On Dwarves and Scientists: Probing for technological ethics in the creative imagination of J.R.R. Tolkien

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"'You say the ring is dangerous, far more dangerous than I guess. In what way?'

'In many ways,' answered the wizard. It is far more powerful than I ever dared to think at first, so powerful that in the end it would utterly overcome anyone of mortal race who possessed it. It would possess him.'" (Conversation between Frodo and Gandalf in *Fellowship* 76)

The presence of technology in contemporary life has become so pervasive that sociologist, Jacques Ellul has described this age as a "technological society". J.R.R. Tolkien lived in the midst of the ascension of this technological society at the turn of the twentieth-century, and though he is well recognized for the quality of his fiction, the specific treatment of technology in his works has not been fully appreciated. In Tolkien's work this topic may not be immediately obvious, especially given that technology is typically conceived in a narrow economy: freestanding and utterly contemporary. An example of this attitude might be the affirmation of a computer as "technology", but not the edge of a chef's knife. Tolkien casts his vision of technology with a more encompassing definition, treating it as *the making of things by creatures*[1]. This paper seeks primarily to substantiate the presence of this technological theme, so defined, in Tolkien's work. Accomplishing this will require attention to two fronts: to Tolkien's theory and practice. In unpacking the theoretical basis for his technological commentary, I will first justify the use of "fairy stories" for broader ethical reflection and will draw attention to Tolkien's specific commentary regarding the use of this genre. I will further examine Tolkien's specific attention to the topic of technology, and will clear him of charges that he is anti-technological. I will spend the latter half of the paper explicating specific ways, in practice, that Tolkien deploys the concept of sub-creation in his mythical stories. My analysis in this paper will be limited to ways in which the narrative of the Dwarves in his fiction serves as an analogy for

the scientific enterprise. Ultimately, I will suggest that in Tolkien's account the products of technological synthesis (making), are in themselves morally ambivalent. I choose "ambivalent", rather than "neutral", because, as will be developed more fully below, there is always a moral context for technology, either good or bad - but never neither.

For the topic of this essay, technology, I could have chosen from among a dozen well-authored volumes all professing to offer the ideal philosophical schema or sociological analysis of our present situation. My impetus thus bears explanation, as Tolkien, an Oxford philologist and author of fiction, may seem an unlikely candidate for technical ethics. He is often dismissed as escapist and romantic given his preference for "fairy-stories", and thus such criticism might similarly be leveled at my own work in this essay[2]. Thankfully, attitudes are changing towards the use of the imagination and arts for ethical and theological reflection. Examples include the theologian Jeremy Begbie using music to "perform possibilities" for theology, and ethicist Stanley Hauerwas who forcefully asserts the necessity of stories for ethical formation. Hauerwas points out that the modern ethical tradition has provided an abundance of volumes describing technical categories, which exist against a stark context of catastrophic contemporary human moral failure. This is a testimony to some deeply rooted failure to reshape human moral behavior, as along these lines Hauerwas writes that

> Contrary to the assumption of many philosophers, moral principles do not serve as the 'essence' of stories, as if they might be abstracted from the story and still convey the same meaning. Rather our principles are but shorthand reminders necessary for moral education and explanation; their moral significance is contained in stories (Hauerwas 167).

While Hauerwas and others emphasize the need for stories as a part of ethical reflection, the form of those stories and the manner of their deployment is not always carefully delineated. Tolkien is helpful here, precisely because he is more specific in his project, shared by fellow "inklings" Owen Barfield and C.S. Lewis. The three focused their energy on the recovery of the "romantic imagination" and the genre mythopoeia[3]. Their focus was deliberately pre-modern, utilizing a genre which itself was not rooted in axiomatic facts but could shape the reader (or hearer) by its very distance from axioms. This shaping is all-encompassing, a sort of ethical shaping or "formation", in the words of Hauerwas; that is why to Tolkien (following Barfield)

"Fairy" does not represent mythical non-existent creatures, but a *place* where the human imagination can be reshaped in its encounter with formative narratives (Johnson 29). It is important to note that Tolkien did not consider myth to be unreal, or non-factual, but rather that it was super-factual, describing a temporal moment in concrete reality, but being far more than just a recounting of facts.

