mirrors that of an alienated nobility, relegated to arranged marriages in order to retain properties within a familial group and thus forced into multiple generations of inter-marriage, or self-pollination. This is further compounded when examining contemporary understanding of plant heredity. Published six years before *A Rebours* in 1876, Darwin's *The Effects of Cross- and Self-Fertilisation in the Vegetable Kingdom*[66] examined the long-term influence horticultural inbreeding had in plants, comparing two lineages of the same plant, one fertilised through

[66] Published in the French in 1877 as *Des effets de la fécondation croisée et de la fécondation directe dans le règne végétal*, there is a very good chance Huysmans would have read Darwin's work, as historian Whitney Davis notes "in preparing to write his novel Huysmans consulted specialist treatises of botany, horticulture, and the like" (Davis 139) and Huysmans himself mentions in a later section of the novel "he was led to consider that evolution of language so accurately described by Darwin" (Huysmans 150)

pollination, the other through auto-fertilisation. By the second generation the genetic deficiencies of the inbred plant were already apparent in its "crooked" stature and increased susceptibility to frost and disease, while the "crossed had...acquired a marked superiority in general appearance" (Darwin 100). This gradual weakening mirrors the decline shown in Huysmans' own opening chapter, where a tour through the successive generations of Des Esseintes' house of Floressas[67] reveals an increasingly infertile and overly refined progeny, mirroring the "degeneration" (3) of both modern horticulture and ancient aristocratic privilege.

Historian Whitney Davis hones in on the contemporary distaste for inbreeding in his study of *Queer Beauty*, highlighting how Darwin framed the findings of *Self-Fertilisation* in a such a way as to posit a conscious bias in nature in favour of the mixing genetic material: "Nature tells us...that she abhors perpetual self-fertilisation" (Davis 138). Thus from the perspective of both nature and the naturalist the practice of such purposeful inbreeding was perverse and its results abhorrent. Nevertheless, the concentration of pigment in a hot-house lily, or wealth in the last residual child of a great dynasty is testament to the triumph of artificial, at least in the eyes of Des Esseintes. The plants and Huysmans' protagonist are decadent in the purest sense, as Davis notes;

> "decadent" in the then-current botanical sense, namely, in *Darwin's* sense: they descended from an inbred stock of insufficiently cross-fertilised kind of organic being, poor in modifications, and as such tended toward irreversible Malthusian decline and eventual Darwinian extinction (Davis 141)

However Davis' reading is not without its difficulties. For one, he continually refers to "Huysmans's orchids" as the plants that Des Esseintes begins to obsess over; this is in order to make a point of contrast to Darwin's writing on orchids with *A Rebour*s and to understand the two writers as writing a shared, queered history that has been "grasped from different ends" (154). Such a repeated assertion is complicated by the fact that a large number of the specimens described in the novel are not orchids at all. Huysmans dedicates a great deal of time, and presumably effort in research, to provide accurate

[67] The name itself being a derivative of 'Flora'

descriptions and Latinate names for a number of plants – mostly from the Araceae family. To begin to base any kind of critical assertion from his selection of "bizarre and magnificent blooms" (Huysmans 83), it is imperative to first understand what plants are being shown, what they look like and how they exist as products of modern European horticulture.

Des Esseintes longing for "plants, fashioned from the hands of true artists" and "natural flowers that would look like fakes" (83) materialises in a series of orders placed at the surrounding nurseries. The reader watches the decampment of these "floral follies" as they are delivered to his door and Des Esseintes spends a short time admiring each in turn. One of the first, *Alocasia Metallica*, is a suitably dazzling and unearthly variety. Naturalised and introduced to European markets in 1860, where it received its debut in the pages of *Curtis's Botanical Magazine*[68], it was remarked for its unique lustre "which must be seen to be understood" and "which nothing of the kind can exceed" (*Curtis* 77). The article ruminates that the specimen's unique colour is indicative of a broader shift in the qualities prized in plants:

