
STEAMPUNK MAGAZINE
THE PRE-INDUSTRIAL REVOLUTION
LIFESTYLE
MAD SCIENCE
THEORY
FICTION
#6

As the Liberty lads o'er the sea
Bought their freedom, and cheaply, with blood,
So we, boys, we
Will die fighting, or live free,
And down with all kings but King Ludd!

When the web that we weave is complete,
And the shuttle exchanged for the sword,
We will fling the winding-sheet
O'er the despot at our feet,
And dye it deep in the gore he has pour'd.

Though black as his heart its hue,
Since his veins are corrupted to mud,
Yet this is the dew
Which the tree shall renew
Of Liberty, planted by Ludd!

–Lord Byron
Song to the Luddites

The cover was illustrated by Molly Crabapple.

Dear Reader,

The Victorian age is slowly becoming to steampunk what the Dark Ages is to sword-and-sorcery. A certain amount of this is inevitable: as steampunks, we are in love with Victorian technology. We adore the machines that come from an age before endless replication reduced everything into soulless copies of itself—lacking any sort of individuality, and plastered with labels warning us not to interfere with machines whose workings we cannot possibly understand. However, beyond the factories of the late eighteen-hundreds, whole centuries lie unexplored; waiting for us to ask that question which lies at the very heart of steampunk: what if?

It is only when we ask ourselves this question that we can find out just how much that we have in common with the ethics of the Romantic poets, painters and musicians of the early nineteenth century—people who rejected the values of increasing mechanization to live in harmony with technology, with Nature, and with one another as friends and lovers, as companions, and as equals. It is only by asking 'what if' that we begin to look at ancient sacred science or the political uprisings of the French Revolution and Waterloo, and begin to take what we can learn from all these things, and use them to build a better future for ourselves.

Steampunk has always been a melting pot of ideas, where the present and the past intertwine with the fantasies of our own imaginations—and too often are those imaginations restricted by the silent rule that, in order for something to be steampunk, it has to be Victorian.

In fact, we should reject that seemingly unbreakable connection just as thoroughly as we reject suggestions that steampunk should be nothing more than historical re-enactment. We should expand our horizons before the Victorian age becomes the rope by which we hang ourselves—until we become little more than the meme which our detractors claim us to be.

Let us study our relationship with technology anew. The Industrial Revolution may have brought us the smoking, seething, rumbling machines that we all love so much, but steampunk is not an industrial revolution in and of itself. In fact, in our rejection of mindless commercial consumption (in loving the machine, but hating the factory), and in our desire to use our contraptions in harmony with Nature instead of against it, steampunk is often a non-industrial, if not a pre-industrial revolution.

By no means should we forget about our steam engines, or cast aside our corsets and our top hats, but these things are not all of what we are. And, while we should continue to embrace them, we should also make sure that we don't stop ourselves from asking that irresistible little question …
"What if?"

–C. Allegra Hawksmoor

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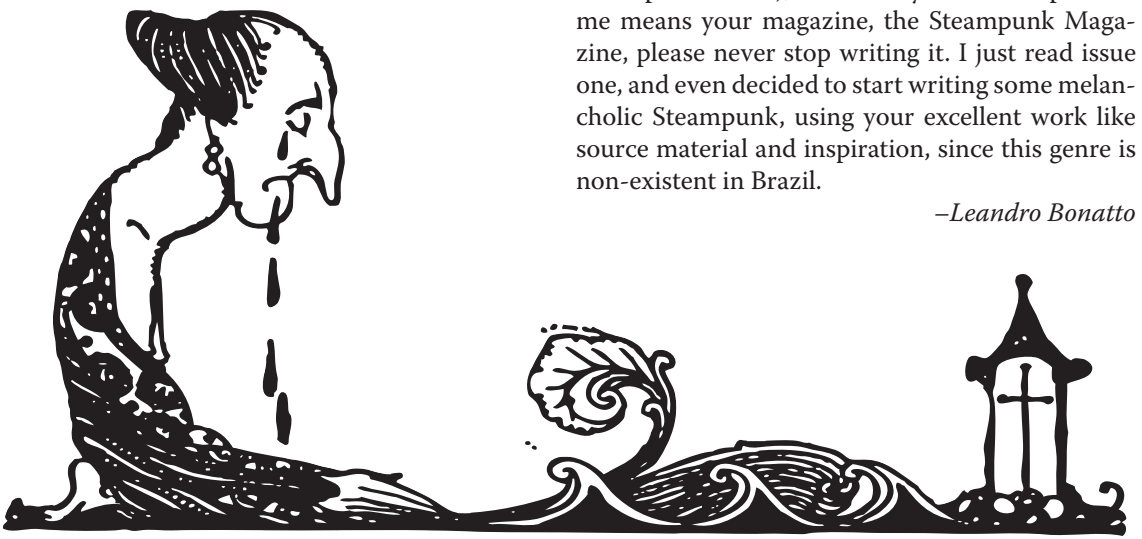
Direct any letters to COLLECTIVE@STEAMPUNKMAGAZINE.COM. *Letters may be trimmed for space reasons and/or edited slightly for "proper" grammar.*

on steampunk in brazil

Dear SPM,

I am part of your new Brazilian audience, those who have found the magazine at WWW.STEAMPUNK.COM.BR. What is Steampunk to me? After reading some comics and mangas (Wikipedia's list of Steampunk works), I would say that Steampunk to me means your magazine, the Steampunk Magazine, please never stop writing it. I just read issue one, and even decided to start writing some melancholic Steampunk, using your excellent work like source material and inspiration, since this genre is non-existent in Brazil.

–Leandro Bonatto



two missives on formatting

Are you likely to release issues 3 and 4 in imposed versions?

–Alex

I've just started downloading and printing your fantastic publication. I'm absolutely loving it, wonderful work. I was wondering though, how long will it be before the 11x17 imposed formats for issues 3 and 4 are put on the site? Also, as I'm Australian, A3 imposed would be a lovely addition to your range of formats.

–Frazer

Allegra responds: Hopefully, we will be releasing issues #3 and #4 in 11x17 imposed format very shortly, however we are only able to do this because of assistance from our readers. Unfortunately, we simply do not have the time that we need to offer the magazine in as large a variety of formats as we would like. That said, should anyone take the time required to convert SteamPunk Magazine into other formats that are useful for our readers, we will happily reward them with a copy of their favourite issue of the magazine.

on utopia and infernal instruments

I came upon a few copies of your publication at the Portland public library and have been reading them with some fascination. Having constructed some relatively simple musical instruments myself, I was particularly interested in the articles and stories which talked about the construction or use of experimental or otherwise interesting

musical instruments. In one of the very few stories written by Clark Ashton Smith that does not take place on some distant planet or some ancient, long-disappeared continent, but rather in northern California in the 1920s or thereabouts (not too late for steampunk, I hope), "The Devotee of Evil," a musical instrument intended to call up the essence of "metaphysical evil" is described. Not believing in "metaphysical evil," I have thought it would be fascinating to try to create an instrument fitting the description (check out the story on the website www.eldritchdark.com). Unfortunately I do not currently have the means to build it.

Along the lines of experimental musical instruments, I plan to construct a few sculpture/instruments using (among other things) parts from a broken typewriter and a broken alarm clock (misappropriated technologies) … This also fits in with the sort of critique of technology that I have (and that seems to share some affinity with the steampunk ethos), in which I would like to see the massive technological apparati dismantled and individuals and small groups using the pieces in a bricolage manner to create what they want … Though I do see certain machines as a complete disaster (the internal combustion engine and the things that require it to operate), I think that people freed of pre-constructed technological systems and the governments which impose rules on their lives, could create all sorts of lovely gizmos and gadgets to make their loves more enjoyable and adventurous … Utopian dreams of course.

Along those lines, have any of you read William Morris' revolutionary utopian novel News From Nowhere? He was a Victorian era utopian, anti-authoritarian communist. His novel is interesting in that it doesn't try to give you a description of precisely how this society is run (this reflects Morris' anti-authoritarian sensibilities), but rather tries to take you into the daily lives of people in the society, and talk about how a revolution might lead there (through the central character, a Victorian socialist who dreams himself into the future, talking with an old man whose parents had lived through the revolutionary period). In any case it is interesting on a lot of levels. My main criticism is that Morris has little critique of the dominant gender roles of his time.

Reading the magazine also caused me to think of the comic artist, Rube Goldberg. I would assume that you have seen comics of Rube Goldberg machines, those overly intricate contraptions, all completely mechanical (no electronics or electricity involved) for doing the simplest tasks. All very surreal machines, the utility of which is simply an excuse for making a hilarious contraption. The game Mousetrap is based on Rube Goldberg's machines. I have dreamed of working up similar things. Along these lines, I recently learned from a friend that the US surrealist, Robert Green, has been making steam engines that have no use, but operate on "surrealist principles."

In any case, I have enjoyed your magazines so far and am wondering where someone who only has computer access at the library (where printing out copies is 10 cents a page, and they now have machines to prevent scamming) and would like to get his own copies might find them in Portland (I checked out Powell's, but they are all out).

–Apio

Margaret responds: There are a few stores around the world that carry SteamPunk Magazine, and most of them are in Portland, Oregon. That's where the magazine is printed and mailed from, at the moment. Your best bet is probably the anarchist bookstore Black Rose Books, on Mississippi in North Portland, or Reading Frenzy in downtown, right near Powell's. However, none of these stores are guaranteed to have it in stock, so we do suggest ordering it directly from our publishers online at www.tangledwilderness.org.

REVIEWS

We are quite happy to review whatever it is that you feel counts as steampunk enough to warrant review. We will, however, only review physical submissions (rather than pdf books or mp3 albums). Contact us at COLLECTIVE@STEAMPUNKMAGAZINE.COM *to find out where to send things!*

BOOK

Jonathan Green

Unnatural History

Abaddon Books, 2007

WWW.ABADDONBOOKS.COM

A dashing adventurer with a butler who would make Bruce Wayne's Alfred flush with pride; a beautiful damsel in distress; dinosaurs in London Zoo and the grand, world-spanning empire of Magnus Britannia preparing to celebrate Queen Victoria's 160th jubilee. All of this leaves little room for complaint in the first in Abaddon Books' *Pax Britannia* series.

Unnatural History opens with Ulysses Quicksilver—gentleman thrill-seeker and secret agent—returning from his presumed death and being sent to investigate a break-in at the office of Professor Galapagos: foremost authority in the field of evolutionary biology. Enter Genevieve, the professor's innocent and beautiful daughter, imploring Ulysses to find her daddy.

Taken on its own terms, the book is a fantastic whirlwind of larger-than-life characters and spectacular scenes which would bankrupt any Hollywood studio that tried to recreate them. Steam-powered policemen and steam trains chugging over the streets of London, cravats and gas lamps provide the steam. Meanwhile, the broadly-painted, diseased slums of London, and the revolutionaries fighting for the downfall of the corrupt Monarchist system provides the punk.

But all of that comes second to the fast-paced story which, by the end of the first act, sees our hero single-handedly take down an escaped megasaur with nothing but his swordcane and bare hands. The over-the-top action comes so fast and furious that it feels a little like being thrown from a waterfall.

The occasional pause to catch the breath would be welcome, but that minor grumble aside, this is a great way to spend a few hours. Especially for all those of us who grew up with *Indiana Jones, Jurassic Park*, and *James Bond*, who bought the first *Pirates of the Caribbean* for our nephews, but ended up keeping it ourselves.

EP

Ghostfire

Drunk Lullabies

WWW.MYSPACE.COM/GHOSTFIRE

Proudly flying the flag for British steampunk music, Ghostfire's debut EP is a cracker. Next to Abney Park's Romantic airship pirates, this group of Londoners is the silver-tongued opium storyteller and sideshow carouser.

The music is driven by the drums and bass guitar, with competent lead guitar showing touches of Iron Maiden and electric folk, and organ from a mid-sixties blues band. It sounds like it's coming out a sweaty pub of ledger clerks and coal men drinking hard to escape their day's toil in the crowded streets of Victorian London.

The lyrics imply a story without ever telling it, following threads of what might be metaphor, might be mythology, or might be the free-association of the freakshow peddler as he stands in-front of his crowd.

The opening track, "Vaudevillian," is a burlesque number which ties the heroine to the train tracks while twiddling its moustache. "Masters of the Sea" and "Ghostways of Paris" are full of that rhythm section, making a deep engine throb with lead guitar and organ highlights and lyrics which are both sinister and pleading. The closing track, "Barrio," is a dark but charged wil o' the wisp, promising enlightenment if you stray from the path.

Unmistakably British and unmistakably steam-

punk, the only complaint one could raise would be the length of the EP: four tracks is enough to whet the appetite, but leaves you wanting so much more.

ILLUSTRATED CHAPBOOK

Steven Archer

Red King Black Rook

Raw Dog Screaming Press, 2009

www.rawdogscreaming.com

By very definition, a short story has a limited amount of time in which to establish a world, a mood, and a storyline. They have to claim our attention from the start, and here *Red King Black Rook* succeeds admirably.

A dark and claustrophobic tale of royalty, family, greed, and war, with the sense of a morality tale from several hundred years ago, the story of *Red King Black Rook* echoes throughout history, but leaves us free to chose whether to draw parallels with modern or ancient history. It is not an attractive tale, but it encapsulates a universal truth of human (and corvid) nature.

The characters are well written, in that the characterisation (or lack of it) matches well with the characters being written about: the King is bloodless and horrific; the Rook pleasant, obedient, and a cipher. It is not a book in which we are likely to feel any sympathy for those being written about, but the writing is such that curiosity about the people and the situation keeps the attention focused.

The language is stylised and always evocative, while the book design itself is excellent: the typeface, the layout, and the illustrations beautifully compliment and enhance the story. Well worth a look!

ALBUM

Imaginary Airship

Where Dreams Take Flight

Sound Ghost Recordings, 2007

www.myspace.com/imaginaryairship

Imaginary Airship's *Where Dreams Take Flight* is an album with something of an identity crisis: with vocal and guitar tracks that are reminiscent of Elliott Smith mixed in with synthesizer instrumentals that sound like a combination of Brian Eno and the Flaming Lips. The lyrics themselves are sometimes romantic, sometimes introverted, and sometimes resentful, and the whole album has a hazy, dreamlike feel to it which can sometimes cross the line into sounding slightly uncommitted. The album's best (and most identifiably steampunk) track is "Mr. Wonderful" with its glockenspiel instrumentation, which sounds almost as though it could be a response to the Dresden Doll's "Coin Operated Boy."

All in all, *Where Dreams Take Flight* is an enjoyable album to listen to. Although it isn't entirely what we'd call steampunk, it is certainly worth keeping an eye on how their sound develops in the future.

TWO DEMOS

Trousseaux

Self-released

www.myspace.com/trousseaux

We do like to find something original in a demo. Whilst Brighton based Anglo-French outfit Trousseaux's armory (guitar, drums, piano, cello amongst others) may not be anything particularly new (think electronically tinged gothic-post-rock) it's their unique approach to writing songs that immediately impresses.

The little things like the intro to the modern day Hammer Horror sound of "La Nuit" which stands out. Or, the crashing waves throughout "Absence" which would be lovely and calming, were it not for the haunting piano and bass which follow. Granted, the earlier tracks on these two demos show some teething problems—the rhythm guitar on "Even Jane" being noticeably (and hopefully not deliberately) awkward, but their sound progresses in the later tracks and singer Virginie's voice is beautiful throughout, especially on the French Language tracks.

Trousseaux may have a long way to go until their sound is perfected, bit it'll be interesting to see where they can take it—because there's certainly some potential in these two self-releases.

THE LUDDITES

by Carolyn Dougherty
illustration by Benjamin Bagenski

The winter of 1811-1812 was particularly hard for the poor in England. Food was unusually scarce due to the deprivations of the Napoleonic Wars, the meager harvests of 1810 and 1811, wartime trade blockades, and a rapidly increasing population—14% between 1800 and 1810. A substantial number of people were facing a precarious existence.

In Nottinghamshire, stockingers had been producing stockings and other small articles of clothing for nearly 200 years. At that time there

were about 30,000 knitting frames in operation in the region, mostly in workshops with a master and two or three apprentices. Hosiers managed the trading end of the business, arranging for the clothes to be sold and often renting knitting frames to stockingers who couldn't afford to purchase them.

At that time, stockingers used small frames to knit clothing in single pieces which gave them finished edges on each side; around 1803, however, a few hosiers began to encourage stockingers to use wide frames, originally used to make pantaloons—making sheets of fabric which were then cut up to make gloves and stockings. These garments, which did not have finished edges, were of poor quality and frayed quickly. Wide frames required less skill to operate, so non-apprenticed workers could operate them. Skilled and apprenticed stockingers were outraged at this use of wide frames—not only were they now expected to compete with unskilled workers for lower wages, the poor quality of the goods produced in this way caused frame knitting to become a dishonourable trade.