        Thus, the recovery of this formative nature of myth lies at the center of Tolkien's project, and he was able to express it with particular precision, being himself immersed in the stories that had nurtured pre-modern cultures. For Tolkien, these story-based societies provided a stark contrast to what he perceived as the narrative vacuum present in his own contemporary culture, about which he noted: "I was from early days grieved by the poverty of my own beloved country: it had no stories of its own (bound up with tongue and soil)… that seems to me fatal. Myth and fairy-story must, as all art, reflect and contain in solution elements of moral and religious truth (or error)" (Tolkien, *Letters* 144). Thus, this realization that these necessary deep narrative foundations needed resurrecting provided the impetus for his own creation of Middle-Earth: "I had a mind to make a body of more or less connected legend, ranging from the large and cosmogonic… which I could dedicate simply to: to England; to my country" (144). Tolkien accompanies the activity of stories with a sophisticated sense for their purpose in Christian ethical life in an early essay, "On Fairy Stories" (1983). There he develops the concept of a joy-filled "eucatastrophe", meant to be a contrast to telos of the tragic genre (catastrophe) (Tolkien, "On Fairy Stories", 153). This represents a "forceful expression of the esthetic fulfillment of hope" (Garbowski 176). In this experience the reader is faced with "'recovery' and 'restoration': a sense of defamiliarization of the known world to better appreciate its qualities" (Garbowski 177). In closing the same lecture, Tolkien makes explicit the link between teleological ethics (as, for Tolkien, embodied in Christian eschatology) and his "eucatastrophe":

> Redeemed Man is still man ... the Christian has still to work, with mind as well as body, to suffer, hope, and die; but he may now perceive that all his bents and faculties have a purpose, which can be redeemed. So great is the bounty with which he has been treated that he may now, perhaps, fairly dare to guess that in Fantasy he may actually assist in the effoliation and multiple enrichment of creation. All tales may come true; and yet, at the last, redeemed, they may be as like and as unlike the forms that we give them as Man, finally redeemed, will be like and unlike the fallen that we know (Tolkien, "On Fairy Stories", 156-7)[4].

The eucatastrophe, in Tolkien's configuration, is a way of grasping at a hopeful telos, whereby hope is given real expression in stories which describe and anticipate the final redeemed state of humanity. The work of the storyteller is no mere aesthetics, as for Tolkien language has ontological value, and thus the making of stories is tantamount to any other type of creation (Tolkien, "On Fairy Stories", 122). This exploration, albeit brief, demonstrates how Tolkien's works of fiction are underlaid with a sophisticated ethic and an awareness of where his creative writing functioned within that ethical economy. The next task is to explore what specific guidance Tolkien's fiction might offer for the modern situation with regards to technology.

One feature of Tolkien's creative work is his use of technological imagery. In his fiction, machines feature often in the context of warfare, and given this emphasis one might fail to apply Tolkien's definition of technology as properly encompassing. The result of such an analysis pits his account of myth against "modern rationalist science and technology" as do Birzer and Pearce (Birzer and Pearce xxi)[5]. There are some indications that Tolkien has general reservations about technology, as in one letter, where he identifies himself (and Hobbits) against the mechanical: "I was born in 1892 and lived for my early years 'in the Shire' in a pre-mechanical age… I am in fact a Hobbit (in all but size). I like gardens, trees and unmechanized farmlands" (*Letters* 288). There are also anecdotal references to which one could appeal in support of this interpretation: the horrors of mechanized warfare he witnessed in the trenches of World War I, later conversations with friends decrying the modernization of Oxford, and his hesitation to own a motorcar. However, appeals to these sources often miss the wider framework in which Tolkien's comments functioned, not as a neophobe but within a sophisticated, albeit cautious, handling of human making.

With this wider context in view, Tolkien's depiction of Hobbits (and himself) can be read more sensitively as cautious; but surely not anti-technological. Regarding Hobbits, he notes, "they do not and did not understand or like machines more complicated than a forge-bellows, a water-mill, or a hand-loom, though they were skillful with tools" (*Fellowship* 19). Upon closer investigation, one notices Tolkien's playful inclusion of technologies in Bilbo's gifts to his neighbors: "an umbrella", "a large waste-paper basket", "a gold pen and ink-bottle" (64). Later,

Frodo's life is saved by the pinnacle of Dwarvish technology: an armored shirt made of mithril (436). All of these items require significant resources and time to manufacture, and their whimsical inclusion among the Hobbit's effects serves to further develop the idea that Hobbits, though selectively so, were still "skillful with tools" (19). These brief examples also demonstrate that a more encompassing account better suits Tolkien's writing and vision. Thus, the functional definition of "technology" I shall adopt for this paper encompasses the creative (or scientific) process (*inquiry*), which results in the *making* of artifacts and their subsequent *use*.