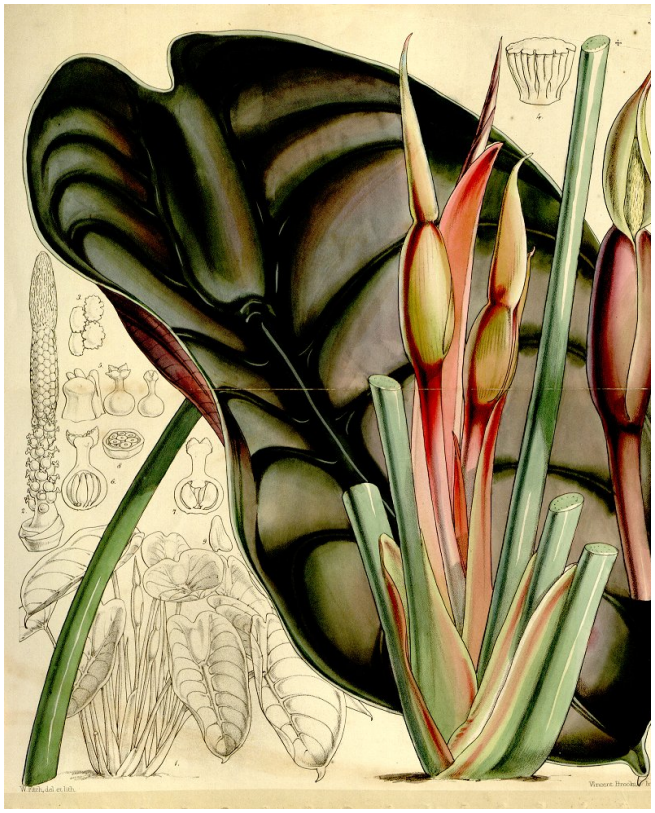

Fig. 6.3 The *Alocasia Metallica* Pl.5190 from Vol.86 of *Curtis's Botanical Magazine*. London: Reeve Brothers, 1860.

> In former days plants for horticultural purposes were valued in proportion to the beauty of the flowers: now, none are more highly prized than those which possess richness of colouring in the foliage or some other parts of the plant, whether that colouring is the normal state or condition, or to be reckoned among the freaks and sports of Nature, as is presumed to be the case with the now numerous varieties ... among *Arioidea* (*Curtis* 77).

The abandonment of simple beauty in favour of novel and exceedingly bright colours, not to mention the reputation of the *Alocasia Metallica* as a nurtured

[68] The foremost horticultural magazine in the English language, founded in 1787 with strong editorial ties to Kew Gardens.

'freak of nature' makes it an obvious candidate for Des Esseintes' hothouse. Huysmans fervently dissects the plant, attempting to illicit for the reader the sickly splendour of the leaves, which by the admission of *Curtis's* eludes even the most talented illustrator and "must be seen to be understood" (77):

> similar to the Caladiums, the *Alocasia Metallica*, roused him to still greater admiration. Covered with a coat of greenish bronze shot with glints of silver, it was the supreme masterpiece of artifice; anyone would have taken it for a bit of stove-pipe cut into a pike-head pattern by the makers (Huysmans 84-85)

Fig. 6.4 The *Caladium Bicolour* Pl.5191 from Vol.8 of *Curtis's Botanical Magazine*. London: Reeve Brothers, 1860.

Both here and at regular intervals during the chapter, Huysmans refers to the products of nature as imitating or being one-in-the-same as the products of human manufacture. Though the first accepted recognition of hybridized plants as 'a work of art' would not happen until Edward Steichen's *Delphiniums* in 1936, Huysmans was among a number of nineteenth-century figures to claim horticulture as an art form (Gessert 1), going as far as to say that "without the shadow of a doubt, the horticulturalists are the only true artists left to us nowadays" (Huysmans 88). The *Alocasia Metallica* is one such "masterpiece" that blurs the lines between the real and the artificial, art and horticulture and even artist and object. At first, the process of selective breeding is described in terms of material craft that have been echoed elsewhere, by "which man rears, shapes, paints and carves [… plants] to suit his fancy", and with "his object […] achieved: not one of them [the plants] looked real; it was as if cloth, paper, porcelain and metal had been lent to Nature to enable her to create monstrosities" (87). As stated, the metaphors and allusions used by Huysmans in this rumination do a great deal to enmesh

both the human and the botanical in a complex web of interconnections of art and nature. It begins with the familiar scene of the human horticulturalist very much in control, exerting his designing will on the pliant botanic material with forceful and (pro-) creative verbs of pressing, rearing, shaping – moulding and embossing the end product into something that bears the hallmark of human perversion – a plant so ugly it becomes unreal. However, reaching an abrupt turning point at the comparative conjunction “as if”, Huysmans’ metaphors shift in dynamic, expressing the exact opposite – changing from an artist treating a living plant as an artistic medium, to nature giving life to inanimate “cloth, paper, porcelain and metal”, in order to birth new “monstrosities”.