A few incidents of sabotage and mob gatherings took place in early 1811. In November of that year, a group of men led by "Ned Ludd" (the name had probably originated a generation before, when an apprentice who had been unfairly beaten destroyed his stocking frame) attacked a workshop in Bullwell. The rate of sabotage escalated until the "Luddites" were breaking 50 frames a week; before the attacks ended they had destroyed more than 1,000 frames. The groups who undertook these attacks were orderly, organised and armed, distinguished by their thoughtfulness, deliberation, and orderliness—traits the elite generally prefer not to ascribe to workers. They were also careful to focus solely on enforcement of quality and employment standards; General Ludd went so far as to return personal property stolen in an attack on a workshop in February 1812. By the end of 1811, most workshops had halted their unacceptable business practices, posting signs stating their compliance with the rules. Attacks in Nottinghamshire had all but stopped by early 1812.

As the Luddite movement was dying down in Nottinghamshire, it spread through its delegates to other regions and other trades, with different backgrounds, grievances, and targets—wool croppers in Yorkshire in early 1812 and cotton weavers in Lancashire and Cheshire in early 1813. While the original Luddites were not fighting the mechanisation of their trade, the Yorkshire and Lancashire Luddites destroyed machinery designed to automate skilled labour. In contrast to the guerilla tactics against small workshops in Nottinghamshire, the Yorkshire and Lancashire Luddites, due to the size and concentration of the machinery they were attacking, staged major battles. The scale of the latter two movements and the political leanings of their participants made them more consciously insurrectionary and directly threatening to the national power structure.

The Yorkshire Luddites were more secret, more paramilitary, and more violent than the Nottinghamshire group; while the Nottinghamshire Luddites had been committed to non-violence, the mood in Yorkshire changed after a manufacturer killed two Luddites in an attack on Rawfolds Mill. In late April, George Mellor (a leader of the group) declared that "the Masters must be shot"; as good as his word, he and a colleague later ambushed and murdered a local mill owner. After this assassination the movement in Yorkshire lost its focus, becoming embedded in revolutionary factional politics. Raids were organised not to break machinery but to steal arms and money, and looters used the Luddites as a cover for their activities.

The national government at that time was entirely occupied with the war against Napoleon; it was investing so much in the land and sea war in Europe that little was left for internal affairs. Despite the pleas of overwhelmed local forces, the Luddite protests did not receive national attention for nearly a year, and when the government finally took notice they overreacted; a bill making framebreaking a capital offense, and increasing the police powers of the state, was proposed in Parliament in

February 1812. Lord Byron, who lived in Nottinghamshire and who had been newly appointed to the House of Lords, wrote to Lord Holland:

> By the adoption of a certain kind of frame one man performs ye work of 7—6 are thus thrown out of business. But it is observed that ye work thus done is far inferior in quality, hardly marketable at home, and hurried out with a view to exportation … we must not allow mankind to be sacrificed to improvements in Mechanism.

His speech on the bill pointed out that the "mob" they were so afraid of were the same men who did the country's work and who had fought against Britain's enemies. But Byron lost interest when *Childe Harold* was published shortly thereafter, and the bill (with the support of William Wilberforce, among others) passed later that year. Parliament requested Wellington to send troops from Spain to control the rebellion in the north; in the summer of 1812, 35,000 soldiers were sent to Yorkshire and Lancashire. Luddism as a distinct movement had dissipated before the notorious trials at York Assizes in January 1813 in which Mellor and two associates were hanged. Fourteen more were hanged a few days later, the largest number of people ever hanged at once in Britain, ostensibly for robbery and "oath taking" but in reality for challenging the power of the state.

It should be noted that the Nottinghamshire stockingers had had actual legal rights, as specified in guild and corporate charters as well as statutes, concerning the employment of apprentices and the length of their required service, the number of pieces of equipment controlled by one person, the use of particular kinds of equipment, and the quality of goods permitted to be sold. These rights had been challenged in London in the early 18th century and in Nottinghamshire in the 1770s, and stockingers had retaliated by breaking frames. In the early 19th century stockingers had fought to enforce these protections through legal means to no avail; in 1809 these legal protections were repealed, leaving them with no alternative but direct action.

It should also be noted that the actions of the capitalists that prompted the Luddite protests are the same as those Naomi Klein describes in *The Shock Doctrine*. Manufacturers took advantage of the disruption caused by war, inflation and scarcity to introduce such inimical economic practices as new uses of technology, the factory system, unrestricted competition, undermining of traditional standards and practices, and undercutting wages and prices. Industries and regions in which capitalists did not take advantage of the social disruption to institute these changes suffered no unrest. The tactics the government used against the movement—infiltrators, spies, *agents provocateurs* and torture—are also still used by governments today; agents had no qualms about extracting wild confessions from suspects under torture, then using them to stir up fears of a mass uprising controlled and funded by foreign (French or Irish) terrorist governments.

The Luddite movement should be considered in the context of the British tradition of popular uprisings against imposed authority, from Boudicca to the poll tax riots. Such protests have been organised not only among the industrial proletariat but also agricultural workers (the Swing riots) and even small landowners and professionals (the Pilgrimage of Grace) and aristocrats (the Barons' Rebellion). Luddism merged into later protest movements resulting from the dreadful conditions caused by the spread of the factory system, described by Friedrich Engels in *The Condition of the Working Class in England in 1844*. Protests and uprisings eventually led to some Parliamentary reform and increases in suffrage throughout the 19th century.

The quotation below seems to encapsulate the typical modern response to Luddism:

> Invention, once made, is as permanent a part of civilisation as the DNA of a gene of a human embryo which becomes a permanent part of the individual. Once the characteristic it rep-

> resents has been encoded, it is inevitable that eventually it will be expressed. … The arrow of time moves in one direction only. … New stages can be added to the progress of invention. But it is not possible to uninvent.
> –Robert Reid, *Land of Lost Content*, 279-280).

Most people seem to think the lesson of the Luddites is "progress cannot be stopped"; in reality what cannot be stopped is the use of economic power by elites, particularly when it is rendered invisible by the language of technological progress. Production processes are not mechanised because mechanisation is inherently "more efficient" and therefore better; if that were true, why is it that while our machinery is produced by mechanised labour our clothing is still produced by poor women? It is clear that there is no such thing as "technological progress." Some people may object to this statement, pointing out that people cannot be kept from inventing and improving; this is true, but there is a difference between the invention and the dissemination of a technology, and the latter only happens if someone can profit from it. The idea that technological change is autonomous is a dangerous myth which advantages economic elites by making their influence invisible. The technological changes of the Industrial Revolution were based on the forced acquiescence of the men, women, and children whose ability to survive was eliminated by the "enclosure" of common property in the late 18th and early 19th centuries; the majority of England's inhabitants were left with no choice but to submit or starve. It is a common misapprehension that technological "progress" increases living standards; the living standard of the English working class did gradually increase over the 19th century, not because of technological change, but rather because England's population began to benefit from exploiting African, Indian, and Asian people.

I believe the following "lessons from the Luddites" are both truer and more useful:

Technology is not the same as machines, and technological change doesn't necessarily mean a change in machinery. The most significant technological innovations—the factory system, the wide frame (or to take a current example, the shipping container) may have nothing to do with new inventions, though other social or technological changes (e.g. enclosure, changed methods of distributing goods, computerised record keeping) may increase the benefits of their adoption to groups with the power to effect change.

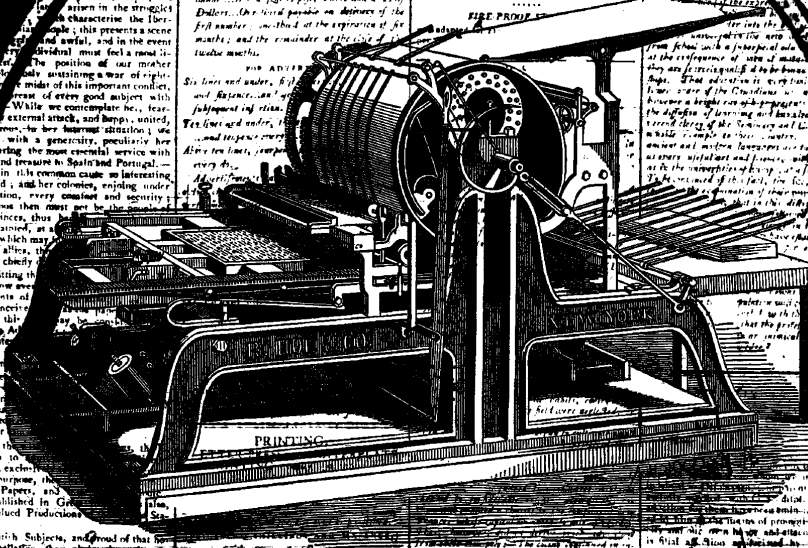
As Kirkpatrick Sale points out, "technologies are never neutral." However, he is incorrect when he goes on to say "and some are hurtful." Technologies reflect the economic and social system in which they are embedded; any change in technology will disrupt the balance of forces in this system and create winners and losers. A technology is never adopted unless it is perceived to benefit a potential winner—in our culture, this invariably means unless it is perceived to economically benefit a group that already has enough power to bring about the change.

Workers acted against a few unscrupulous and greedy hosiers who forced the majority to follow their practices in order to compete; there is always a "race to the bottom" when even one individual cheats without facing any legal or social consequences.

Centuries before our current non-violent activists, the Nottinghamshire Luddites understood the importance of fighting the system, not the people. They did not dilute their message or give the "other side" the moral high ground by harming people. In Yorkshire the community initially supported the movement when it conformed to this social norm but was unwilling to condone assassination even in response to violence on the other side.

The decision of groups other than those currently in power to influence the pace and direction of technological change is, far from being a misguided and ultimately pointless attempt to stop the inevitable, a reasoned and legitimate mode of participation in an open and democratic society.

U.S. POSTAGE



ONE CENT

TERMS.

KEY TO SACRED MUSIC,

STEVENSON

Of Mice and Journeymen

by Dylan Fox

Carter Brown sat in the gloom, staring into his mug of dirty water. He stank of horse and he was sitting in a bar, sober enough to notice it. The day could only get better, he mused, using his identification card as a coaster. Three days riding in a mail carriage and a day-and-a-half on foot, and the oligarchy knew where he was before he'd even finished walking. He took a sip from his mug.

"Corporal Brown."

The voice was firm. It didn't ask questions, it made statements and expected not to be questioned.

"Card," the voice said. Carter stood, and handed it over.

The hisaab took it and studied it carefully. His eyes lingered on the wet ring the mug had left. In the dirty yellow light, his white robe seemed artificially crisp and clean.

"Defamation of official documents is a chargeable offence, Brown."

"Yes, mawla," Carter answered, his eyes focused on a point over the hisaab's shoulder.

"Count yourself lucky it's not worth my time extracting the fine from you," the hisaab said. "See me tomorrow, three o'clock in the afternoon. Don't be late."

"Yes, mawla," Carter answered.

The hisaab's skin was pale and his eyes bulged. The clusters of men drinking away a day spent breaking their back for pittance didn't look. They sat in silence, staring at the centre of their tables.

The hisaab dropped Carter's ID card on the table, turned and left. Carter made his way to the bar.

"I don't want trouble," the barman said.

Carter leaned heavily on the bar. He took his union travelling card out, and showed it to the barman. The barman looked at it suspiciously.

"Got a room?" Carter asked.

The barman didn't answer.

"He's from out of town," the barman said. "Oligarchy doesn't send them sorts down here unless it's for something special. You're from out of town, too."

"I assure you," Carter said, "that he's nothing to do with me."

"Corporal, is it?"

Carter shook his head. "The hisaab was just winding me up. Ain't been in uniform for years."

The barman looked at him.

"Horace Farrow," he said, offering his hand.

"Carter Brown," Carter said, taking it. "*Mister* Carter Brown."

Horace Farrow nodded, satisfied. "Never trust a man who won't give you his name. But I'm tight up this month, I'm afraid friend. Rooms are a dollar a night, and I'm going to need that dollar."

Carter bit back on his anger. He didn't have a dollar and if he did, he wouldn't be drinking filthy stable water.

A coin slipped across the wet counter, pushed by a calloused forefinger. Carter looked around and saw a lined face under thinning grey hair partially hidden in the gloom.

"Can't have you sleeping on the streets," the man said with an empty look in his eyes. Horace took the money.

"My credit good for a drink?" Carter asked.

The stranger laughed.

"If you beat up the sandboy, you can dig through the shit on the floor and look for nickels."

"If my name's still on the slipboard tomorrow, I'll be taking you up on that offer."

The man melted back into the gloom and after another hour, Carter made his way up to the room, balled his coat into a pillow and fell asleep on the floor. Without the feeling of movement or the sounds of men shouting and marching, he slept uneasily. Memories poked their icy fingers in and made him shiver and whimper. He drew his knees up to his chest as if he could somehow find the peace of the womb.

Despite the night-ice lingering in the dawn, the print room was already hot and stinking like hell. Carter hung surreptitiously at the edge, working the lid of the empty ink bottle he had in his pocket.

"Brown?" a man asked, emerging from a back door. The printer's devil and runners made their way around him.

Carter took the travelling card out his pocket, and showed it to him. The man nodded, and made a tiny gesture with his head. He looked different in the half-light of the print room, but that look in his eyes was the sort of thing to stick with you.

"Stirling," he said, without offering his hand. "You okay with announcement sheets?"

"Yeah," Carter said without enthusiasm. "Someone's got to do it—"

Stirling slapped him across the cheek.

"You watch your mouth," he said, calloused finger breaths away from Carter's nose.

"I just thought—"

"You be careful what you *think*, road-rat," Stirling said. "Announcement sheets are regular work with a good return, guaranteed, every day. We ain't losing the contract because some drunk couldn't keep his head to himself and him upstairs fancied he heard something he didn't like when he's transcribing. You know those quarizimi pick up on things. Stray thoughts. I've got two small-time shops willing to kill for the contract, if they could get away with it."

Carter exhaled slowly through pursed lips.

"This isn't an oligarch shop, then?"

Stirling shook his head.

"We're independent," he said. "Runner brings the cable sheet over from the office, prophet upstairs turns it into words and sends it down to us, and we print it up in time for service. If we're late,

runner brings the cable sheet to another shop."

"Why don't the oligarchy have their own shop here?"

"History," Stirling said. "And we don't want them thinking they need to own us."

Carter understood.

"Sorry, boss," Carter said. "Long time on the road. Long time sober."

Stirling nodded, and the moment passed.

"That's Laura," Stirling said, gesturing to the selftype machine, sitting in the middle of the room like a spider in her web.

Carter looked, and took the time to appreciate her. She was as big as a mail coach and, if she could speak, would talk as plainly as a fishwife.

"Dyler fourteen, isn't she?" he asked.

Stirling nodded. "Bit temperamental."

"The fourteens have a square-cut balance arm, which means it jams if you don't pull the stamp at an angle."

Stirling nodded.

"Can I get to work?"

Stirling nodded again. "Sure."

"Runner'll bring the sheet down in about an hour," he added. "Make yourself at home until then. There's a batch of posters and ads that need printing up, silver tray over there. Work through them so Laura can get to know you."

Stirling patted her side firmly.

"Good girl," he told her.

He went back through the door, and Carter took a deep breath. He'd repay Stirling's dollar the next time he was in a bar, had a dollar to spare, and a journeyman came off the road looking for a bed. That was what you signed up to when you took a union travelling card.

The silver tray had become black long ago. Everything in the print room was black from ink and soot, including the air. As Carter took an advert for hair tonic out the tray, he heard the sound of the printer staggering into life in the next room.

Carter sat down at Laura's keyboard, snapped the ad into the holder, and ran his fingers over the keys. The heat of the furnace was already making him sweat. He could smell the molten lead.

As he pressed each key, an individual metal matrix fell from the magazine towering above him, and Laura arranged them into a neat line. Each matrix was embossed with a letter and together, Carter and Laura turned them into sentences. When a line was done, Laura swiped it away and poured the liquid metal over it. The sentence slug quickly solidified and was whipped away, dropped into line and waited for the runner to take it to Stirling at the printer.

Carter's fingers were quick over the keys and almost perfect. Occasionally, a letter would drop out of order and he'd take the matrix out the line before he gave Laura the nod to cast it.