Proper understanding of Tolkien's thoughts on *inquiry* and *making* require an explication of his concept of sub-creation, developed most forcefully in his essay "On Fairy-stories". Lest anyone should doubt the importance of this idea for Tolkien, he notes in a letter that "the whole matter [of his literary output] from beginning to end is mainly concerned with the relation of Creation to making and sub-creation" (*Letters* 188)[6]. In Tolkien's description sub-creation stands in contrast to what is often called "co-creation" in contemporary discourse ("On Fairy Stories" 122). Whereas co-creation fails to reserve some level of creative activity as exclusively divine -- such as the act of creation proper (*ex nihilo)* -- Tolkien's term describes the human act of making as a lower sub-category[7]. In Tolkien's essay, he focuses primarily on the making of stories, but it is clear based on his work in the poem "Mythopoeia" (1984) and the description of creative activity in *The Silmarillion* (1977, treated specifically below) that this concept is intended for a wider application.

With some preliminary description in place, this analysis turns more specifically to Dwarves, who among the races of Middle-Earth are an especially appropriate focal point for this investigation given their characterization by Tolkien: intrinsic to their identity as creatures are 1) *inquiry,* demonstrated as a desire to probe the depths and unlock the mysteries found there, and 2) to use their discoveries to *make* either aesthetically beautiful artifacts or useful tools which play a crucial role in their identity as a people. My analysis of the Dwarves will focus first on the myth of their creation, where Tolkien provides a rough sketch of the place of technology in creaturely vocation, before moving second to their "fall" in the story of Moria, itself entangled in issues of technology. I will conclude the analysis with a possible way forward in relation to the

mythical story of the land of Hollin.

Published after *The Lord of the Rings*, *The Silmarillion* contains the rough outlines of the pre-historic mythology of Middle-Earth, and in this account the Dwarves are the first of Ilúvatar's[8] "children" to be created. Their creation begins initially outside Ilúvatar's economy as they are made by one of the Valar, Aulë[9]. Tolkien's brief description of Aulë is helpful in setting the tone for the character of the Dwarves he makes: "He is a smith and a master of all crafts, and he delights in works of skill, however small, as much as in the mighty building of old" (*Silmarillion* 27). The impetus for the making of the Dwarves is Aulë's impatience for "learners to whom he could teach his lore and his crafts" (43). That Aulë can create at such a level demonstrates the exceptional level of sub-creative possibility granted the Valar by Ilúvatar. Ilúvatar is immediately aware of this event, and confronts Aulë, pointing out the limits of the creatures he has created, "For thou hast from me as a gift thy own being only, and no more; and therefore the creatures of thy hand and mind can live only by that being" (43). In response to confrontation, Aulë is repentant, saying:

> 'I did not desire such lordship. I desired things other than I am, to love and to teach them, so that they too might perceive the beauty of Eä, which thou hast caused to be... I have fallen into folly. Yet the making of things is in my heart from my own making by thee; and the child of little understanding that makes a play of the deeds of his father may do so without thought of mockery, but because he is the son of his father (43).

This event becomes one of the first moments of redemption in this new creation, as Ilúvatar stays Aulë's proposed destruction of this new creation and notes, "I have taken up thy desire and given to it a place therein; but in no other way will I amend thy handiwork, and as thou hast made it, so shall it be" (44). With that, the Dwarves are put to sleep until the creation of the nominally first children, the Elves. Though this gracious re-integration is not Ilúvatar's only means of redemptive grace exercised in Middle-Earth (as shall be demonstrated later with Moria), we gain a partial insight here into Tolkien's sophisticated conception of the human (or creaturely) creative process: the creaturely potential to make (read "sub-create") can be exercised outside the divine economy, though under such circumstances this making is liable to be unanimated or malformed. This narrative selection suggests that sub-creation should be exercised under divine superintendence, but that when this is not the case divine redemptive activity is often not far

behind.