It is here that Huysmans pursues cryptobotany to a queer and perversely ecological end; perverse in the sense that it emerges from a metaphoric trail that seems to utterly subjugate and objectify natural processes and organisms, predicated by the flimsy qualifier of “as if”, offering merely the idea or impression of an autonomous Nature. Nevertheless, the speculative leap of “as if” being followed by the “enabl[ing]” of Nature shows a cryptobotanical imaginary that is not only collaborative, empowering Nature to take hold of man-made material in the same way we have taken hold of wild plants, but also demonstrative of a wilful relinquishing of the kind of productivist strictures that demand to control biological processes in pursuit of material gain, a constant refrain in the literature of previous chapters. Rather than Huysmans having his rhetorical horticulturalist bring forth a plant that bears the mark of human ingenuity (a ‘writing tree’ or perfectly sweet fruit for instance), he instead brings forth a form so unearthly that, not only does it resemble artificial materials, but also appears as though it has sprung from the over-fecund, wild and purposeless chaos of freakish mutation, indulging the whims of a monstrous Nature. This distinction becomes more significant as Huysmans continues to list and detail species that break the laws of nature, utility and taste.

The *Curtis* article on the *Alocasia* mentions the “*Caladium bicolor”* as another of the “freaks” that have been strategically bred in hot-houses across Europe. The variety also features heavily within *A Rebours* and are the first in the procession of plants to arrive in Des Esseintes’ house. Their colours, though vibrant, are distinctly *un*-vegetal and Huysmans’ recourse to animalian

similes and metaphors[69] conjures the sense of the artificial – and even hybrid status of these plants:

> There were some remarkable specimens...some all white like the Albane, which looked as if it had been fashioned out of the pleura of an ox or the diaphanous bladder of a pig. Others, especially the one called Madame Mame, seemed to be simulating zinc, parodying bits of punched metal...others such as the Aurora Borealis flaunted leaves the colour of raw meat, with dark-red ribs and purplish fibrils, puffy leaves that seemed to be sweating blood and wine (84).

As in the passage that opens Maud Howe's *Kasper Craig*, we see plants blending with the aesthetic qualities of animals and minerals; however, rather than fine feathers and brilliant diamonds, we here see entrails, the dull lustre of zinc and the harsh industrial perforations of "punched metal". As further specimens arrive sporting distinctly human, pathological features their appearance does not improve:

> a factious skin covered with counterfeit veins. Most of them, as if ravaged by syphilis or leprosy, displayed livid patches of flesh...others had the bright pink colour of a scar that is healing or the brown tint of a scab that is forming [...] others again revealed hair surfaces pitted with ulcers and embossed with chancres [...] Gathered together, these sickly blooms struck Des Esseintes as even more monstrous than when he had first come upon them, mixed up with others like hospital patients inside the glass walls of their conservatory wards (84).

Existing alongside the contemporary hygienic and "unbacteriable" rhetoric that ensconced the idea of incorruptible nature in the previous chapters, Huysmans' flowers provide a stark and radical contrast. Rather than offering a natural, sanitary vestige from the plagues of flesh, such as tuberculosis, ugliness and grime, these flowers revel in the pathological pageantry of corporeal decay and pollution; splaying leaves like dissected rotting flesh and reflecting all the most grotesque features of the human body back at the viewer. As stated in *Curtis's*, the Caladium in its natural state is a relatively

[69] This is particularly unsettling as plants are so often rhetorically borrowed in the service of metaphor 'skin of lily white, lips of red rose', this is doubly true of the Victorian period where 'the language of flowers' used floral forms as a codified vehicle for romantic sentiment. For further reading, consult *Herbarium/Verbarium: The Discourse of Flowers Texts and Contexts* by Claudette Sartiliot.

unremarkable plant; it is only through cultivation and being enclosed in the close atmosphere of the hot-house, being pored over by the horticulturalist, that such ghoulish plants can be made. Huysmans affirms as much himself:

> Nature is incapable of producing such depraved, unhealthy species alone and unaided; she supplies the raw materials, the seed and the soil, the nourishing womb and the elements of the plant [...] she has at last submitted, and her master has succeeded [...] so that now he can make her put forth blossoms of different colours on the same branch, invents new hues for her, and modifies at will the age-old shapes of her plants. In short he rough-hews her blocks of stone, finishes off her sketches, signs them with his stamp, impresses on them his artistic hall-mark (88).