He remembered arranging each letter by hand when he was an apprentice learning his trade. He remembered marching in protest and smashing shop windows when they tried to bring in the selftype. It was an unholy concoction of hot metal, ringing brass and persistent, whirling rods, wreathed in steam and smoke from the moment the printer's devil lit the furnace before dawn. It made the seven year apprenticeship he took useless. It made him useless. The army was waiting for him.

When the army spat him out and he came back to the print room, the selftype was waiting for him. The union had adopted it with all its heart, and it was only when he'd learned its art that he understood why. He learned on an Errington Axis, like a schoolboy learning how to make love. Then the Dylers had brought out the Mark-3, and he'd learned from them. Each new machine brought an impossible set of complications and flaws which had to be worked around, worked with and cleaned up after. It took him another apprenticeship to learn how to listen to the selftype. A print shop couldn't function without a selftype, and the selftype couldn't function without a union journeyman.

As the morning got late, the silver tray emptied and Carter got typeblind. The outside world stopped existing for him. At the end of the last ad-

vertisement, he hammered out three lines of nonsense and left them for the printer.

Stirling tapped him on the shoulder, and handed him the announcement sheet.

"Needs to be done by half-two," he said.

Carter looked over the neat, carefully drawn handwriting. He didn't see the carefully-chosen news the oligarchy was choosing to tell the world. He saw lines of type that needed setting, odd punctuation marks and awkward spacings. Half-two—ready for to be consumed at the attendance-expected six o'clock announcement.

"It's going to be a ball ache," Carter opined.

"Worried about getting your pretty fingers dirty?" Stirling asked. His face was serious.

"'Time is a trick of the mind, a trap for lazy souls. All the time in the world is in this moment now.'"

"'Lay me out a day of sun and a stream of spring water, and I'll show you where eternity lies,'" Stirling added, finishing the quote. "If it's not done by half-two, the guy upstairs will have your balls on the anvil."

"Name?" the hisaab asked.

"Carter Brown," Carter answered.

The hisaab nodded, and used the long, thin finger of metal to operate switches on his quarizimi. In the daylight he looked young. His short black hair was waxed back and stuck his skull, making his angular face look almost inhuman.

"Occupation."

"Travelling journeyman printer."

More switches were touched. The quarizimi sat on the desk by the hisaab's right hand, an irregular box the size of a house cat. The cogs, gears and springs inside let off small pops, clicks, and sighs as they moved.

"Unique identification number."

Carter reeled it off. He'd had it since the day he was born, so it wasn't hard to remember.

The hisaab nodded, and entered it into the quarizimi. The machine let off a cough of steam, and the hisaab paused to pour water from a glass jug onto a matte black square on its surface. The water bubbled, and then sunk inside. Its clicks became more regular, more gentle.

It was remembering, thinking, analysing. The hisaab touched its brass keys, and somehow the insides of the ma-

chine mulled it over and came to conclusions. It was turning the world around it into the teeth of a gear and manipulating them. Carter tried not to look. He tried to look at a point over the hisaab's left shoulder, and to keep his eyes carefully sober and neutral.

"I am going to ask you a series of questions," the hisaab told him. "You will answer them honestly—you will gain nothing by attempting to lie. Do you understand?"

"Yes, mawla."

The hisaab nodded, and the quarizimi sighed and clicked. Along the top of it, there was one-hundred-and-thirteen tiny brass rods which rose and fell like lovers or waves. The hisaab never took his eyes off them.

"Carter Brown," the hisaab said. "Served in the governmental army, but brought yourself out halfway through your first tour. Six more years left to serve in the reserve militia. Numerous arrests stemming from a dependence on alcohol—"

"I just like a drink once in a while—"

"And nothing more of note since joining the printer's union six years, eight months ago," the hisaab finished, ignoring Carter's protestations. "Slowly making your way from the east coast to the west, working in union shops and drinking yourself into a stupor whenever you can."

The hisaab touched the keys. He stared at the rods, his mind turning their slow, hypnotic movement into information without him noticing. The quarizimi knew the facts of his past. Somewhere, there was one which had predicted the facts of his future with disquieting accuracy. That's how the oligarchy knew he'd be here, now. It gave another smug burst of steam, sounded like it was shifting gears and a bell rang. The hisaab poured more water onto it.

"Now, Corporal Brown—"

"Just Mister Brown, if you please, mawla."

The hisaab coughed. "You are to be interviewed as part of the consultation I am undertaking for this town. Your answers will be compiled with those of the permanent residents and other transients in order to inform a suitable growth strategy for this region. If you lie to me, I will take it as a deliberate attempt to manipulate the expansion model. I will punish such an act. Is that understood?"

Carter understood the important part. "I've no reason to lie to you, mawla."

"Plans have been tabled to build a wagonway station here, Brown," the hisaab continued. "As someone who uses the wagonways as a primary means of transportation, you above all people should appreciate the profound impact a station here would have in the region. This … economic and social backwater would be put on the map. An individual who thought they were smart might try and manipulate the results for their own benefit."

"A wagonway station?" Carter frowned. "There's no point in that. Survey was done here in seventy-three: there's no ore; no rivers; not even particularly good farming land. There's nothing here worth transporting."

"Not *yet*," the hisaab said.

Carter knew when to shut up.

"I won't lie to you, mawla."

The hisaab nodded, and touched more keys. The quarizimi let out a gentle hiss of air and Carter could hear the sound of a spring winding itself up. The brass rods continued to rise and fall.

Carter stared at a point on the wall. The hisaabs always smelt of gunpowder and mud and shit. Their voices always sounded like the cries of horror that death reduces a man to. In Carter's theatre, the hisaabs sat safe and warm, giving orders as their pawns dug holes in the desert and slaughtered strangers.

Part of Carter's mind was aware that he was talking, that he was answering questions and the hisaab was relaying everything to the quarizimi. The quarizimi was thinking, and coming up with more questions. The hisaab was relaying them to Carter.

He'd once heard that the quarizimi couldn't talk because while everything had to go through a

human being, the human being stayed in control. Maybe the oligarchy hadn't heard the same rumour. Maybe the quarizimi had convinced them it was a lie; the less the human being interfered, the more efficient the quarizimi could be, and that was good for everyone. Right?

Every time Carter looked the hisaab in the face, he saw a mask of soft tissue, muscle and bone with charred flesh sticking to it. Yeah, it was good for everyone. Except the nobodies. The foreigners and footsoldiers and the people history would never remember.

He stared at the wall and answered the questions.

Carter sat in the gloom of the bar, getting drunk. He used the money the hisaab kindly gave him to pay for the room for another few nights, and put the rest behind the bar. It was all going to end up there anyway, so what was the sense in reaching into his pocket every time he wanted a drink?

The first few shots started to make him feel human again. The next three or four started to calm him down. After a dozen fingers of rough whiskey, he started to feel like himself again. Then he got down to the business of getting drunk.

"You eaten, Cater?" Stirling asked, emerging from the gloom and hovering by Carter's table.

Carter looked up, and tried to focus on him.

"Sure," he said.

He tapped two of the up-ended glasses on the table. "Starters."

"Main course," he tapped another two, and then a third.

"With gravy," he tapped another.

"And desert," he added with a grin, showing him the glass in his hand.

Stirling nodded, put his drink on the table and sat. Carter knocked back his desert and whistled. The barman understood, and the sandboy brought him more whiskey.

"You ever ridden on a wagonway?" Stirling asked.

"Sure," Carter said with a shrug.

"Amazing machines, ain't they?" Stirling said more than asked. "Did you know that, per tonnage, they can move almost twice as much as a regular carriage? It's the tracks, you see. The tracks distribute the weight of the cargo over a much, much larger distance. That means that the wheels of the wagon are put under less pressure per ton, and the road is put under less pressure per ton. The tracks, you see, they take the pressure. That's why they're tearing up the wooden ones, and putting metal tracks down. Metal's stronger than wood."

"It kills the wheels," Carter said, taking a sip of his whiskey. "Them old wheels need a bit of give on the track. All that weight on them and no give, the constant movement shakes them to pieces. So they have to refit all the carriages with new axles, 'cause the new wheels don't fit on the regular ones."

Getting drunk was just as easy to do with company as it was alone. And talking helped him not to think.

Stirling stared at him for a few moments, his eyes nurturing a weak flame.

"That's why we had all that rioting in Coldbrooke last year—the Baxley yard refused to modify their designs, so the government took their business somewhere—"

"I was up in New Lay," Stirling said, the flame in his eyes brightening. "Tail end of last year. They're not reporting it in the announcement sheets because it's still under development, but I blagged my way in and had a wander around the transport trade show. You know what I saw?"

Stirling knocked his drink back and waited for Carter to answer.

"They've finally made a working wishbone mail cart?"

"No, oh no, you won't believe this … my drink's empty." Stirling pursed his lips and gave a high-pitched whistle. "No, try to image a wagonway, without horses."

Stirling stared at Carter like he was imparting some universal truth.

"Not hard. It would just sit there on the tracks,

not moving …" Carter said, uncertainly.

The sandboy came back refilled Stirling's glass. Carter held up a hand, knocked back his own drink, and the boy filled his glass, too.

"That's because you're doing it wrong, you see," Stirling told Carter. "What I'm talking about is a wagon that doesn't *need* horses. One that *pulls itself*."

Carter shook his head. "Never going to happen. Oligarchy wouldn't allow it."

"Ah, but you're wrong. It's already being used by the army to move supplies."

"It's not possible. No way the oligarchy would let anyone else use a quarizimi. Hang on, it's an oligarchy thing, then. Military hisaabs driving them, right?"

Stirling shook his head. "It's about the size of a freight wagon, and then half again. It's too heavy to sit on regular tracks, which is why they're replacing them all come hell or high water. It's a huge boiler on wheels. Uses the steam to drive the wheels."

Carter leaned back in his seat, studying Stirling's face. The pitiful candle on their table quivered, making Stirling's well-lined eyes seem almost maniacal.

"That doesn't sound like any quarizimi I've ever heard of," Carter said. "Not that big. Wouldn't happen."

"No," Stirling agreed. "It wouldn't. Because it's not a quarizimi. The guy who built it was there. The guy who designed it. *The guy who designed it*."

Carter studied Stirling's face carefully. He saw nothing but raging earnestness.

"The quarizimi design themselves," Carter told him. "One generation designs the next. It's been like that for centuries. Human hand would interfere with the harmonies of the universe the quarizimi are tuned into. Come on, Stirling—my mama sung this shit to me when I was still sucking on her tits."

Stirling knocked back his drink, and shook his head.

"You're not listening. Some mad bastard actually dreamt this thing up," Stirling insisted. "A human being, just like the one who dreamt up the first selftype a dozen years ago. I watched a team of people strip it down to parts, and rebuild it. Moves as fast as a good pair of nags, and so long as you keep the boiler hot, never needs a rest, never needs changing."

Stirling glanced around, and lowered his voice.

"They're forming a union." He put his finger to his lips. "Journeymen drivers and engineers. Some of our boys are helping them organise it."

"And the oligarchy are letting them?"

"Alls they can see is how much money they're going to make once they get the steam wagons rolling all over the country. Unions mean everything's coordinated, don't they? Short-term, it's efficient, right?"

Carter nodded, and knocked his own drink back. If you could move people and materials where ever you wanted, you weren't held ransom by geography and weather any more. Those towns on rivers and the established roads lost their bargaining power.

The candlelight flickered, threatening to go out. Stirling cupped it in his hands, sheltering it for a few moments.

Carter whistled, and their glasses were filled again.

"Here's to the future," he said, smiling.

Stirling picked up his own glass, glanced it against Carter's, and they both emptied them.

"Corporal Carter Brown," the judge said, stifling a yawn.

"Mister, if you please, your honour," Carter corrected him.

The courtroom was dry and full of dust. When the hearing was over, everything would be packed away or re-arranged, and some official would take possession of it for counting tax returns. There was the smell of ink and the acidic twang of ledger paper.

The judge scratched his chin, and pushed the hair back out his face.

"Hm," he opined.

The large windows let far too much sunlight in. Carter held onto the rail in-front of him like a sick man at sea. His eyes were bloodshot and skin the colour of sun-weary paper. His fingers twitched.

The judge picked up Carter's rap sheet, hastily transcribed from the cable sheet which had followed Carter to the small town. Everything the oligarchy felt needed to be recorded about him, on a single, spooling piece of paper—his arrest record, service record, tax returns, date of birth, date of death … everything the oligarchy thought made up a person.

"You are charged with lewd and drunken conduct in a public place, Mister Brown," the judge said, still looking over the sheet. "What is your plea?"

"Guilty, m'lord."

It was all routine, and Carter was well used to it.

The judge nodded, put the sheet down and looked at Carter. Carter waited.

"You served in the Fifth Company Guards, Mister Brown?"

"Yes, m'lord." Carter's voice became tight.

"Did you know a young lieutenant called Michael Joesph Frontuine?"

Carter paused before answering. "Yes, m'lord."

"What happened to him?"

This wasn't part of the script Carter was used to. He glanced around, looking for a way out. His fingers gripped the edge of the rail.

"He died, m'lord."

The judge snorted. "We all die, Mister Brown. I am asking if you know the manner of his death."

Carter took a deep breath. "Yes, m'lord, I do."

"Then say it, Mister Brown," the judge told him after another pause.

Carter took another deep breath. "The company was to secure Bridge Point from rebel natives. In … some part of Africa, I forget where, m'lord. Never really mattered. When Point was secured, we were to use military force to facilitate supplies to the friendly natives at Hughtown. We were then to lay tracks to secure mineral resources from the region. Payment, from the friendlies. Bridge Point was rigged, m'lord. Lieutenant Frontuine was leading house patrol, and was ambushed by rebels. He suffered a cut to the thigh, and two rebels held him to the floor while a third eviscerated him, m'lord."

"Did he suffer?"

"Yes, m'lord. We heard his screams across the village. They went on a long time."

"Hm." The judge nodded, and picked Carter's rap sheet again.

"Are you aware of the damage that excessive alcohol consumption does to your body?" he asked.

"Yes, m'lord," Carter answered after a pause.

"Then why do it, man?"

Carter didn't answer.

"The human body is an artefact so complicated, it takes a dozen quarizimi working in harmony to imitate it," the judge told him. "We have but one chance, Mister Brown, to enjoy the wealth of beauty that this world and our fellow men offer us. And you're content to destroy your vessel by a lazy habit of drunkenness. Not only that, but your sloth brings chaos and upset into the lives of all those who are unfortunate enough to have contact with you. What kind of selfish impulse drives you, man?"

"My body still belongs to the government, m'lord," Carter said. "And will do for the six years I have left to serve in the militia. If the government wishes me to stop destroying their property, they should provide me with the means to do so."

The judge sighed. Carter looked straight ahead, not seeing anything.

"In view of your repeated offences and transient lifestyle, I do not believe that a sentence of jail time would serve any purpose but to further drain local authority's resources, which can be better spent elsewhere," the judge said. "Therefore, Mister Brown, you are to pay a fine of four dollars to cover costs relating to your apprehension and detainment, and a further two dollars as punishment. You have 28 days to make payment. Payment can be made at any governmental office."

He banged his gavel, and the clerk recorded the sentence. Carter nodded to himself.

Generous, really.

"Lieutenant Frontuine was my godson," the judge said.

Carter nodded, but didn't say anything.

"Dismissed," the judge said wearily, stood up and left.

Carter sat with Laura, jabbing at the keys with his calloused fingers. The furnace whined. He pulled the casting lever, she juddered into loud and flailing life, and he moved on to the next line. He took the old ink bottle from his pocket, took a slug of whiskey to stop his fingers twitching, and slipped it back. He had to be discreet. He'd be fired without by-your-leave if he was caught drinking on the job. But Stirling understood. Stirling would be easy with him. The whiskey was cheap and burned his throat. It sat in his gut like food poisoning. He took another slug.

He'd left the court and spent the last of yesterday's money on the drink, decanted it from the bottle into his improvised hip-flask, and come straight to the print room. He'd found three long slugs of random letters waiting for him. He memorized them quickly, and threw them into the hell bucket to be melted down and recast.

Whoever had devised the system was smarter than him. Or maybe just luckier. The typographical union had members who had to move the length and breadth of the country to work. Members who might occasionally press a bad line of type and leave it to be printed by mistake.

Laura's machinery beat an arrhythmic tattoo, and Carter wondered if the oligarchy knew. The quarizimi could predict the weather, the people, the tides, the crops … Surely they could predict their own downfall. Surely they knew the working men of the country were scheming against them. He thought, sometimes, that the whole alliance was being organised and run by the oligarchy. Let some smoke loose and see where it went.

He took the bottle from his pocket, tipped the liquor down his throat until it burned, and slipped it away again. Drinking made everything vague except the thick pillar of hate he'd woken up one day to find inside himself. Laura coughed sympathetically. The keys juddered under Carter's fingers.