A speech by Gimli (the dwarf representative in the fellowship of the ring) much later, in *The Lord of the Rings,* demonstrates Tolkien's intuition that making is a intrinsic element of creaturely life, and that it requires ordering by interaction with divine making. In an extended speech to the elf Legolas, Gimli describes the loveliness of the caverns of Helm's Deep, recently discovered. In response to his eloquence, Legolas teases, "But do not tell your kindred... maybe the men of this land are wise to say little: one family of busy Dwarves with hammer and chisel might mar more than they made" (*Fellowship* 194). In response to his jest, Gimli provides one of the purest expressions of the Dwarvish vocation, when he explains that

> No dwarf could be unmoved by such loveliness. None of Durin's race would mine those caves for stones or ore, not if diamonds and gold could be got there. Do you cut down groves of blossoming trees in the springtime for firewood? *We would tend these glades of flowering stone, not quarry them*. With cautious skill, tap by tap--a small chip of rock and no more, perhaps, in a whole anxious day--so we could work, and as the years went by, we should open up new ways, and display far chambers that are still dark, glimpsed only as a void beyond fissures in the rock (194).

In his beautiful imagery of tending stone glades, Gimli suggests that Dwarvish technology can enhance the created order and make it thrive, but that such activity must be cautious and operate outside a profit motive[10]. This portrayal of pure Dwarvish craft is modeled early in *The Silmarillion* by their maker, Aulë. To him, "the delight and pride... is in the deed of making, and in the thing made, and neither in possession nor in his own mastery..." (19). This sort of non-commercial making is offered in stark contrast to the fallen Vala Melkor, who has from the start "sought therein to increase the power and glory of the part assigned to himself" (16). Instead, while Melkor seeks to destroy in "envy and hate", "Aulë remained faithful to Eru [Illuvatar] and submitted all that he did to his will; and he did not envy the works of others, but sought and gave counsel" (27). In this way, Tolkien portrays a troubled relationship between making and commerce which can only be properly ordered by relationship and interaction with the divine maker.

Tolkien's account depicted thus far affirms the potential goodness and redemptive divine oversight (in response to Melkor's indiscretion) of creaturely sub-creation, but there is also a

dark side to making. This is highlighted by the early history of the Dwarves in the underground realm of Moria. We first hear of Moria in a lament by Gloin: "Moria! Moria! Wonder of the Northern world! Too deep we delved there, and woke the nameless fear" (*Fellowship* 316). Tolkien provides scattered glimpses of the early history of Moria, and thus one can piece together the whole tale as follows: Durin, one of the forefathers of the Dwarves, founded Moria, which became the most powerful, productive, and famous of the Dwarvish kingdoms. Part of Moria's fame resulted from the discovery of the most precious of metals, mithril, in mines beneath the kingdom. This discovery soon also led Moria to become the wealthiest of the Dwarvish kingdoms, but the wealth and power of the kingdom fell catastrophically, for "even as mithril was the foundation of their wealth, so also it was their destruction: they delved too greedily and too deep, and disturbed that from which they fled" (413). As a consequence of "digging too deep", the Dwarves awoke an arch-demon lurking far down in the depths of Moria, known as a Balrog, which, once awakened, either killed or drove away all the Dwarves in the kingdom, leaving it to ruin.

One can mine much from Tolkien's mythic concept of "digging too deep". As has already been established, inquiry itself can be good, but when left unchecked it can become destructive. I would argue that this is a better framework for reading Tolkien's disparaging comments regarding the mechanization of the world, as his attitude is not neophobic, but rather reflects concern at the unchecked advance of modern development both in new discoveries and in the over-application of existing technological knowledge, what he refers to as the "mechanization" of his age (*Letters* 288-289). Sensitive to the preservation of landscape, Tolkien recognizes that the ordering principle for our handling of technology cannot be *inquiry itself* and that such an attitude carries little regard for the possible consequences of over-reaching with, or over-developing technology. In the case of Moria, the consequence is the near destruction of the Dwarves[11]; in the case of modern life, Tolkien offers a stark critique in a letter to his son:

> The news today about 'Atomic bombs' is so horrifying one is stunned. The utter folly of these lunatic physicists to consent to do such work for war-purposes: calmly plotting the destruction of the world! Such explosives in men's hands, while their moral and intellectual status is declining, is about as useful as giving out firearms to all inmates of a gaol and then saying that you hope 'this will ensure peace'. But one good thing may arise out of it, I suppose, if the write-ups are not overheated: Japan ought to cave in. Well

we're in God's hands. But he does not look kindly on Babel-builders (*Letters* 116).