Though the ends are a rather acquired taste, the sickly appearance of the Caladium would be held up by few others as an exemplar of human achievement in the produce of nature, the means Huysmans describes by which nature is manipulated were a source of pride for aesthetes and horticulturalists who “in the course of a few years […] can operate a selection which easy-going Nature could not conceivably make in less than a few centuries” (88). Such a quote brings to mind the work of Ward, Burbank and Gilman and indeed the process they are describing is virtually the same, however the sentiment could not be further removed. Rather than the drive behind his horticultural influence being one of improvement along normative standards of beauty and utility, Huysmans describes a perverse, degenerate horticulture that seeks to bring about grotesque novelties that assault the senses. Once more, as in the case of *Allan and the Holy Flower* I would argue the term ‘queer’ can effectively capture the outwardly perverse angle this horticulture takes in its position against the tenets of a eugenic view of plant life for a better future. This reading is informed by theorists such as Lee Edelman and Jack Halberstam in their respective works *No Future* and *The Queer Art of Failure*, in the sense that queerness reflects an appreciation, even cultivation, of qualities, actions and desires that are at odds with what would be deemed advantageous under the orthodoxies of a heteronormative world view. Axioms such as health, profit, beauty and new life ordinarily are unimpeachable as ends for which one can strive, it requires the adoption of a

queer perspective to meaningfully challenge these otherwise unquestionable ambitions.

A further difference between Huysmans' horticulture and eugenics of previous chapters is the question of control, specifically the limiting of diversity. On a first reading there seems to be little difference between the manipulating influence desired by Burbank, for instance, and the artist's own domination expressed in *A'Rebors*, wherein the plant breeder is described as nature's "master" who "invent[s] new hues" for plant life". However, the contrast originates not in their methods of domination but their relationship with the natural world itself. If we recollect, a prevailing view at the time, best posited by Ward but recited by many scientists, breeders and novelists, was that there was a redundant fertility, variety and propensity to dissolution in the natural world; the unchecked result of which is an overabundance of offspring that is either unsuccessful and defective, or rampant and weed-like, and it is because of this perceived over-fecundity that the botanic metaphor worked as part of eugenic arguments. The utopian antidote that follows was, as with *Herland*, to forcibly limit the ecological variety of nature to a few favourable species that can be cultivated until they perfectly meet human needs and an entire ecosystem is remade according to the hegemonic dictates of the needs of society.

The same chastisement of nature for over-production does not exist in *A Rebours*. Indeed Robert Ziegler identifies:

> for des Esseintes, flowers are associated with the tyranny of nature, which he loathes for producing monopolistic art. If she alone is the creator, if her works are mass-disseminated, the esthete can respond only in the way that nature dictates. That is why des Esseintes imagines an expansion of human agency, moving out of range of normality into the realm of the unnatural, where the possibilities of art are limitless (Ziegler 52).

Rather than seeking to control and eliminate the random, sporadic and unlooked-for mutations and abortions of the vegetable kingdom, des Esseintes and other aesthetes bemoaned the *lack* of vegetable monstrosities and set about creating and curating their own – exaggerating through cultivation the flaws and foibles of nature's mistakes and using their own cryptobotanical imagination to further disrupt and mangle these forms. The result of this queer cryptobotany was the prizing of the grotesque, kitsch or ugly as an antidote to mundane beauty. Deserting the widely praised rose in favour of dubious fabrications such as the green carnation; a plant that Wilde was alleged to have bred specifically for him, a queer plant to signify queer acts (Desmarais 76).

Fig.6.5 & 6.6: Photographs of the installations by Reading Museum (left) and Studio Voltaire (right), images copyright of Reading Museum and Studio Voltaire.