They thought the printers were just mules, dumbly carrying coded messages from town to town. Letters did funny things when you were married to them. They shifted and made themselves into words. They formed order out of the chaos, like a cloud becom-

ing a well-loved face. He pulled the lever again, and Laura got to work casting another line of type. Strings of letters became adverts, news from the rich east coast, politicised victories from foreign lands. Coded messages started to unravel themselves.

The quarizimi were precision instruments, tuned into the harmony of the universe that only ever beat out of time when the universe did. Whatever lost race had designed them didn't believe in mistakes and human error. Laura was a huge, human cacophony of melted metal and pistons. She had over five thousand moving parts. She had her own ideas, and she surprised you sometimes.

"Corporal Brown," a voice behind him said.

"Five minutes," Carter said without turning around, his hands still moving.

"I don't believe you heard me—"

"*Five minutes*" Carter insisted, not turning.

Five fingers dug themselves into his shoulder, and pulled him out of his chair. He sprawled onto the floor, skidding through the spilt ink, charcoal and burnt paper. He rolled to his feet, fists clenched and ready to swing. Laura moaned, his sudden absence causing a vacuum.

"What—" he began, and bit his tongue.

The hisaab stared at him from his pale, harried face. The quarizimi on his belt hissed and clicked, and the hisaab's hand cradled it. His fingers moved, reading the quarizimi's tiny movements as it talked to him.

Stirling appeared from the adjoining room, took the scene in with a sweep of his eyes and went to Laura. Carter bit his tongue, and she gave an angry screech of hot air.

"Your arrogant lack of respect leaves me speechless, Brown," the hisaab said, his voice quivering. "You will—"

His eyes darted to the quarizimi on his belt as the words died on his tongue. The scowl melted from his face, his expression becoming cold. His fingers caressed the machine.

"You're lucky I'm a busy man, Brown," he said, his voice calm, distant. Laura moaned again, and Stirling kicked her furnace and pulled the stamp lever.

"Your answers produced anomalies," the hisaab said.

"I answered honestly," Carter told him, panic starting to edge in the sides of his mind.

"No," the hisaab said flatly. "No, you didn't. You concealed something. That's what's causing the anomalies. I've seen enough of you people to understand that this may not be your fault, so I've designed a second set of questions for you to answer. That should clarify your position. You have one hour to make suitable arrangements. I must stress, Brown, the need for you to be open and honest. Do you understand?"

Carter's eyes flicked to Laura as she moaned again, a deep sound which made her whole body shake. Carter didn't dare look away from the hisaab.

"Carter!" Stirling shouted, wanting to run but not willing to leave him.

"I asked if you understood, Brown," the hisaab said.

All Carter knew—knew for sure—was that someone wanted him to memorize strings of random letters, take them to a particular shop, and let someone else know what they were. He didn't know who the someone else was. He didn't know who gave him a new set of letters to memorize. He didn't know what the letters meant, not for sure.

And if the hisaab did get to the truth? He was drunk beyond sense in a bar one night, he couldn't even remember where. There were four? five? maybe three people at the table with him, buying rounds and letting him curse out the army. They listened to his stories about tortured natives, broken promises and broken flesh, and listened to him explain the pointlessness of it all.

One of them asked whose fault it was. It struck him as strange—he'd never thought of it being anyone's "fault," just stuff that had happened to him. They asked where his orders had come from, and

who was benefiting from them. He was drunk enough to jump to a conclusion.

Then there was a … blank patch in his memory. He'd started memorizing the strings of letters, and leaving them to be found. That was eight months ago.

He looked at the hisaab. The eyes looked watery and dead.

"Brown?"

Carter looked at Laura again as she shook. She was sick, he suddenly realised. If he didn't fix her *right now*, she was going to—

"Carter!" Stirling shouted.

Carter looked back at the hisaab, who was still staring at him.

"I understand—" he began. There was a cracking sound and a rush of air. Carter knew. He dropped to the floor, rolled and scrambled to the door. Stirling was already three steps ahead of him.

Laura moaned, a final breath of air to buy them a few seconds. And then, she let go. Arms, legs, matrices, liquid metal, flaming coals suddenly filled the print shop. The stacks of paper quickly caught and the flames licked hungrily at the wooden walls. Noxious chemicals began to vaporize. Carter was out the door before he could smell the burning flesh of those too young to know what was coming.

He stood next to Stirling, blood running down his cheek and dripping onto the ground by his feet. His hand felt twisted, the flesh hard. His breath came in wheezy gasps. Something in his lungs didn't feel right.

He glanced at Stirling, who looked back. Stirling's face was black with coal or ink, his clothes torn. The escapees from the shop wer being quickly joined by spectators. Glass from the window exploded onto the street, and flames began to crawl up the side of the building. Everything in the shop burned hot and fast.

Carter looked at the crowd. They took a step back as the other window exploded and a wave of heat crashed over them. He blinked, and double-checked. There was a scream from the building and a glimpse of the hisaab's face through the window, muscle and soft tissue bubbling and burning. There was the smell of burning flesh.

"You got any of that ink left?" Stirling asked him.

"What?" Carter asked, the smell suddenly throwing him back in time to when he stood in a smouldering military uniform, watching helplessly as his friends burned.

"The sauce, Carter. You empty the bottle already?"

"What? No, Cap—," Carter stopped himself and shook his head. That was a long time ago, another world … The memory disappeared like paper ash in the wind.

"Help yourself, boss," Carter said, handing Stirling the bottle. They had to make ink bottles to last.

"You get the message this morning?" Stirling asked.

"Yeah."

"You know where to take it, then?"

"Twenty miles north. Barlyton. Shop named Burley's Press."

"You're a good lad, Carter."

Stirling knocked back the last of the whiskey, and handed the empty bottle back.

"You think they'll remember it started like this?" Stirling asked, staring into the flames. "Two drunks who let an accident happen at the right time?"

"Couldn't say. History remembers odd things."

"Doesn't matter," Stirling said with a shrug. "'When the day ends and night has run its course, dawn gives bloody birth to a new day and there, there is where eternity lies, where life is in flux and tied not by the past, and not by the future.'"

The flames mushroomed as the roof began to collapse, and the spectators took a step back.

Carter's future would involve a lot more well-timed accidents.

"Carter," Stirling said, and Carter turned to look at him. Stirling's eyes were alive.

"Let's have a drink to wet the baby's head, hey?"

"Sounds like a good idea, if you're buying."

The Second Great Fire

The Catch-Valve Journal

by Austin Dyches
illustration by Paul Ballard

Nicholas,

You will find enclosed herein the journal excerpt of which we spoke. I must remind you that I have not sent this to you as a peace-offering. I feel it only proper that you should see the remaining pages of our father's journal, and the words contained within—you may take them as you will.

August Malcombe
March 15, 1796

June 12, 1723

Jack visited me again tonight. I swear that one of these days that man will do for me, running about in the dark. He again asked me if I had contrived to get the key for the Inner Chamber. I will write this, as I told him not three and twenty minutes past, so that if my transgressions are discovered, I shall have a full and complete record before Almighty God and man. I was forced at my great displeasure to tell him that I was again unable to convince Darien to let me borrow it, even only for a minute! Jack seems different these days. No longer does he haunt the old pubs of our youth, but spends his night god-knows-where, planning and scheming things which, even to my semi-educated mind, are certainly too complex to grasp. He rattles on that we must take a stand against the King. I don't know what he wants me to do, and besides, I need more sleep tonight.

June 21st, 1723

Mariana lost her child, my nephew, this morning. I can have no doubt as to the reason that God saw fit to take such a lovely babe: London now is no place for a child; the lawlessness and filth that sit on wobbly legs all around us will surely smother us. The doctor, arrogant as he is, was still sympathetic. He said in no uncertain terms that it

was the damp and the wet that took the child within a week. We paid him a small sum not to report the death to the constables, so that we might bury him in peace. It is too damnable wet in this house! The rain pours in through the rotted planks, running down the walls and pooling on the floors before dripping down on the heads of the Lilybren's beneath us. I do not know what to do. I sit here useless, day in and day out. I spend the mornings at the roundhouse, but it is such a small wage—not enough to live on. No one has work, and tomorrow we will gather around the rookery and sing a burial song.

July 4th, 1723

I saw that vile man Quilt Arnold down at the laundry today. He was washing clothes with his filthy children. I swear that if it were not for the little ones, I would have walked over there and drowned the man. He is a bully, and a thief, and last week he split the lip of Henry Conner, the old man that lives with his simple daughter, because Henry tried to stop him from leering at the voiceless woman while she was finishing her errands, such as they are. He was so arrogant as to offer her a bottle of Gowland's Lotion as some sort of bait-hook! That man will get what needs done to him, if there is any justice. Oh yes, and some idiot ran down the street today wearing the colors of the Regrettable Colonies. He was arrested for indecency, and it was a good thing, too—the fool could have been killed.

July 18th, 1723

I had an excellent idea this morning, and this afternoon I have seen it come to fruition. My previous attempts to gain access to the key in Darien's charge had been completely without success, and so today I (having come into an extra bag of old potatoes for some work I did on the Weatherton's window and door), decided that if my old friend would not have his honor sullied by my intrigues, perhaps his wife would have her kitchen table sullied by a bag of hard-to-come-by potatoes. Thus I now have the key. Henrietta has a friend whose husband can fashion a replica in a little discreet shop he keeps barred up on Oxford Street.

July 22nd, 1723

Some men were by this afternoon. They loitered around the corner for some hours, asking people questions that all

seemed to point to Sheppard. Two of them were constables from up-town, but the other two, Sykes and Rorchard, we've all seen before. They will never catch him. They wouldn't even want to, if they knew what was good for them! Wild is such an arrogant bastard—he thinks that if he finds Sheppard before Sheppard gets a hold of that valve, he can claim credit for himself. But they'll never let anyone know what it really does! Do they think Georgy-Peorgy will let us modify our own engines? Ha!

August 14, 1723

That idiot Whitefield is shouting in the street again.

August 15th, 1723

Sheppard has the valve, and has given it to the Non-Royal Engineering Society. They are pleased as can be at the contraption. Apparently it allows steam to travel omni-directionally in a closed valve system, by some order or another. It's a bit above me. But now we have it, and we're going to use it.

October 29th, 1723

It has been a long time since I have written. Things have changed. For those of you who read this in the future, remember only one thing: you cannot destroy the will of man. You may rend the flesh from his bones, but he will march on, through fire and steam. They bombed St. Giles two weeks ago. It came without warning. My dear Eliza was killed, buried beneath that horrible slum I had made her live in for too many years. Mariana has disappeared. I have been alone for the last three days, trying to flee from George's men. After the Non-Royal Engineering Society successfully recreated the valve, it was found that we could not only heat all of our homes with half the energy, but we could build cranes that would re-build them completely. We tried to keep it a secret, but someone let someone else know of our discovery and we were lost. I write this in a hole that was made by a bomb, launched from Knightsbridge, no doubt, by their giant steam-guns which are most likely using the same valve we were trying to rebuild our homes with. It is a sad time indeed.

November 3rd, 1723

It has been a wonderful day. King George is dead! His son is of course using the opportunity to divert the forces outside the city to attacking the castle, and we are using the lull in the violence to make our escape. I had been hiding in this hole for almost three days with no food. I was awoken with a shake this morning, and who was it? It was Jack Sheppard, come to visit me once again while I was so peacefully asleep. I jest, but it was a great surprise, and I was very glad to see him. He had most of the Harod family with him, and together we stole away from the city, using the darkness as our ally. There were flames coming from over the further buildings. What fool starts a war after a war? Is the weight of gold so worth the price of blood? Give me my pneumatic hammer and a pint, and I'm a happy man. And I am a happy man tonight, as we sit here. I have lost my family, and the grief that wells within me when I think of it is too much to bear. So I will follow Sheppard. He told me yesterday as we waited in the darkness, "A file is worth all the bibles in the world."

December 14th, 1723

London is burning. They're calling it The Second Great Fire, but we call it The Greatest Fire. Yesterday, with the help of the Engineering Corps of Cornwall, we repealed the attack on our Northern Flank and pressed men into the city. I am an observer, now. It is out of my hands, but I know that it will end well. The Prince has been killed, his body taken to the Circus and hung on the snowy rafters of our scorched nest. Jack has disappeared again. It is rumored that he is seeking some treasure, but who can say? When this is over, people will say, "They stood up for themselves." I hope they say that. I hope they never let the Rule of Law vanish from the earth. Through fire and steam, we march.

STEAMPUNK SCULPTURE

an introduction to creating works of art in three dimensions, by three adventurers in the field of sculpting.

facing page, illustration by Allison Healy
parts 1 & 2, illustration by their authors

Part 1 - A Steampunk Romance

by Keith Newstead

Keith Newstead has been making automata (moving figurative sculptures) for the last 20 years, and draws his style from a wide source of influences. His work has been exhibited worldwide, and is on permanent display at the Eden project, the National Gallery, and the Natural History Museum, to name but a few.

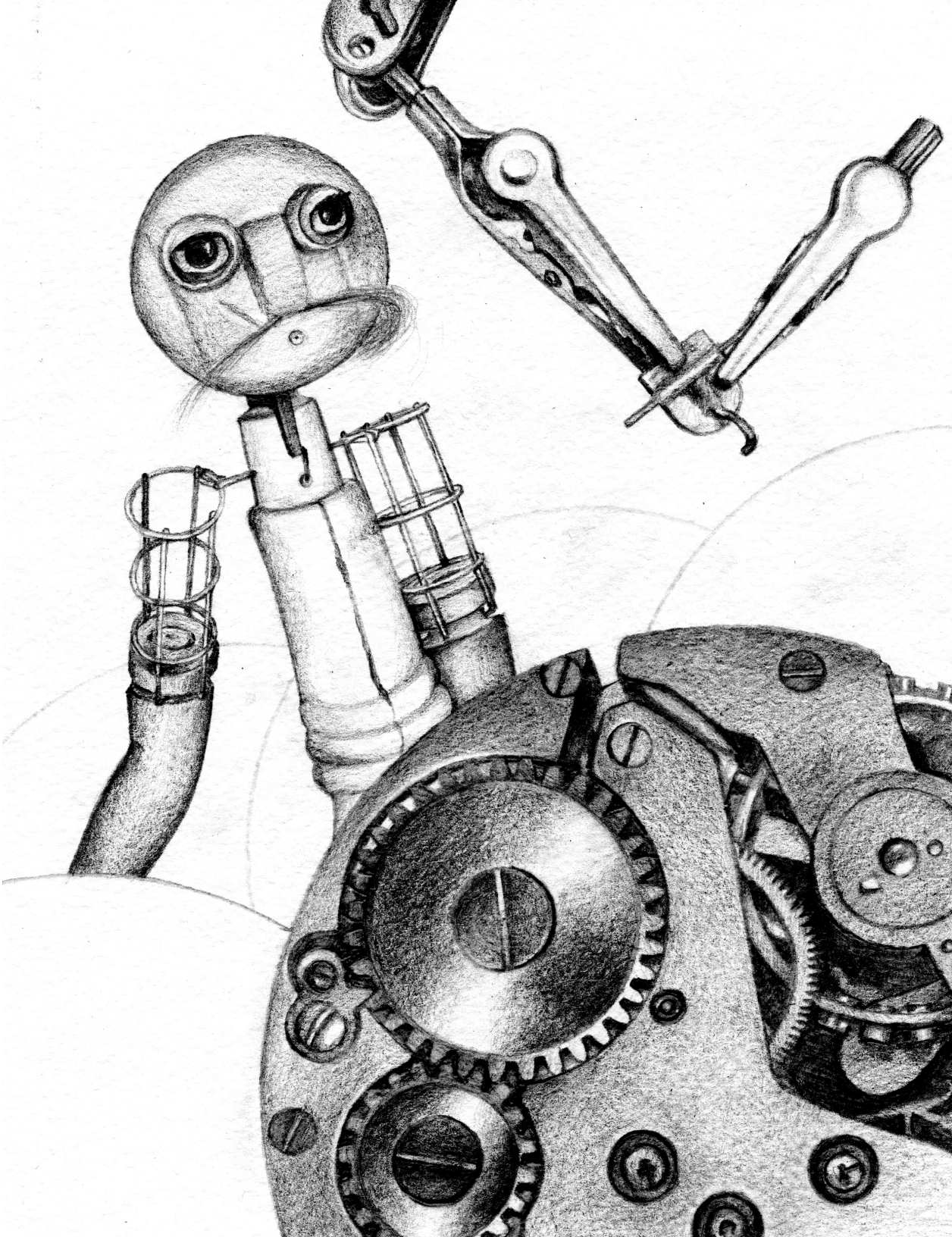
You can find pictures documenting the construction of this work on his Facebook group, "Mechanical Adventures," and can see more of his steampunk creations on his website: www.keithnewsteadautomata.com

Recently, I discovered Steampunk. I felt that the style lent itself particularly well to automata, and I was inspired to create a new work.