This critique of nuclear development resonates deeply with the account of Moria provided above, as modern scientists probe too deeply and become "Babel-builders".

If there was any doubt as to whether unchecked curiosity is considered a modern virtue one needs look no further than the book *Concilience* by biologist E.O. Wilson. Along these lines, he suggests we "consider this rule of thumb: To the extent that philosophical positions both confuse and close doors to further inquiry, they are likely to be wrong" (Wilson 47). Thus Wilson sets out his own empirical moral vision, focused on an ideal of unfettered inquiry. Thus far this analysis of Tolkien has focused on his portrayal of the intrinsic human vocation of sub-creation and some negative limits by which to order the activity of making. The question remaining to which this paper now turns is whether there is also space for hope within Tolkien's ethical imagination.

Underlying Tolkien's sometimes dark technological narratives lies a persistent hope that cultures and peoples, once fallen, can still hope to re-order their sub-creation to conform to their Creator. This theological vision arises out of Tolkien's own Roman Catholic faith. In "On Fairy-stories" he makes this connection explicit, suggesting "I would venture to say that approaching the Christian Story from this direction, it has long been my feeling (a joyous feeling) that God redeemed the corrupt making-creatures, men, in a way fitting to this aspect, as to others, of their strange nature" (155-6). Lest Middle-Earth seem a dystopia, it is helpful to look to the Elvish parallel to these comments in the prehistory of Hollin (also called Eregion) that precedes their fall in Moria. The story of Hollin, as Tolkien tells it, is a cautionary tale, though it is also one which, when read against the backdrop of his optimistic comments above, carries the seeds of hope for sub-creation, as Tolkien describes it.

Though it only finds scattered mention in Tolkien's fiction, the land of Hollin is a past moment in Middle-Earth ripe with positive connotations for the possibility of technology. As with Moria, Hollin is presented by Tolkien in mythic fragments and can be assembled as follows: In the second age, with the rise of Dwarvish and Elvish craftsmanship, a unique friendship arose between Elves and Dwarves leading to open and free trade between the two races (*Silmarillion*

125)[12]. The activities of Dwarves and Elves were united by the wholesome exercise of sub-creation for its own sake (as with the individual orientations described in the words of Gimli and Aulë, above). The Dwarvish miners of pre-fallen Moria worked hand-in-hand with great Elvish smiths. Properly ordered towards the preservation of life and obedience towards the Creator, their works thrived and resulted in the further thriving of all creation (*Fellowship* 371). The end of the story of Hollin is tragic, as the Elvish smiths grew excessively curious, and made the power-filled magic rings which become their undoing. Gandalf recounts that

> In Eregion long ago many Elven-rings were made, magic rings as you call them, and they were, of course, of various kinds: some more potent and some less. The lesser rings were only essays in the craft before it was full-grown and to the Elven-smiths they were but trifles-yet still to my mind dangerous for mortals. But the Great Rings, the Rings of Power, they were perilous (76).

As the story in *The Lord of the Rings* unfolds, Elrond describes the downfall of the "Elven-smiths" of Hollin. It was by "their eagerness for knowledge, by which Sauron ensnared them" (318). In parallel to Moria, the Elves "dug too deeply", and over-developd the potency of their craft in a thirst for knowledge and power. In a craft that began by producing simple rings, eventually turns to Great Rings. It is through the latter that Sauron eventually subjugates the Elves by manipulating one of the Great Rings to control all those creatures who possessed the others. In the epigraph included at the start of this paper, Gandalf warns Frodo that any use of such powerful technology would be "utterly overcome" and "possessed" by it (*Fellowship* 76). In this way, the Elves of Hollin are possessed by the greatness of their craft and it becomes their undoing.