It is in such instances that late-Victorian cryptobotany achieves its most vital and lasting cultural work. Faced with a pseudo-eugenic drive that pursued fantasies of control of plants and people, directing species and individuals towards pre-ordained 'biological destinies' through a monocultural horticulture, the more perverse examples of queer cryptobotany offer a radical alternative. Des Esseintes and other decadents embrace an at-times pathological, yet pluralistic and (bio-)diverse horticulture that conjures plants not for their ability

to impart benefits or value, but for their aesthetic qualities – plants for plants' sake, if you will. Which, given the ubiquitous view seen in this thesis of plants almost exclusively as a means of attaining some kind of advancement (material, biological, financial, and so on) is a radical antidote to the stifling orthodoxy of utilitarianism, political economy and bourgeois values of the nineteenth century. It also serves as a rebuttal to the totalising and proto-fascistic imperatives of normativity and improvement seen elsewhere, and it is this element that endures most in socially-engaged contemporary reappraisals of Victorian cryptobotany. Examples include the installations *Lillies for Oscar Wilde* by Reading Museum (2017-2018)[70], where workshops were held to create paper flowers made from copies of Wilde's *Ballad of Reading Gaol*, and *The Temple of Oscar Wilde* by contemporary art group Studio Voltaire (2017-2019)[71] that created an interior space decorated with floral motifs derived from Wilde's principles of aesthetics. In these modern reprisals of Wilde's queer aestheticism, the floral embellishments, which are consciously not based on real plants, are taken as symbols for the creation of queer space that is innovative, original and empowers or encourages expression that deviates from the perceived norm.

In both cases the plants made by the artists are not intended to create an ethnically homogenous utopia or unlock the secrets of unlimited energy, they will not cure disease or provide access to valuable minerals, they only serve as a testament to diversity and the limitless forms both the imagination and nature can take. In a contemporary moment when both these categories are under threat, such feats of cryptobotany are vital.

[70] https://liliesforoscarwilde.blogspot.com/
[71] https://www.oscarwildetemple.org/about

Conclusion: Artificial Flowers, Cryptobotany and the Anthropocene

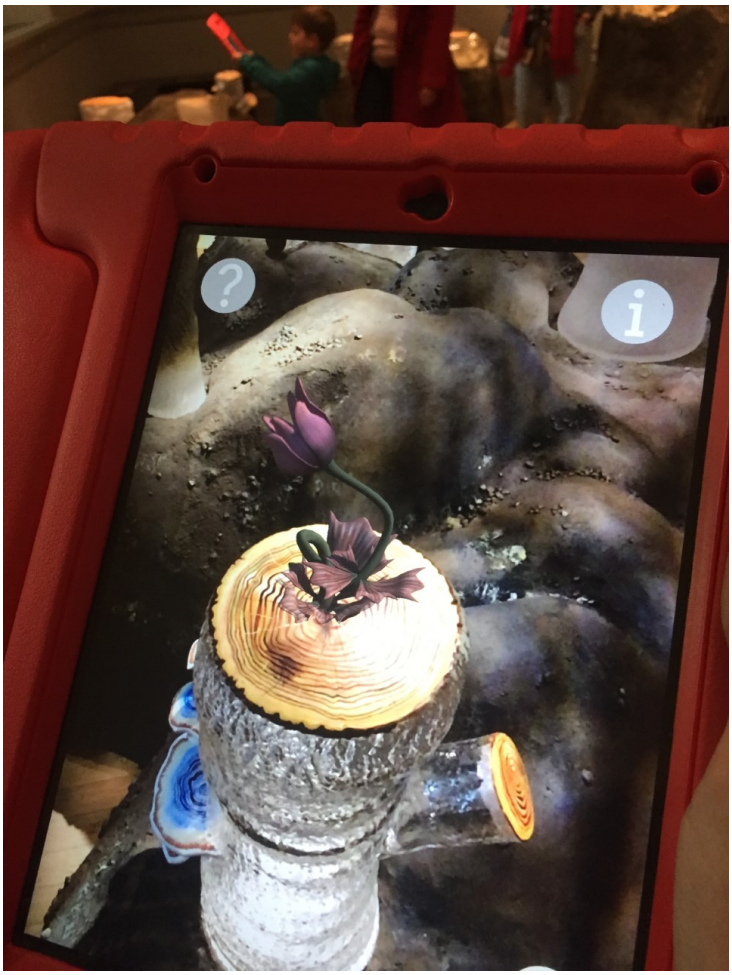

Fig. 7.1: Ginny Ruffner's *Reforestation of the Imagination*, 2019, photograph by the author taken in situ at the Smithsonian, Renwick Gallery, Washington DC.