I made a small drawing of a very elaborate vehicle which would appear to be powered by a steam engine. The driver would be dressed in a suit of black rubber, and behind him would be a rusty tin compartment containing a small clockwork heart. The heart would vibrate very quickly and be revealed when the heart compartment door opened. I designed the automata to rest on rotating rollers which would be driven by a handle. The rollers would then turn the wheels which, in turn, would power all the movements in the automata.

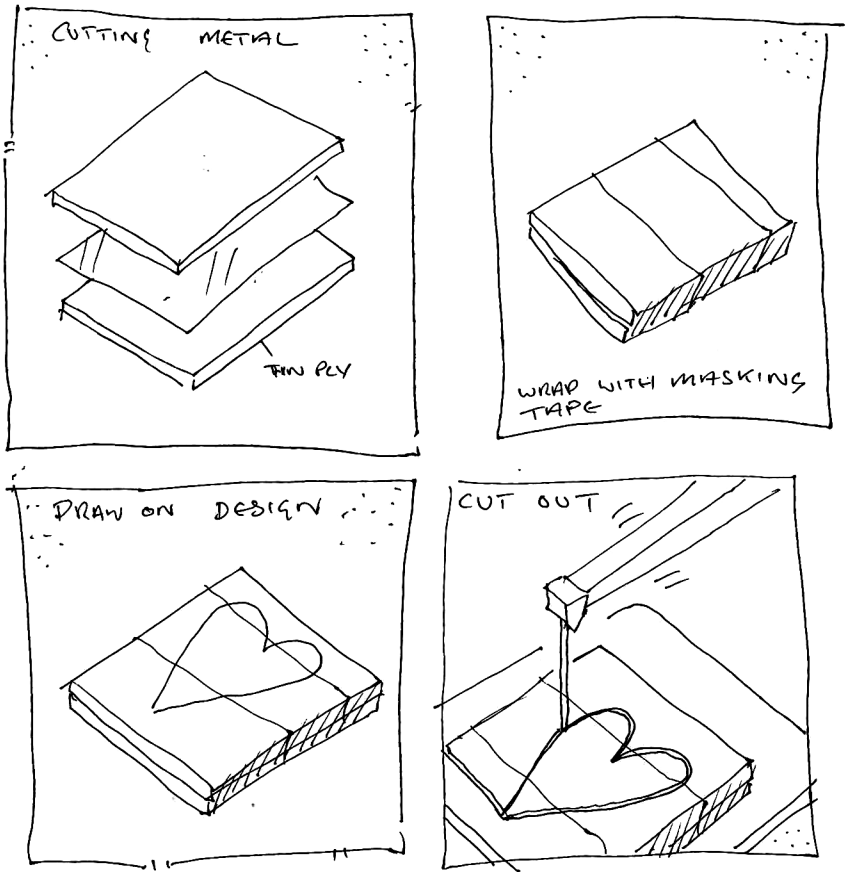
I took my original small sketch and enlarged it to the finished size. I did not want to lose any of the freshness of the original drawing by re-working it.

The first parts I made were the wheels. I used



wooden beads for the hubs which were then drilled and glued in the spokes. I then made a jig and soldered the spokes to the wheel rims; then I made rubber tyres from the large rubber rings used in vacuum cleaners. It took one day to make the 3 wheels.

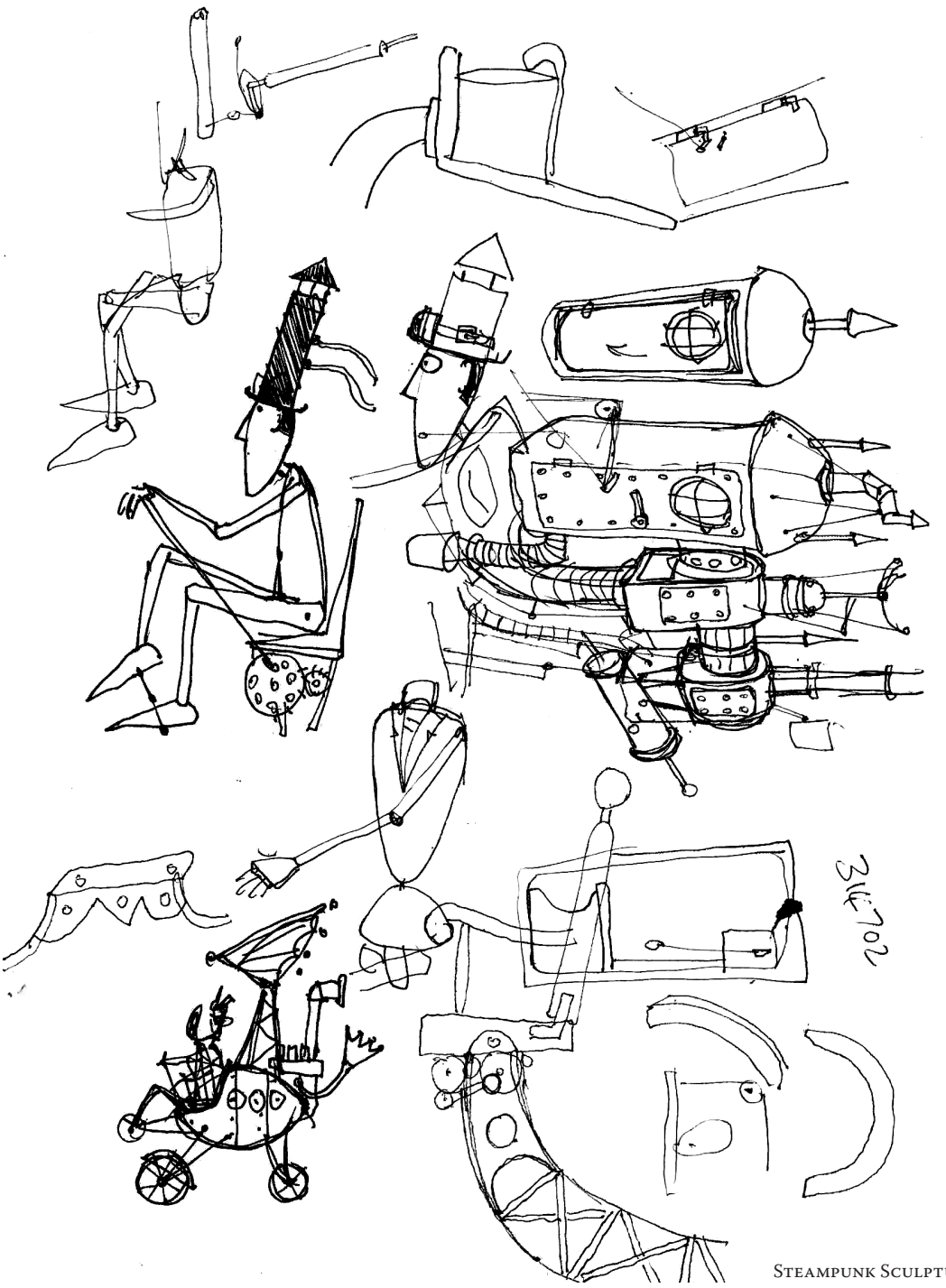
Next, I made the chassis from galvanised fencing wire: first, sanding the wire so that it would rust, and then making two wooden jigs (one for each side) and soldering the wires for each. I soldered the two sides together and made brackets for the wheels and other attachments, referring to my drawing.

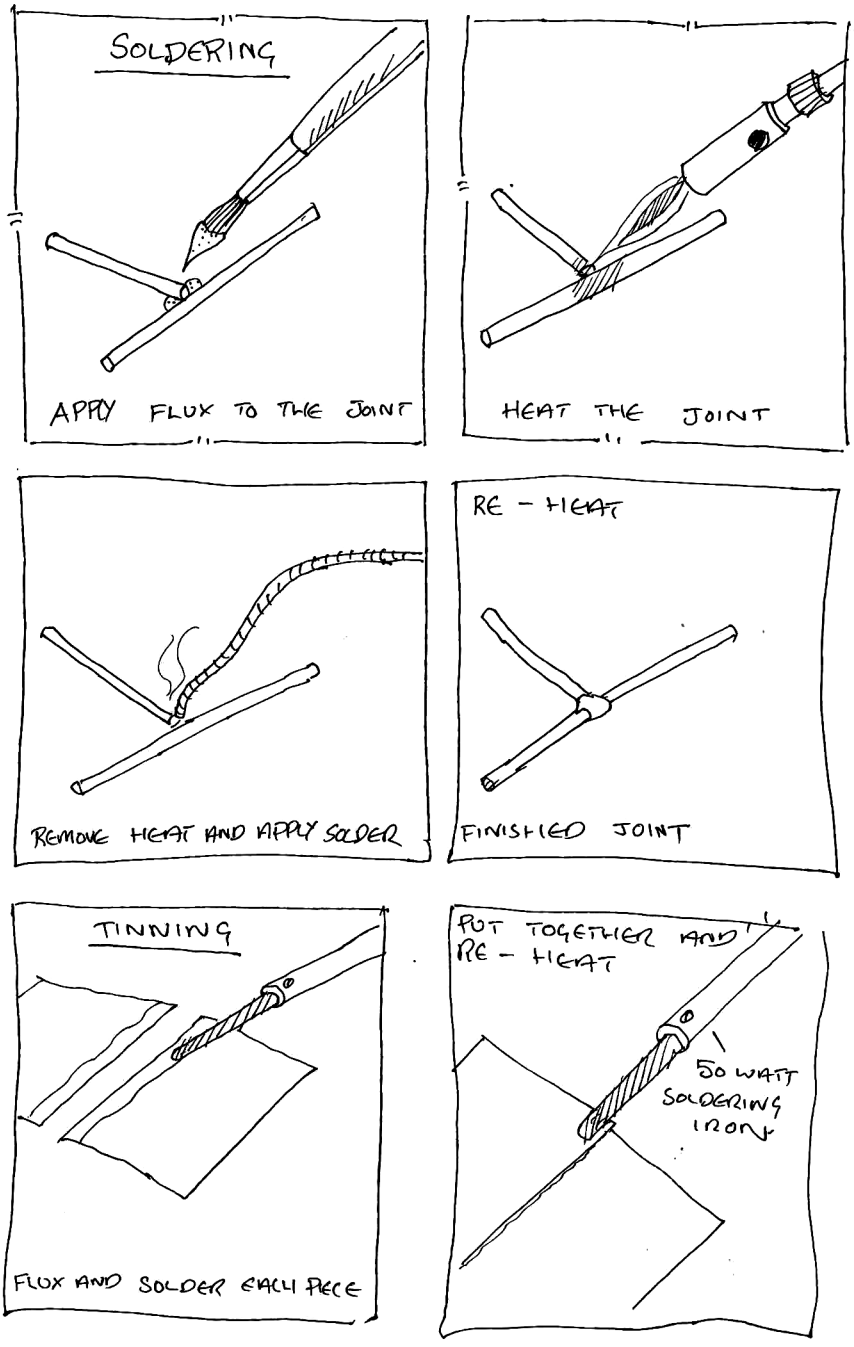


The heart compartment was made from an old tin oil drum [*see inset illustration*]. I found that the easiest and neatest way to cut the tin was to clamp it between two sheets of thin plywood (I wrapped masking tape tightly around the outside) and cut it with an electric scroll saw. The plywood stops the tin catching in the saw blade and jumping, and a very good and detailed cut can be achieved this way. The roof of the heart compartment was dome-shaped so I made a card roof first. When I had achieved the correct shape, I folded it flat and used it as a template for cutting the tin. When it was finished, I rusted it using sea-water and then painted it using acrylic paint. Then I re-applied more sea-water so that the rust would break through the paint.

I added a window to the heart compartment door using a small magnifying lens held in place by a wooden surround. I painted the surround in metallic paint, which I then sprayed with vinegar. The vinegar attacked the metal in the paint and produced a pleasing aged effect. This is a good technique to use to make wooden parts appear to be made of metal

To make the clockwork heart, I took some thin brass sheet and cut out a small heart shape. I removed the small hammer from the ringing arm of an old alarm clock, soldered the heart onto the arm, and made a wooden pulley to fit onto the winding mechanism of the alarm (having first removed the spring). This pulley was then connected to another on the front wheels, so that as the front wheels turned, the heart was activated. The heart compartment door is opened and closed by a crank on the back wheel.

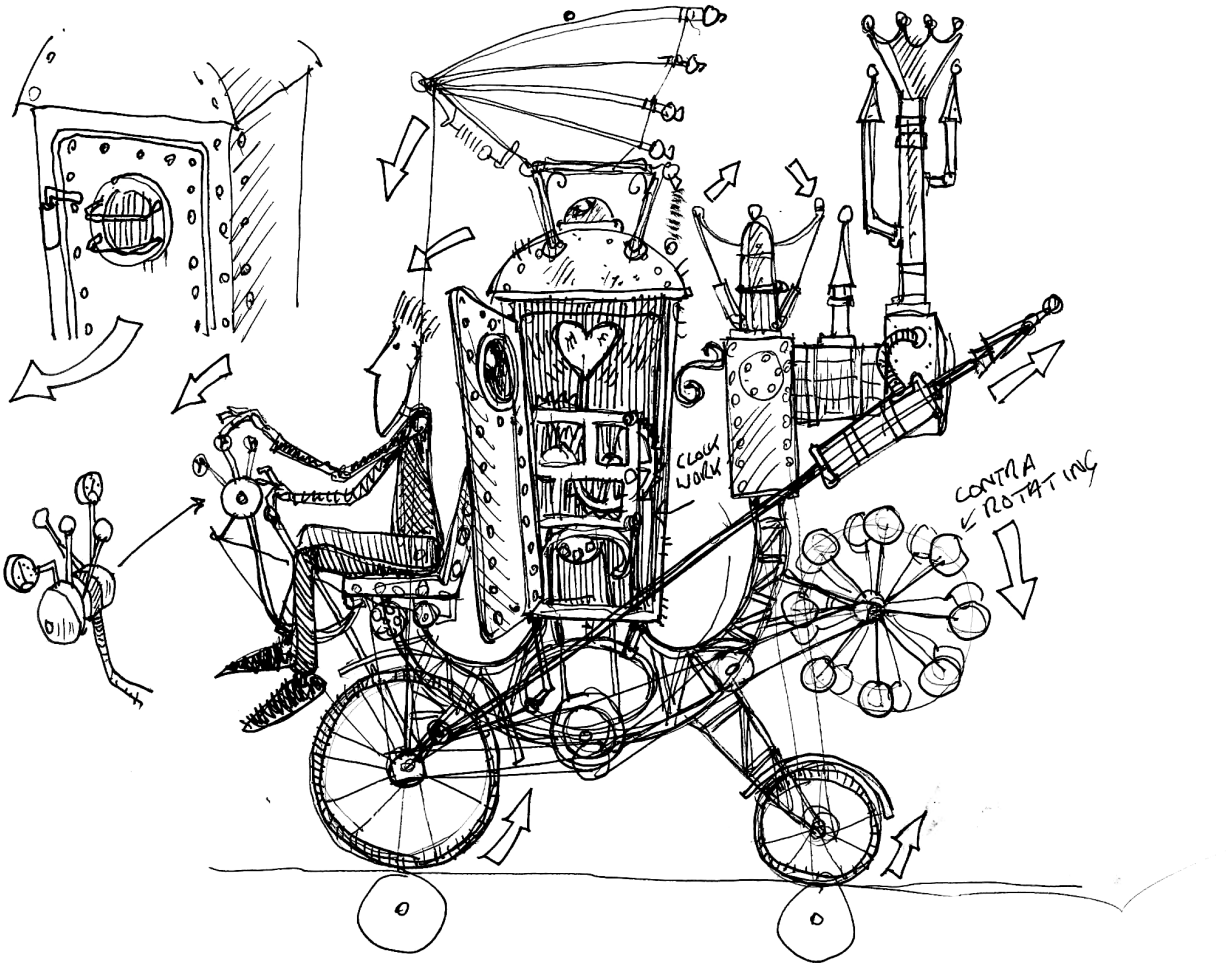




The driver (or Romancer, as I like to call him) was made from lime wood. For the hands I first made the shape, without fingers, from the wood, then drilled holes and glued in pieces of wire for the fingers and thumbs which were covered in heat-shrink tubing. By heating just the ends of the tubing I achieved a tapered finger effect.