I would suggest that in the story of the undoing of Hollin also lies the key to its preservation. The parallel downfalls of Hollin and Moria are portrayed as lamentable, but not inevitable. Tolkien suggests that there is always the possibility for sub-creation, however disordered, to be redeemed, and this is the persistent intention of the Creator God, perhaps best exemplified in the casting of the "One Ring" back into the fires of its birth. When technology becomes a programme for enhancing power or profit, as with the Elves' making of the Great Rings, the delicately ordered use of technology can be upset and the potential for evil outcomes is great. Gandalf's warning, included in the epigraph, highlights this morally ambivalent situation

wherein technology can quickly be turned to evil[13]. None of the activities of technology, inquiry, making or use can be morally neutral; and thus careful scrutiny must be made to ensure that these three occur within an ethically ordered economy, directed by appreciation for the intrinsic good of making and not for the extrinsic profit or power that can be derived. This means further that the exercise of curiosity (or inquiry) must be bounded, as it is possible to dig too deeply and unleash a Balrog. Against these negative boundaries, Tolkien provides a positive affirmation of creaturely sub-creation and inquiry into the depths of mystery as an intrinsic part of our creation. This is a compelling example of the potential ethically formative impact of "fairy stories" and, as I would suggest, one which lies at the heart of Tolkien's project.

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[1]   I will use the term "creature" in this paper to describe sapient life, which in Tolkien's Middle-Earth includes at least Elves, Dwarves, humans, and Hobbits. In our world, it would seem, all four "races" are encompassed in human life.

[2]   Some of these criticisms are described by Shippey, who notes perceptively, "When people start appealing to 'truth', 'experience', and 'reality', they imply very strongly that they know what these things are, an insight not likely to be shaken by argument. Probably at the bottom of the confrontation between The Lord of the Rings and its critics there lies some total disagreement over the nature of the universe" (Shippey 136).

[3]   This idea of a pre-modern romanticism among "the inklings" is most strongly delineated in *History in English Words* by Owen Barfield.

[4]   See also the introduction to Tolkien's translation of Sir Gawain and the Green Knight (Tolkien, "On Fairy Stories", 73).

[5]   Though Birzer notes that Tolkien "did not run from" the 20th century, his language presents an unfortunate dichotomy, not represented in Tolkien's works. See also Curry's characterization of Tolkien as "hostile to industrialism ... part of his overall romantic antimodernism" (Curry 294).

[6]   The prominence of this theme in Tolkien's work is extensively treated in Hart, 39-40.

[7]   For a fuller treatment of this argument, see Hauerwas, "Work as Co-Creation".

[8]   This is the name of the god in *The Silmarillion*, Elvish for "the Father of All" and more commonly referred to as Eru.

[9]   The Valar are arch-angels of a sort that in Tolkien's cosmological myth, which we find in *The Silmarilion*, assist Ilúvatar in the creation of Middle-Earth. Each has a specific vocation, thus Aulë is a smith and assists in the creation of mountains and continents, providing an archetype for craftsmanship, along with Vairë, the weaver of stories.

[10]   Though it falls outside the scope of this paper, it bears mentioning that Tolkien provides a similar account of artistic sub-creation in the most theological of his stories, "Leaf by Niggle". In this account, a solipsistic artist spends his earthly life painting a tree, focusing in explicit detail on each leaf. After passing through a sort of purgatory, wherein his selfish impulses are diminished and he discovers how to practice his craft for the betterment of other creatures, he finds himself standing at the base of his tree in heaven, lovely in itself, but also part of a fuller and even more beautiful creation. Niggle's act of painting carries a corresponding reality which is "glorified" on the other side of heaven much to his delight and wonderment.

[11]   A helpful modern analogy might be the consequences of hydrological projects: the near-destruction of the Aral Sea in Russia, or in the yet-to-be seen consequences of the three-gorges dam project.

[12]   I offer my thanks to Ben Edsall for drawing my attention to several of these passages.

[13]   Tolkien further affirms this ambivalent potentiality in a letter, suggesting "The enemy, or those who have

become like him, go in for 'machinery' – with destructive and evil effects – because 'magicians', who have become chiefly concerned to use *magia* for their own power … a difference in the use of 'magic' in this story is that it is not to be come by by 'lore' or spells; but is in an inherent power not possessed or attainable by Men as such" (*Letters* 200).

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