The research that would become this thesis began after chancing upon a single story, that of the 'Elsassia electrica', the 'electric tree' from the journal *Forestry* cited in chapter one. I was struck by the bizarreness of this seemingly obvious fabrication appearing in an otherwise serious journal and was intrigued what other accounts of embellished plant life could be found in similar contexts. Thus my first motivation with this research was to try and track down as many accounts of these weird, fantastical tales of botany from the late 1800s as possible, in an attempt to understand what motivated writers and readers to turn to these jarringly fanciful portraits of plant life. The more material I uncovered, the more varied and multi-faceted the picture became and the focal texts of this thesis, from *The Healers* to *A Rebours*, have each represented fantastical flora as expressing conflicting hopes and fears of the *fin-de-siècle*. Plants were imaginatively commodified, they were made into

batteries, wellness treatments, food supplements. Plants were time travellers, they were able to go into the extreme antiquity and futurity of this planet and others to paint a picture of life that was to come. Plants became models of both natural order and evolutionary entanglement, 'good breeding' and degeneracy. The constant that has remained throughout these at-times contradicting portrayals was an embracing of the power of the vegetable kingdom to change and be changed; its myriad forms and properties were endless and therefore could be directed toward any end, no matter how far-fetched or perverse it seemed. I was awakened to the kind of excitement that new discoveries in botany were met with in the period, as well as the kind of speculations that these new discoveries engendered.

It became clear that these stories of fantastical flora required a different methodological approach from other studies of plants in literature, which have tended to focus on contexts of real-world plants as historical and ontological subjects[72]. Instead, the term 'cryptobotany' has been appropriated, in order to both group together these varying texts of plant imaginaries, and to highlight their uniquely speculative nature. Central research questions of 'how' and 'why' instances of cryptobotany gained prominence at the turn of the century were then raised in order to form a line of enquiry through which to pursue my research. In pursuing these questions, this thesis has found that plant imaginaries offered the *fin-de-siècle* an enticing glimpse of the possibilities of organic life, with their qualities of extreme variety, productivity and plasticity frequently participating in utopian imaginaries. However, these same qualities could similarly be mobilised for very different ends, featuring in decadent or Gothic fantasies of biological or evolutionary excess and degeneration. In both instances, the prevailing effect has been to show the versatility and diversity of cryptobotanical forms for reflecting these hopes and fears, with the most productive avenues of this study being in consideration of the unique role speculative plants can serve with regard to issues of futurity.

In its consideration of imaginary plant life of the late nineteenth and early twentieth centuries, this thesis has sought to interrogate the complex ways cryptobotany manifested and articulated itself in the period. While questioning

[72] Recent examples include *Novel Cultivations* by Elizabeth Chang (2019), *Orchid: A Cultural History* by Jim Endersby (2016), *The Language of Fruit* by Liz Bellamy (2019) and *Carnivorous Plants* by Dan Torre (2019).

why plants were imagined in such a way, my work has consistently had to encounter issues of culture's relationship with the natural world and by extension its relationship with the critical approach of eco-criticism; though I have avoided pursuing these avenues beyond what was necessary for the elucidation of the material at hand. One reason has of course been the constraint of time and words that would have been necessary to give the subject its due consideration. However, more significantly I have somewhat avoided these questions because, given their status as human fabrications, ultimately I'm not sure how, or if, subjects of cryptobotany should be treated as the subject of eco-critical attention. Elizabeth Chang, Lynn Voskuil and other critics on plant fictions have expressed similar questions in this regard: to what extent can cultivated, hybridised, or otherwise augmented plants [or depictions of plants] be considered 'natural' when they are, as Huxley stated '*as much a work of art as the greenhouses that enclose them*'? Such considerations, while welcomed by this thesis, cannot be fully addressed here as they broach far more profound and far-reaching questions, such as what are the consequences for the validity of categories such as 'natural' or 'ecological' when faced with modern techniques of manipulation and adulteration that are increasingly altering the material and fictional landscape?