The hair was made by gluing small lengths of parcel string around the circumference of the Romancer's head. This was then unraveled using the point of a cocktail stick to produce thin strands. Later, the hair was dipped in thin black paint which stiffened it and allowed it to be styled.

The body parts were then dressed in rubber from an old inner tube. This is a very nice material to use as it is easy to cut, can be stretched around shapes, and sticks well with super glue. Other small details such as buckles were then added. The Romancer is activated by a bent metal rod which passes through his body and rotates, giving him a nice fluid movement. This rod is driven by the front wheels.



Some control levers were also added. These were made from beads with brass shafts, and are worked by cams attached to the front wheels. As they pull, they give movement to the Romancers hands and arms (which are attached to them).

The steam engine was made from tin, wood and found objects. I wanted to achieve the look of an old boat, with varnished wood, rust and polished brass. The boiler was made by first covering a small length of 1" diameter dowel with thin strips of hardwood that was then varnished. The firebox was then fabricated from tin and then rusted; the chimneys and pistons were made from brass tube and polished. The dome on the front of the engine is the bell from an alarm clock, and the governor is made from an expanding wall plug decorated with brass beads.

The gauges were made by wrapping and soldering very thin brass sheet around wooden dowel, leaving a small hollow in the top. I then painted small circles of card with a thin rust solution (steel wool dissolved in vinegar) and drew on the hands. These were glued into the tops of the gauges, and a resin called "Liquid Water" was carefully poured

into the hollow. The first ones I made were a disaster as the resin leaked out of the bottom, so on my second attempt I sealed the gaps at the bottom with wood filler first.

Once finished, the gauges were strategically placed around the machine.

Next, I made the wings from galvanised wire which was covered with a very fine black fabric, stuck on with super glue. I splattered them with some rust solution to give an aged effect. The wings are operated by the back wheel and not only flap but fold into themselves.

The seat is made from hardwood covered with foam and finished with velvet from a ladies shirt brought from my local charity shop. I studded the cover by sewing on small brass beads and pulling them tight. The brackets which hold the seat together are made from aluminum and were cut by clamping the metal between two pieces of ply as with the tin. I then added small gear wheels and levers to finish.

In total, the automata took one month to complete and was a journey of discovery for me. The biggest problem was finding all the small gear wheels I needed, but in the end I solved this by buying a few new alarm clocks and dismantling them. The clocks I used are made by Acctim, and cost £3.99 each.

Another good source of supply for the materials needed in this piece was Hobby's. They stock brass tube, brass gear wheels and the liquid water that I used for the gauges.

Part 2 - Making Friends

Being a Study in the Construction of Steampunk Art Dolls

by Robin Martin

Robin Martin is an artistic explorer who enjoys nothing more than delving into new methods, materials, and schools of thought—ready to share her oddly tilted point of view with friends old and new. Since her serendipitous discovery of steampunk late last year, she has made a number of delightful friends: academicians, aviatrixes, and adventurers among them.

Practicalities

Materials and inspiration are, to me, interwoven. I might imagine a Victorian gentleman astride a gallant mechanical steed, but the components I'm able to find, adapt, or as a last resort purchase, might dictate a gallant horseless carriage instead. Limitations imposed by the materials and the scale challenge me to find new uses for unlikely objects, and it is always best to adapt ideas around the things that you can scavenge to tinker with and be led by the materials that are available for you to work with. One of my machines required a way of conducting

imaginary steam from the engine to the control panel. Its small size precluded using something as large, and obvious, as a garden hose. While wracking my brain, I happened to undo my ponytail in order to play with the elastic: The narrow, tube-like elastic. Eureka!

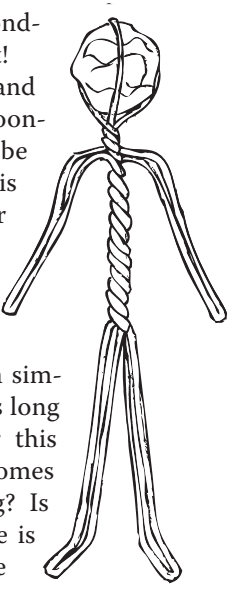
Some of my preferred playthings include:

- polymer clay
- fabric, yarn, lace, leather
- wire
- beads, bits of jewelry, chain, charms
- cogs, watch parts, gears, springs
- pliers, super glue, wire cutters, and other such tools

The Amicus Somes

With a vague idea, some wire, and a crumpled ball of aluminum foil, I begin to build the armature—a sort of stick figure skeleton to which the polymer clay flesh will adhere. There are books dedicated to the anatomy and sculpting of dolls, such as *Fantastic Figures* by Susanna Oroyan and *1/12 Scale Character Figures for the Dolls' House* by James Carrington, but I've always found imagination, observation, and experimentation to be my most trusted instructors; never be afraid to try.

Because I'm constructing the art doll's clothing at the same time, and from the same material as the body, anatomical exactitude is less important than the shape of a bustle and shirtwaist, or the drape of a frock coat left unbuttoned. Remaining aware that I'm not creating an exact historical representation, I might make a miniature cameo for them to wear, but I won't go so far as to insist upon the accuracy of every shoe button. In any case, I imagine my steampunk dolls to be so eager to work on their inventions that the state of their clothing is of secondary importance to them at best!



The position of the body (and how it will interact with the soon-to-be-created machine) must be decided now, while the clay is still soft. The figure will never stand on tiptoe to reach for something if I've sculpted and baked it into a permanent sitting position.

Although it is created from simple shapes, the face can take as long as all the rest combined, for this is where the personality comes through. Is she concentrating? Is he agitated, or eager? The face is where it will show. To me, the expression is more important than the precise and coldly arithmetical placement of each feature—or, to paraphrase Terry Pratchett, "'Taint what a horse looks like, it's what a horse be."

Once I'm happy with the homunculus and the polymer clay has been baked (in a common household oven, not a kiln, and definitely not a microwave) the details are added. Lips are painted, watch chains or spectacles set in place, hair firmly attached with super glue. Now it's time to give my friend something to do.

Behold the Machine

The impossible contraption is what truly makes an art doll a steampunk—but what other accoutrement will be required? The manikin on which I've been working as I write this is standing, leaning forward, with one hand raised and the other for-

ward, as though peering into a crank-powered telescope. Not just any telescope, though; this one will be operated by so many gears, levers, and other devices that it must be placed on a sturdy, and rather tall, framework. This, in turn, necessitates a stepstool for the convenience of the miniature astronomer.

Bits of thin cardboard rolled into tubes form the basis for the telescope, wrapped in polymer clay and nested one inside another. After the telescope is baked, I'll build its scaffolding from copper wire. The crank mechanism will be constructed from small gears, a round toothpick, and a gold-colored bead for the handle.

The stepstool is also made from copper wire, with steps built from thicker cardboard wrapped in black drafting tape. Bracing is required to support the weight of the art doll, as it is comparatively heavy for its size. The steps must be wide enough to accommodate the feet, the eyepiece must be positioned as though it's being looked through, and the crank must be where the hand can reach it. There's little point in constructing a machine that looks as though it bears no relation to its supposed inventor, after all!

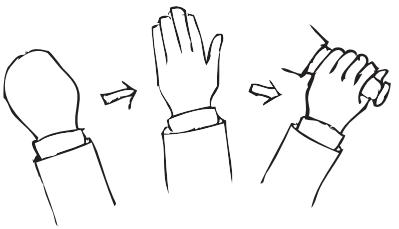
In Conclusion

So, dear reader, our friend is decently attired and suitably occupied with a mechanical diversion. What else is there to do? A moment, please; how are we to make polite introductions without a name? The christening, so to speak, is one of my favorite aspects of making an art doll, the point at which all my efforts come together. I love names that sound like who they're meant to be: A Celtic warrior's name should sound as though it belongs to a Celtic warrior and a steampunk aviatrix's name should make it clear that she can fly with the best of the men and still be home in time for tea.

Our astronomer is a man of leisure, able to afford both the funding to construct an elaborate telescope and the freedom to stay awake until all hours to use it. He's intrigued by the stars, revealing him to be of both a scientific and a poetic bent: "Newton" for the science, perhaps "Coleridge" for the poetry. I'll add a whimsical middle name, hinting at his parents' fecundity just for fun: "Octavius." And rather than settling for the commonplace "telescope," I'll play with Latin translations until something more interesting emerges: "Proculastravisopticon."

My lords, ladies, and gentlemen, allow me to introduce my new friend and his amazing invention, Sir Newton Octavius Coleridge and the Coleridge Proculastravisopticon!

Here illustrated are the crafting of hands, the stepping on stools, and the peering through scopes.



Part 3 - A Victorian Flea Circus Chariot

by Andy Clark

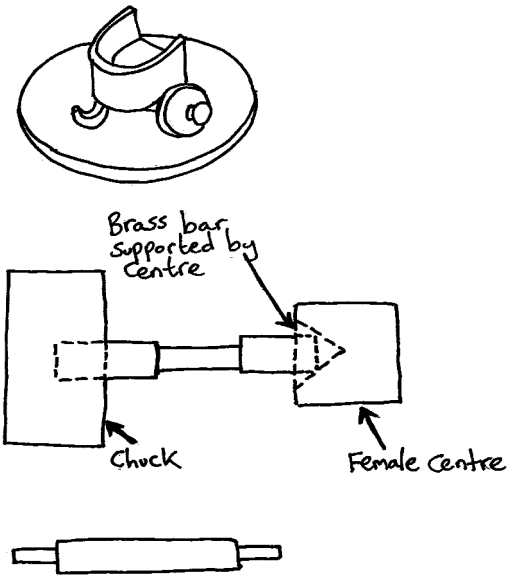
Flea Circuses became popular in Victorian times when the travelling performer L. Bertolotto displayed his industrious fleas to the world. However, the ideas and techniques evolved much earlier from the skills of watchmakers and jewellers.

> A few years ago, a Mr. Boverick, an ingenious watchmaker, of London, exhibited to the public, a little ivory chaise, with four wheels, and all its proper apparatus, and a man sitting on the box, all of which were drawn by a single flea. He made a small landau, which opened and shut by springs, with six horses harnessed to it, a coachman sitting on the box, and a dog between his legs : four persons were in the carriage, two footmen behind it, and a postilion riding on one of the fore horses, which was also easily drawn along by a flea. He likewise had a chain of brass, about two inches long, containing 200 links, with a hook at one end, and a padlock and key at the other, which the flea drew very nimbly along.
>
> —*Jamieson't Modern Voyages and Travels*

I started wondered if it was possible to make such a tiny vehicle as this using simple techniques such as would have been available in the 1800s. Although there were no detailed illustrations of the props used in the early days of the flea circus, I had seen some later ones in videos. Therefore, I based my design on those from Elsie Torp's Danish flea circus and those seen on the British Pathe Newsreels. [*See figure 1*].

The chariot is approximately 10mm long by 7mm wide and made from brass, the wheels are 5mm in diameter. The wheels and axle were turned on a lathe and the other parts were made by hand with hacksaw and files. Mostly the chariot was made without needing magnification but I did use a magnifying glass for the filing and fitting. A digital camera was also used to check some of the details.

Andy Clark is researching the history of the flea circus and has an interest in animation and anything mechanical. For the last couple of years he has been living in North London making and repairing things in a shed at the bottom of the garden.



Figures 1-4 (from top to bottom): the completed chariot; the turning rod supported on both ends; the finished axle; machining the wheels.

The mounting is an old Victorian era French coin about the size of a 2p; the chariot is secured with a small magnet and a tiny piece of steel glued below the axle (brass is not magnetic).

It was a fairly straight forward project with a nice range of different skills including turning and brazing as well as some manual metal working. The design for the wheels was spokeless because of the difficulties given the size and because I did not really have any ability to drill holes around a circle. I used a 3D modelling tool (Carrara Studio) that allowed me to visualise the results. I then created some rough sketches of each of the components that I required and finally added some measurements.

Tools and Materials

Given that this was my first project using brass, I decided to make some soft jaws for the vice. Soft jaws are simple aluminium sheets bent around the jaws of the vice to stop them from scratching or marking the materials. The size of the components I was working on meant that I had to hold some of them in some small toolmakers clamps.

I also used a junior hacksaw, standard files (for rough shaping), needlefiles, and a magnifying glass. I've been given recommendations to always use your sharpest files and saws for dealing with brass but I did not have any real issues with that.

I also used a variety of clamps for the brazing and a selection of tools/materials for polishing the parts before assembly.

I used a small, manual metalworking lathe. The Victorians would have used a treadle or belt driven lathe; mine was driven with an electric motor. I used high speed steel tools whereas the Victorians would have used carbon steel, for this kind of work there is not a lot of difference between the two; their tools could even have been sharper than mine.

The materials were fairly simple, some brass strip in two different thicknesses and some 4mm brass rod. The design actually called for thinner rod so I had to machine it down from 4mm to 2mm.

Machining the Parts

The axle and the wheels of the chariot needed to be turned to a smaller diameter in the lathe. However due to a lack of appropriately sized material, I also ended up machining the hook at the front of the chariot.

To turn the 4mm brass rod down to 2mm for the axle, I needed to support the rod at both ends to stop it bending when being cut. I did this using a female centre to support the tailstock end of the rod. The middle section of the rod was then turned down to size. [*See figure 2*].

Once this was complete, the ends were sawn off. The rod was replaced in the chuck and the ends were carefully turned down to 1mm. [*See figure 3*].

The towing hook of the chariot the rod needed to be even thinner; I wanted it to be 1.5mm. I started using the same technique as above, but the rod was bending as it was machined. This meant that the middle was fatter than the ends which were supported. The solution to this was to run more passes with a finer feed. Keeping

the tool clear of swarf (dust) and additional cutting fluid seemed to help with this too.

The wheels were machined from the same piece of rod using a small parting tool. [*See figure 4*].

The holes in the wheels were first spotted with a very small centre drill and then drilled to 1.2mm to give clearance on the axle. Because the drill was so small I needed to use a small drill chuck mounted in the larger chuck of the tailstock. The wheels were sawn from their support with a junior hacksaw and then filed smooth.

An offcut from the axle was also used to make the washers that held on the wheels. These were thinned/smoothed by rubbing them on some emery cloth.

Manual Jobs

The base of the chariot was sawn from a piece of brass strip and rounded with a file. Then using a magnifying glass and a needle file, the stepped edge was added. The front of the chariot was made from a slightly thinner brass strip and filed to shape. I had wondered about using some kind of tool for bending this to shape but it turned out that it could easily be done by hand. I simply bent the strip around the base of the chariot. A photo with the digital camera showed where it did not fit properly and it was coaxed into line with a bit of rubbing.

Because the parts were so small I kept them in a plastic container to avoid losing them.

Brazing and Soldering

The first thing I did was to clean all of the parts using wirewool and checked that they fitted correctly.

As there were many parts, it was not possible to clamp them all in place at once. The parts are in close proximity, so it is also not possible to silver solder them in multiple steps. Doing so would mean that the later steps would melt the first joints and the model would fall apart.

The solution to this issue is called step soldering. This requires solder with two different melting points. The higher melting point solder is used first then this is followed by a lower melting point. For complex models this can be extended to even more steps but there is a limit to how many different solders can be used. I only had one type of silver solder but I also had some soft solder so I decided to use those two. I used a cotton bud to apply flux to the joints and heated the components with a mini gas torch.

The parts need to be held firmly together, do not use too much force as the brass softens when it is heated. I used crocodile clips as they provided just the right force for clamping.

The body was then soldered using soft solder (and appropriate flux) and an electric soldering iron usually used for soldering electronic components.

For the wheels to rotate I needed to protect them from the solder. I wetted the wheels/axle with WD40 and then fluxed the washer and tip of the axle before soldering. While the solder was cooling I checked that the wheels still rotated.

Finish

I was thinking about "aging" the brass but when I cleaned it up with a minidrill and wirebrush it turned a nice dull colour. Hence I left it that way.

I wandered around a few coin shops in London looking for a cheap coin 1820-1870 and finally settled on an 1857 French coin with a relief of Napoleon III.

The chariot is secured with a small cube magnet glued to the coin. A tiny flake of steel glued below the axle of the chariot to allow it to be lifted off.

Summary

The investigation part of the project has been going on and off since the summer and I've had some rough designs in my head since then. The build process took about 12 hours spread over several days between Christmas 2008 and New Year.