Nevertheless, turning to Meeker and Szabari and their own recent intervention on botany and speculative fiction, they reflect that imagined plants were "not just objects of manipulation but participant in the effort to imagine new worlds and to envision new futures" (2). This certainly holds true for the literature seen in these chapters, where authors used fantastical vegetation to imagine a future of perfectible plants, but this idea of cryptobotany has utility beyond conceptions of historic cases of speculative fiction. The interstitial nature of cryptobotany and its existence within the contested borders between the natural and man-made makes it the ideal subject for studies of the Anthropocene: the formal integration of a human presence into the substance of the planet. As shown, the nineteenth century marked the period where the mysteries of plant heredity and evolution were first meaningfully understood, as well as the birth of what we would now consider genetic engineering in plants. The subsequent cryptobotanical specimens that were created both in fiction and in practice present a formal integration of human design in organic beings.

While specific studies of plant life in the anthropocene are still comparatively emergent[73], by looking to the other kingdoms of life, animals and minerals, we can see there is already a precedent of substantial scholarly engagement from the humanities in assessing and coming to terms with the impact of human intervention on wider ecologies. Harriet Ritvo for instance, one of the pioneers of animal studies, has consistently interrogated the process of selective breeding in animals from *The Animal Estate* (1989) to the present day, particularly in the nineteenth century, and her work helps negotiate the complex relationship of ideas of 'nature' and 'naturalness' with animalhood. Similarly, in regards to the mineral kingdom, there have been multiple critical works in the 'petrohumanities' such as *Fossil Capital* by Andreas Malm (2016) and *Plastic Capitalism* by Amanda Boetzkes (2019), which seek to draw out the complex and deep-seated connections between human activity and geological phenomena. In these examples, the texts work to decipher the dynamic relationship their animal and mineral subjects have with ideas of nature and culture, questioning how the combined human impacts of the anthropocene alters and muddies these epistemological networks. Ultimately this combined work involves assessing how our understanding of animals and minerals has changed, and must continue to change, as we progress further into an age dominated by resource extraction, genetic engineering and mass extinction.

In its own way, this thesis has sought to extend this scholarly consideration to the world of plant life in the anthropocene. The category of cryptobotany has been formulated expressly for the purpose of putting a name to and describing botanical subjects that have been remade after human design. By identifying cryptobotany and its early proliferation in the Victorian era, the thesis has invited consideration of what the kinds of bonds we form with cultured plants can tell us about the kinds of fantasies, fears and desires they were made to embody at the beginning of the modern age of a human-made nature. A case has been made for the unique relationships plants held, as such it has been my hope that, alongside providing critical commentary on cases of nineteenth century cryptobotany, aspects of the methodology, research and critical

[73] There are a number of forthcoming publications that promise to greatly advance the field of plant studies within the anthropocene, including Heather Sulivan's *The Dark Green: Plants, People, and Spores in the Anthropocene* and Mary Bowden's *Plant Plots: Plant Science and British Narrative, 1800-1910* – both currently on-going book-projects.

parlance of this thesis could go on to have impact beyond the field of Victorian studies. This urgency reflects a contemporary moment where writers, critics and practitioners alike are becoming increasingly concerned with the ascendance of the anthropocene and there has been recourse to cryptobotanical forms, as we, like the Victorians before us, use imagined plants to see beyond our current moment of environmental entropy to far-off speculative futures.

While in the midst of a research trip I was lucky enough to get a chance to see first-hand a contemporary iteration of the cryptobotanical imagination in the artist Ginny Ruffner's installation *Reforestation of the Imagination* (2019) (fig. 7.1). Ruffner's own hidden plants lay out of sight, revealed only when the hand-painted tree rings are scanned with a smartphone; through the use of QR-coding, a 3D model of a new species of plant is brought to life on the screen that you are able to interact with. The imagined species are Ruffner's own anticipation of 'Nature's Next Moves', as she anticipates what forms of life will evolve following the current mass-extinction event of the anthropocene. The work tries to invite speculation of what future plant life will look like, while also asking the viewer to engage with the current erasure both of natural species and the imagination necessary to bring about sufficient changes in our way of life in order to avoid the kind of apocalyptic visions the plants themselves conjure up. Therefore, the re-forestation is two-fold: on the one hand there is the virtual re-forestation, appropriating tools and technologies that have been instrumental in the destruction and commodification of natural environments to create an A-R simulacrum; on the other there is the hopeful belief that these simulacra will in turn cause a reforestation of the viewer's own imagination, causing them to re-see plants in a new way. The efficacy of these efforts remains to be unseen, but conceptually the work offers an affective mode that is both beautiful and deeply enmeshed in a long history of speculation with plants. The walls are lined with drawings and entries that mimic eighteenth and nineteenth century herbarium notations, including attempts to use taxa to classify the strange plants and the text that accompanies the exhibition makes multiple allusions to plants of myth and science fiction, some of which have been mentioned in this thesis.

Admittedly, it may feel counter-intuitive to conclude a work on nineteenth century plant fictions with reference to such a contemporary and technology-reliant work. However, the most productive portions of this thesis have been at points where the research has made connections between its nineteenth century material and later cultural work and Ruffner's *Reforestation* provides a perfect analogy for the kind of literary representation made possible by the cryptobotanical imagination; both as it existed in the past, and as it will continue to exist into an unknown future. The process of taking in forms and symbols from a real-world environment and then re-working those inputs to create a brand new kind of plant life through the lens of representation, a flora that cannot be seen by the eye, but nonetheless offers a view of a potential future, is a shared process that can find its antecedents in the works of this thesis. Whether it be through the world-building of *The Time Machine*, or the interface of an iPhone, the cryptobotanical affect, that contention of both real and illusory, natural and man-made, present and future, human and plant, is the same and demands the same considerations of how we relate to the natural world and how it is being made to change.

It is my hope that cryptobotany, as it has been used here, could have uses beyond the confines of this thesis. Though this research has ended up largely supporting Richard Mabey's summation that the nineteenth century was the period when plant imaginings reached their "zenith", there have been multiple periods, both prior to and following the Victorian era, which likewise saw a burst of cryptobotanical creatures in their print and visual cultures. While there has not been sufficient scope to meaningfully address these other instances of fantastical flora here, there is undoubtedly much work still to do in terms of mapping the longer history of the strange vegetable forms that were created by the cross-pollination of plants and the imagination. For scholars embarking on such research, I believe the term cryptobotany and the 'hidden plants' it encompasses, could prove a similarly useful methodological tool for organising and analysing the often-marginalised narratives of strange plant life that continue to emerge. Equally, while working through the issues of futurity and the imagination that recurred throughout this thesis, the use of the critical prefix 'crypto-', referring to an unseen or as-yet-immaterialised element, has been particularly fruitful for teasing out the speculative elements of texts. Other studies that similarly focus on immaterial or speculative subject matter may

likewise benefit from including this terminology, and there is certainly scope to extend this interrogation of the ‘cryptic’ beyond considerations of cryptobotany to include such examples as crypto-architecture, crypto-commodities and so on.

Returning finally to the research questions that began this thesis, why did Victorians imagine these strange plants and what these cryptobotanical fictions were able to achieve?– these questions have uncovered a culturally rich flora as diverse as the natural world that inspired it. While the geographical and biological knowledge of the nineteenth century became more and more expansive and totalizing, new forms and facets of plant life came to light that captured imaginations. These novel plants offered a glimpse at new calibrations of life that could inspire both awe and dread, and many writers used the seemingly limitless plasticity of plant life as the basis to speculate with their own strange plants, positioning them on the threshold of possibility as plants that were ‘yet to be’. These fantastical specimens of cryptobotany reflected a myriad of social, even individual, hopes and anxieties – promising at times a return to natural abundance or savage atavism, perfect health or noxious death, species-wide rejuvenation, or hastening the march of degeneracy. While each bloom had its own imaginative ends, the various forms of cryptobotany were unified in their common act of bringing plants and people together in intimate and mutually affecting ways, weaving speculative narratives where humanity’s fate was tied to that of plants. In a western tradition that notoriously marginalises non-human experiences (Sandilands 227), this fertile moment of cross-species imagining can be looked upon as a rare example where natural wonders were able to penetrate and shape the minds of an increasingly mechanised world.

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