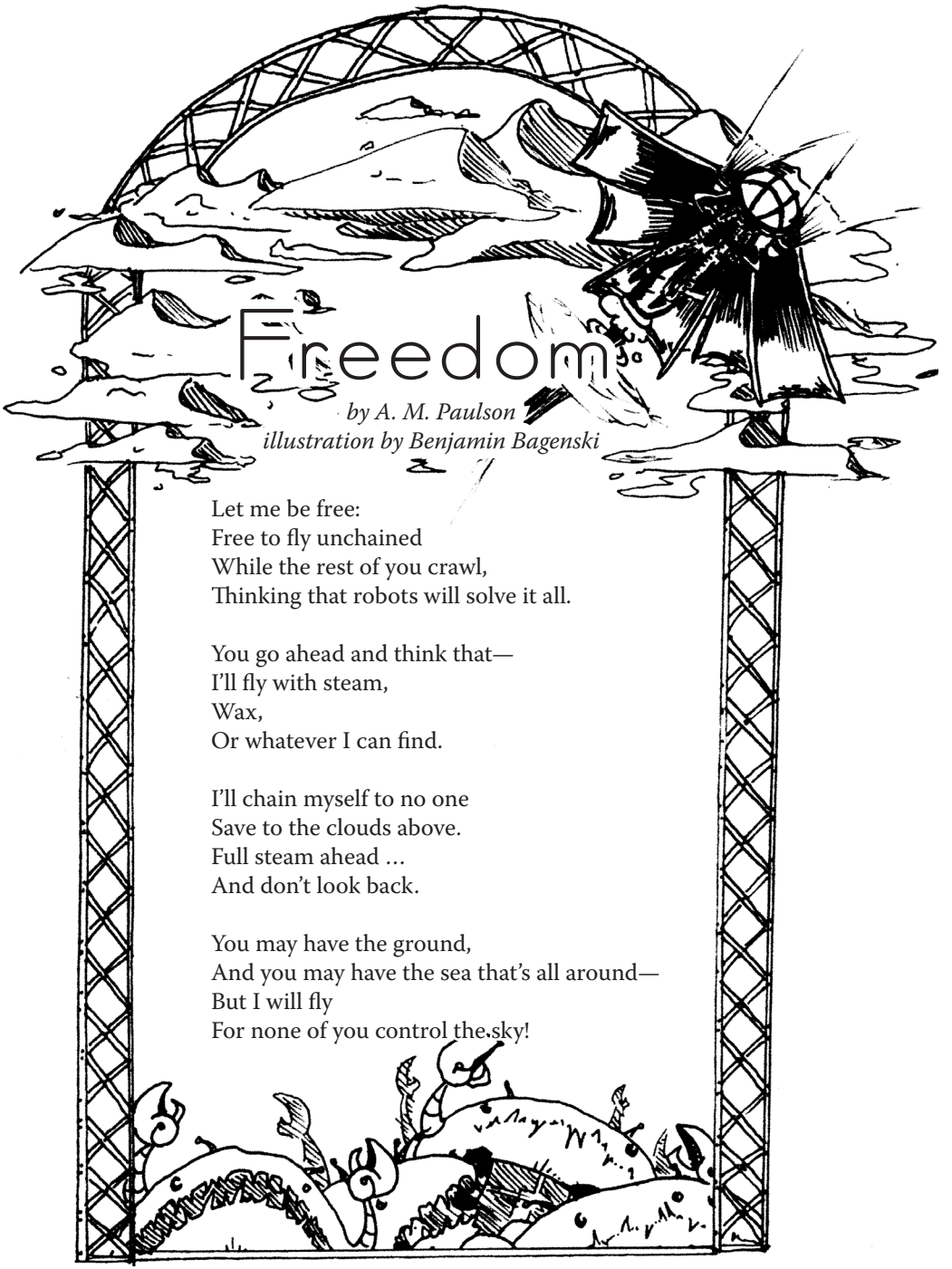
It's been a learning exercise making the flea chariot. There were some small mistakes, but I'm happy with the end results.

Thanks to the chaps from Model Engineering Clearing House the for their tips on drilling with very small drills. Thanks to Mike Freeman for his tips on silver soldering and cleaning flux.

La Lotería de San Leonardo

by Joshua Gage
illustration by Sarah Dungan

The foreman says the shackles keep us
from skipping on our contracts. We count
the days until the lottery, the hours
until the shaft swallows us whole
into the mountain's belly. The ore blisters
the skin, steams the sweat and carves
the carbide light with dust and shadow.
The advertisements begged for men
strong enough to throw their weight
behind a pneumatic drill. The pay
they promised was enough to feed a family,
buy a house and woo a wife
to keep it. After a five year stint,
a man who saved could earn enough
to set up shop in San Eloy
or a farm outside of San Ysidro.
Up to $500 a day!
The chance of a lifetime! Join today!
We are paid in candles and the chance to dig
every thirty days. They cut the steam
that moves the hoist, then let us down
on ropes and saddles. One bell down
into the black, and just enough light
to walk by. What ever ore we can pack
into our tent cloth sack is ours
to keep or sell. We bet away
our lives, twenty-nine days at a time,
giving Newt Bagley everything
our bodies can beat out of the seams.
For twenty-nine days we break ourselves,
chains and hammers calling through
the darkness, filling our lungs with a rattle
of rock against rock, the wheeze of a seam
just before it snaps. The blood
we cough is black and tastes like sin
upon the tongue, nectar sweet
with an edge of salt to remind a man
of what he's done. Twenty-nine days
is the time it takes for a man to die
a thousand deaths. We count the ways—
loose stope, mine gas, fire, cave in.
We leave the names of the dead behind,
but feed the ghosts. Plates of food
tucked into the shaft house corners
appease the spirits that keep the mine
safe and bring the miners luck.
The ghosts guide the men to rich
seams and keep their candles lit
long enough to dig. A ghost
well fed will keep a man alive,
but ghosts are ever hungry, and no one
ever lives his full five years.
When Death arrives, it will be in darkness.
A single bell will sound, then the smell
of smoke from a candle sputtering out.



Freedom

by A. M. Paulson
illustration by Benjamin Bagenski

Let me be free:
Free to fly unchained
While the rest of you crawl,
Thinking that robots will solve it all.

You go ahead and think that—
I'll fly with steam,
Wax,
Or whatever I can find.

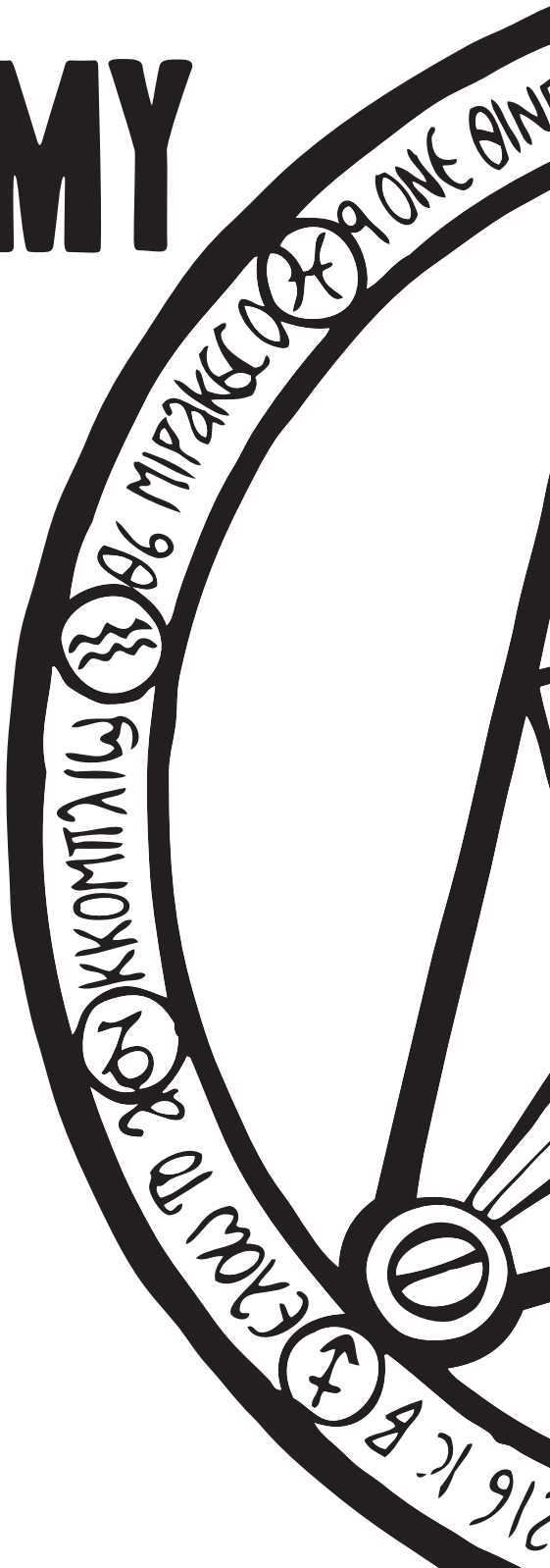
I'll chain myself to no one
Save to the clouds above.
Full steam ahead …
And don't look back.

You may have the ground,
And you may have the sea that's all around—
But I will fly
For none of you control the sky!

ON ALCHEMY

being a study of ancient science and sacred psychology

illustration on page 48 by Sarah Dungan

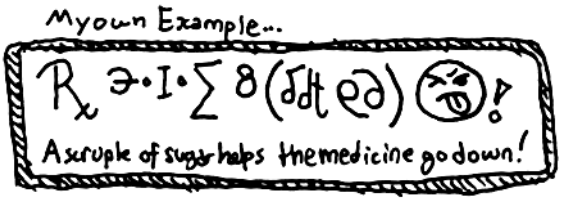


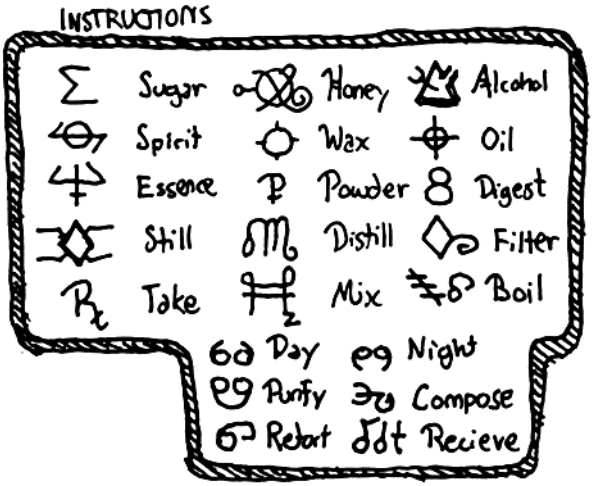
As Above - The World of Outer Alchemy

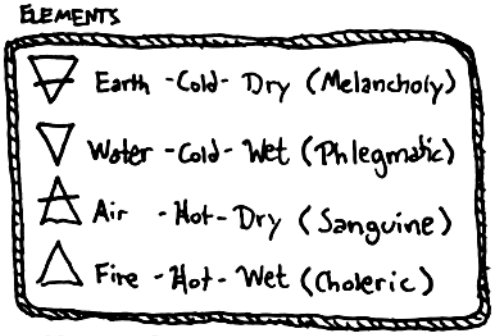
by Benjamin Bagenski

Outer Alchemy, also known as Weidan, Real Alchemy, and Practical Alchemy, is the practice of using the properties of the world around you to achieve wisdom and power. Over the course of history, our understanding of what this esoteric science involves (and what its ultimate goals are) has changed, but there is always a distinct aspect of it that lures people into its complicated riddles—no matter which corner of the world, or day and age that it is in.

The first thing to set straight is that, contrary to popular belief, alchemists do not try to turn lead into gold. As a few people (who believe they have stepped past the point of ignorance) will calmly correct, it was cow dung, not lead. However, I would like to make the point that neither is an accurate image. There are various goals to pursue in alchemy, and yes, one of them is the pursuit of turning various elements into others—perhaps Pb into Au if that is the case—but this is definitely not alchemy in its purest form.







The true essence of Alchemy is to understand the relationship that all things have with each other, which is to have true wisdom. Alchemy is also about utilizing the degree of wisdom that one already has. Another good way to view the artform is to describe it as a sort of synthetic magic, formed from a combination of chemistry, physics, biology philosophy, psychology, and religion.

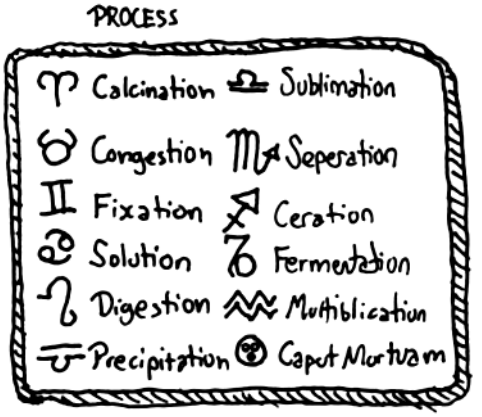
As tempted as I am to say otherwise, alchemy is not always congruent with the romanticized visions that neophytes have when they stumble upon this science: Saint Germain mysteriously charming high society every century or so; Nicholas Flamel defying the laws of physics as he performs great wonders and even achieves immortality; Hermes Trismegistus, a being of great power, bestowing the Emerald Tablets for future generations to one day unlock all of the regions of knowledge. Germain was just a great teller of stories (and an even better showman), Flamel most likely a regular scientist of the era, and good old Hermes probably did not even exist. But that does not matter. For an alchemist, it's not about summoning vast wonders from your flask, or about checking off which natural laws to defy from your list. Every single thing that the alchemist does can be influenced by his or her power. That is when you've completed your Great Journey as an alchemist.

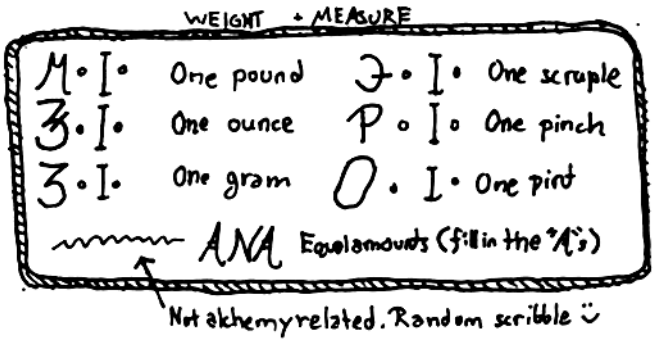
First, we will discuss two different types of alchemy: Chinese Alchemy and Classical Alchemy. Chinese Alchemy, or Weidan, is an ancient practice that dates back as far as AD 35. In that day, people held the general belief that life could be extended or augmented by minerals and natural herbs combined into potions and other strange concoctions. To accomplish this, first the resources would be refined—such as gold

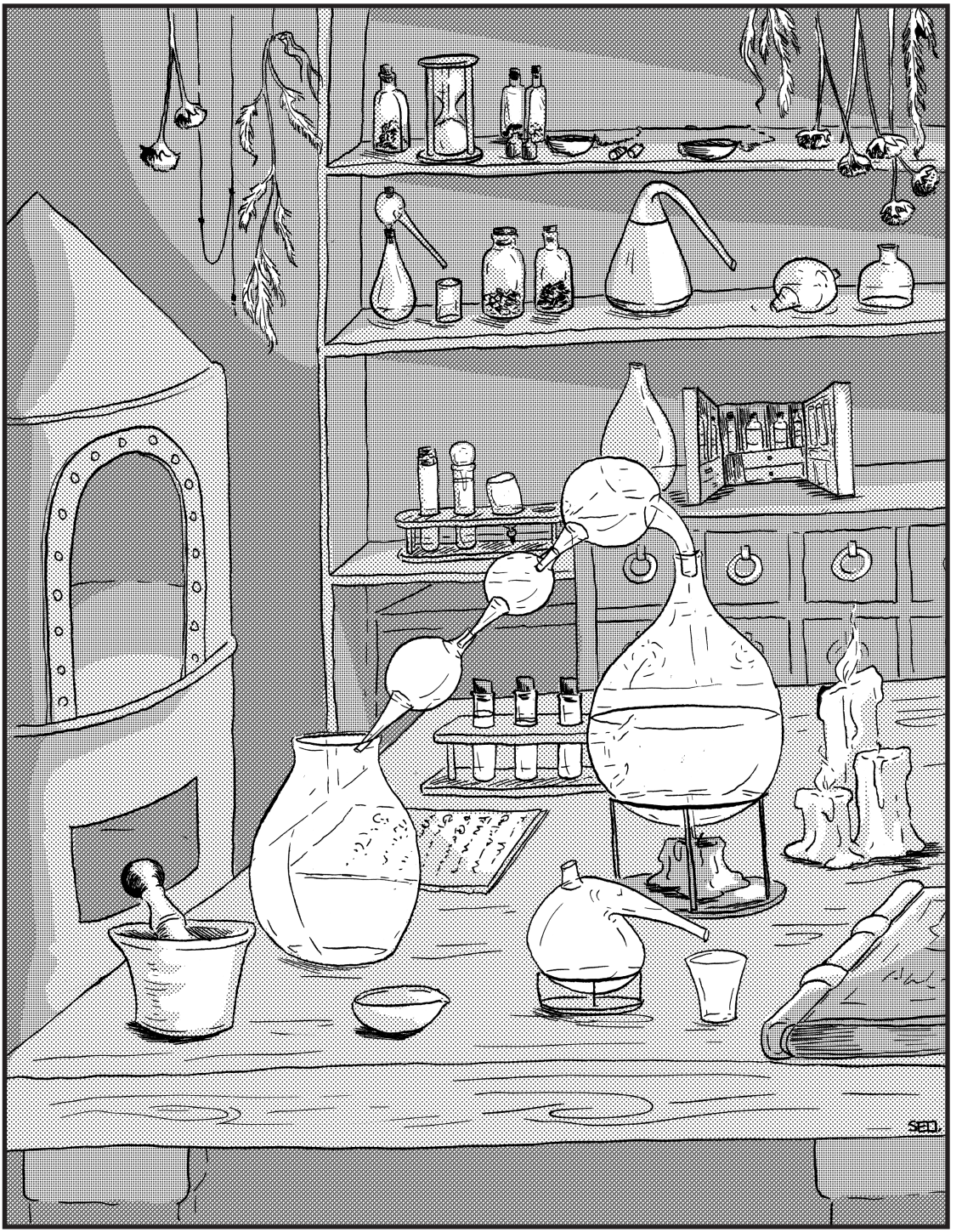
or cinnabar (mainly the second, as gold was not a common resource in ancient China). These compositions were put into vast tomes, listing all sorts of wondrous effects that were now at the fingertips of the alchemist … or at the mouth, as we shall see. Yes, elongated life, infinite wisdom—and living forever, for the truly enlightened!

The only flaw with this is that, in order to create the Asian equivalent of the Elixir of Life, the Chinese ingested mercury (cinnabar is just mercury in another form). This would, inevitably, lead to death, which would (to those who are centered around the more traditional beliefs or even the Western Alchemical principals) appear a bit off aim. The masters of the art (the smart ones who did not seek eternal life through poison) would excuse this by explaining what eternal life truly entailed. Some forms of eternal life would be measured by what state the corpse was in—things like body preservation or a vanishing of the body altogether.

The other kind of alchemy is known as Classical Alchemy, which embraces the more traditional views of the art. The main idea is pursuing "the Great Work," which is different for each individual alchemist. The two classic quests to occupy the Great Work are, in most cases, the Elixir of Life and the Philosopher's Stone. However, the Great Work's purpose (and what drives the alchemist), is not so much creating or finding these artifacts as it is finding the wisdom and understanding—the intrinsic power within—and the ability to find an outlet for it from the subtle to the gross. In other words, turning thought into action.






SED.

This is the kind of alchemy that you will more than likely be familiar with. Just look for those enigmatic symbols and pictures of naked people with the heads of suns and moons, covered with all sorts of queer and quaint runes and emblems. It will seem like somebody was trying to make sense of a child's doodle. On top of that, you have what will seem like mediocre poetry that hints at what to do by way of the procedure, but is lacking enough information to duplicate the feat. It's plaguing, but it is also extremely fulfilling. You'll find yourself addicted to decoding these writings and making some of your own, in time.

Because each alchemist of note has generated their own world-view, we can only really look at the basics of philosophy. We begin at the beginning of time. Many alchemists hold the belief that God, or whoever has the patent on the universe, did not really create this world. The world was merely set in motion by this being. Now, in practice, this doesn't make much difference, but saying it makes us feel good about ourselves and it provides incentive for shaping the world further through our mastering the outer and inner worlds of alchemy.

After the when comes the why. Why is everything happening that is happening? You would struggle to think of a broader question, and so therefore if someone could answer it, wouldn't that be wonderful? Just a simple answer, and suddenly the universe makes sense. Well, Hermes Trismegistus' impressive Emerald Tablets provide that answer: "As Above, So Below."

Right now, you are probably thinking "What? Here you claim that you hold all the secrets of the universe, and you just say something like 'Up, down?' I want my money back!" But contrary to what you may be thinking, if this is the first time you've heard these words, it could be the best, most sincere advice you will hear in your life. It applies to religion, physics, philosophy, dating, cooking, darning socks: everything. It means everything is, in essence, a repetition of what is above it. Just think about it, and figure it out yourself, that's the point of it.

If I've had the honor of piquing your interest, by now you could be off on your alchemical journey. If so, then I recommend that you begin at once.

The first thing in order would be a basic experiment. After that, you'll be all on your own.

Below, there is a short alchemical experiment derived from John French's, *The Art of Distillation*:

> *To keep fire in a glasse, that whilest the glasse is shut will not burne, but as soone as it is opened will be inflamed. First extract the burning spirit of the salt of tin in a glasse Retort well coated; when the Retort is cold, take it out and break it, and as soone as the matter in it, which remains in the bottome thereof after distillation, comes into the aire, it will presently be inflamed. Put this matter into a glasse viall, and keep it close stopt. This fire will keep many thousand yeares and not burne unless the glasse be opened: but at what time soever that is opened it will burne. It is conceived that such a kind of fire as this was found in vaults when they were opened, which many conceived to be a perpetuall burning Lamp, when as indeed it was inflamed at the opening of the vault, and the letting in aire thereby which before it lacked, and therefore could not burne. For it is to be conceived that there is no fire burnes longer than its matter endures, and there is no combustible matter can endure for ever. There may be many uses of such a fire as this, for any man may carry it about with him and let it burne on a sudden when he hath any occasion for fire.*

Imagine if one could completely understand each word that French was saying. Wouldn't that be a wonderful power to behold? And furthermore, if, like a true alchemist, all the talk of this is making one's mouth water by thinking of other applications to this method, the temptation to try and decode this work is irresistible. Well, be my guest.

However, not everything is as complicated as the example above. Plenty of modern day alche-

mists have created all sorts of new experiments. On that note: no, adding sodium hydroxide and phenolphthalein to a glass of water and making it appear to turn into wine is not alchemy. It has chemicals and does something tritely amusing, but a true alchemist would want the water to really become a drinkable substance that tasted like wine. Neither is alchemy about knowing how to blow up various chemicals. It can be, when applied right, but generally speaking, that's just explosive chemistry. So watch out for what you research, and with that disclaimer out of the way, apply all of your knowledge to one general science and art, and you'll find alchemy.

You can experiment with turning wine into pure vinegar, altering the color of glass, and all other sorts of step-by-step wonders. Don't be discouraged.

Decoding the text that I have provided you with will be a challenge, but even if you don't create any sort of wonder, the journey will be worthwhile. I promise you that.

Hopefully you have found all of this interesting. Remember, that Outer Alchemy is something you can see and believe. It's really there, because it is you who chooses to create it. So what are you waiting for? We have chemists finding elements and transmuting them into others through radiation, and physicists researching the fabrics of time and space, so don't you dare say you can't do it, you're probably a lot more interesting than they are! This is your formal invitation to join the technicolor fray of alchemical chaos in this world.

As above so below, so in this note:

Outer Alchemy, also known as Weidan, Real Alchemy and Practical Alchemy, is the practice of using the world's properties found around you to achieve wisdom and power.

You've already learned more than you knew the first time you read those lines, so finish up this magazine and then go learn more!

So Below - The Alchemy of the Spirit

by C. Allegra Hawksmoor

The cryptic nature of the alchemical texts recorded over the centuries means that alchemy has often found itself imbued with a spiritual, as well as a physical, interpretation. Through time, this interpretation has led to the development of a distinct and separate tradition—a form of psychological alchemy which sometimes works in harmony with the physical alchemical tradition, but is often entirely independent of it.

One of the most integral principles of alchemy is, "that which is below is like that which is above, and that which is above is like that which is below," written more commonly as, "as above, so below." This simple statement expresses the idea that all things are linked together. That the macrocosm and the microcosm effect one another on even the most basic and fundamental of levels. It says that what is true of the outer, physical levels of existence must also be true of the inner, spiritual dimensions too—and in that it provides the cornerstone of the whole discipline of internal alchemy.

The fact that Newton's Third Law of Motion is so often misquoted as "every action has an equal and opposite reaction" (and thereby used to illustrate the laws of Fate and karma) can be seen in a new light when you consider the fact that Newton himself was an alchemist, and would have understood only too well that what is true without is also true within.

In China, the discipline of inner alchemy is referred to as neidan or nei tan. At its core, neidan is the same quest for immortality and the understanding that is also the goal of physical alchemy. However, while the ancient physical alchemists tried to understand universal truths through chemical experimentation and their understanding of physical matter, the practitioners of neidan formed the other half of the equation: they turned inwards in their search for truth and practised meditation, yoga, breath control, and visualisation.

Just as the physical alchemists believe that they

can understand the soul if they can only understand the universe, so the practitioners of inner alchemy believe that they can understand the universe, if only they can understand the essence of the soul.

Spiritual Alchemy of the East

One of the great quests of physical alchemy is the attainment of the panacea—the elixir of life that would cure all ills and make the alchemist immortal. Inner alchemists hope to achieve eternal life (either physical or ethereal) through their ongoing quest for an internal transformation, which will transmutate the spirit into a golden body of light that can overcome even death. In China, the practitioners of neidan tried to obtain this secret knowledge through the transcendence of time and the cultivation of life-force (or chi), which would be driven up the spine towards the brain in order to bring about this transformation they desired. Evidence of this can still be seen today in the practice of kundalini meditation and yoga.

A World of Opposites

Chinese alchemy draws its roots from Taoism, which sees the whole universe as divided into pairs of opposing forces. These two forces—commonly referred to as yin and yang—represent the two extremes of everything that is: female and male; Heaven and Earth; water and fire; darkness and light; cold and warmth; and every other pair of opposites between which the world exists.

In Tao cosmology, "Tao gives birth to one. One gives birth to two. Two gives birth to three. Three gives birth to ten thousand things."

In the West, the gnostics were developing a similar belief: the idea that the universe was not created *by* God, but *from* God, that the process was imperfect, and that it was the purpose of the alchemists to help the world refine itself back into its original state of perfection.

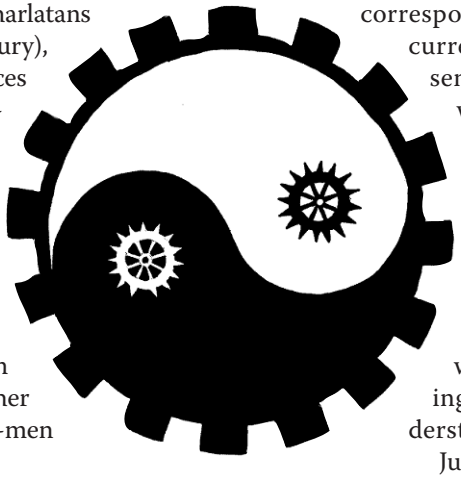
Many ancient Eastern and Western alchemists alike believed that the world was ultimately created from one energy and one spirit. Shortly before this one energy divided to create everything that is, it divided into the two opposing forces which the Taoists called yin and yang and that Westerners represented as Sol and Luna, the sun and the moon. These two forces then became three, just as man and woman (and therefore also the god and the goddess) create the divine child. Western alchemy represented these three elements as Mercury, Sulphur, and Salt, while the Taoists called them Jing (Essence), Chi (Energy) and Shen (Spirit). These three things created everything that is. And, just as alchemists in Europe sought to reunite Sol and Luna to create the Philosopher's Stone, so the Taoists attempted to "rise through the hierarchy of things," returning to the three basic elements of creation and then the two opposing forces of yin and yang. From there, they hoped to combine the opposites and return to the original material of the universe—thereby gaining enlightenment, and with it, immortality.

At this point, it is interesting to note what modern scientific investigation has discovered about the human brain. In a series of tests and experiments carried out in the nineteen-sixties and seventies, scientists discovered that the natural state of the brain was one in which one hemisphere was dominant over the other. (Which hemisphere was dominant varied depending on the situation the subject was in, and the task that was being carried out). However, they also discovered that in states of sleep and meditation, the two hemispheres began to operate equally. Not only that, but they discovered that in the deepest states of reflection the two hemispheres actually began to fall into sync with one another, and that the result was the sense of peace and oneness with the universe that mediators and alchemists alike had been reporting for centuries. While this article does not purport to have unlocked the secrets of the universe, the similarities between the process through which the two hemispheres of the brain begin to function together and the alchemical concept of combining yin and yang (or the sun and moon) in order to attain oneness is certainly interesting.

In internal alchemy, the body becomes a laboratory where these experiments are carried out, exploring the three basic elements of creation and combining the essences of Mercury (or Jing, which represents essence), Sulphur (or Chi, which represents energy) and Salt (or Shen which represents the spirit) just as the outer alchemists experiment with their tangible counterparts in the physical world.

The Alchemy of the Mind

This kind of internal experimentation was not limited to the Taoists of the Far East, and while alchemy was slowly replaced by science throughout the Age of Enlightenment (and, as a result, alchemists enjoyed a reputation as charlatans throughout the nineteenth century), alchemical beliefs and practices can still be seen in the emergence of the Celtic Revival, as well as in institutions such as the Freemasons and the Hellfire Club. However, it wasn't until the dawn of the twentieth century and the works of Swiss psychologist Carl Jung, that alchemy once again began to be accepted as something other than the pseudo-science of con-men and self-styled spiritualists.



Jung became interested in the alchemists while he was developing his work on the collective unconscious and universal symbols. In antiquity alchemy had been the art exploring physical matter and chemical processes (therefore the alchemists' own imaginations, perceptions, symbols, and images). However, unlike people who followed a particular religion, they were not bound to a particular bias, viewpoint or doctrine. In this way, Jung saw alchemy as providing him with a "pure" sort of access into the collective subconscious.

His theory held that there were certain symbols and ideas that formed a sort of ancestral memory for everyone, and that the same symbols, thoughts and myths reoccurred independently of one another across the world. Therefore it was inevitable that alchemy (which itself seems to have developed independently and in isolation on at least two separate continents) would fascinate him as he gathered information to support his theories.

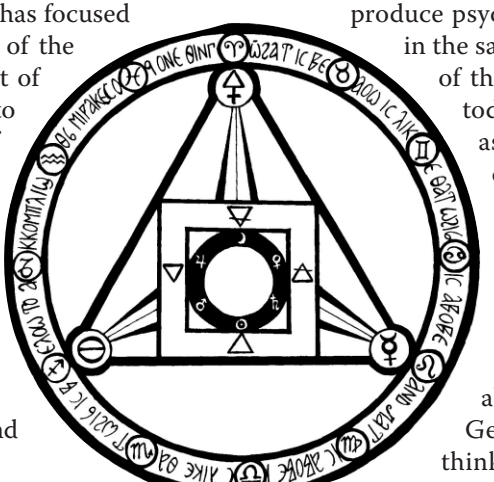
The more that he investigated it, the more that Jung discovered that alchemy was not just useful for its representation of universal symbols, but that it could also aid him in his work as a psychologist. He began to unearth evidence that even the earliest Greek alchemists had been aware that their physical experimentation had corresponding processes which occurred in the human psyche. In essence, he discovered that alchemy was not only an early physical science, but also a living form of sacred psychology that could be interpreted symbolically in the search for personal transformation. In doing this, he confirmed the "as above, so below" concept, which alchemists had been using for hundreds of years to understand the world around them.

Jung thought that the physical goals of the alchemists were "unconsciously reflecting an internal developmental process of 'wholeness' and health in the individual human psyche." He called this "individuation," a process by which the transformation of lead (or cow dung, or mercury) into gold became symbolic of a process of psychological and emotional refinement. This helped him to develop methods of treating the psychologically disturbed, but it also led him to further develop the individuation process itself, and not just for the mentally ill. In fact, the practices he developed could not have been used by someone who was emotionally unstable (at least,

not until they had overcome the most destructive aspects of their own minds). Instead of treating the sick, Jung's individuation process taught people to confront the workings of their mind in order to achieve emotional and psychological growth. Or, as the alchemists would have put it, it demonstrated that "only that which has been tried by fire is strong."

As alchemy has again attracted interest and developed as a field of physical experimentation, many modern alchemists have accused Jung of belittling alchemy or reducing it to a "mere psychological process." What they fail not notice is that alchemy has *never* been about pure physical experimentation. Since its earliest days, it has focused on the purification, not only of the physical world around us, but of the soul, and Jung was drawn to it just as the major religions of the world have been drawn to it throughout history.

To the practitioners of internal alchemy, there was never any such thing as mere psychological process. The alchemy that Jung helped to revive was never intended simply to understand the outside world.



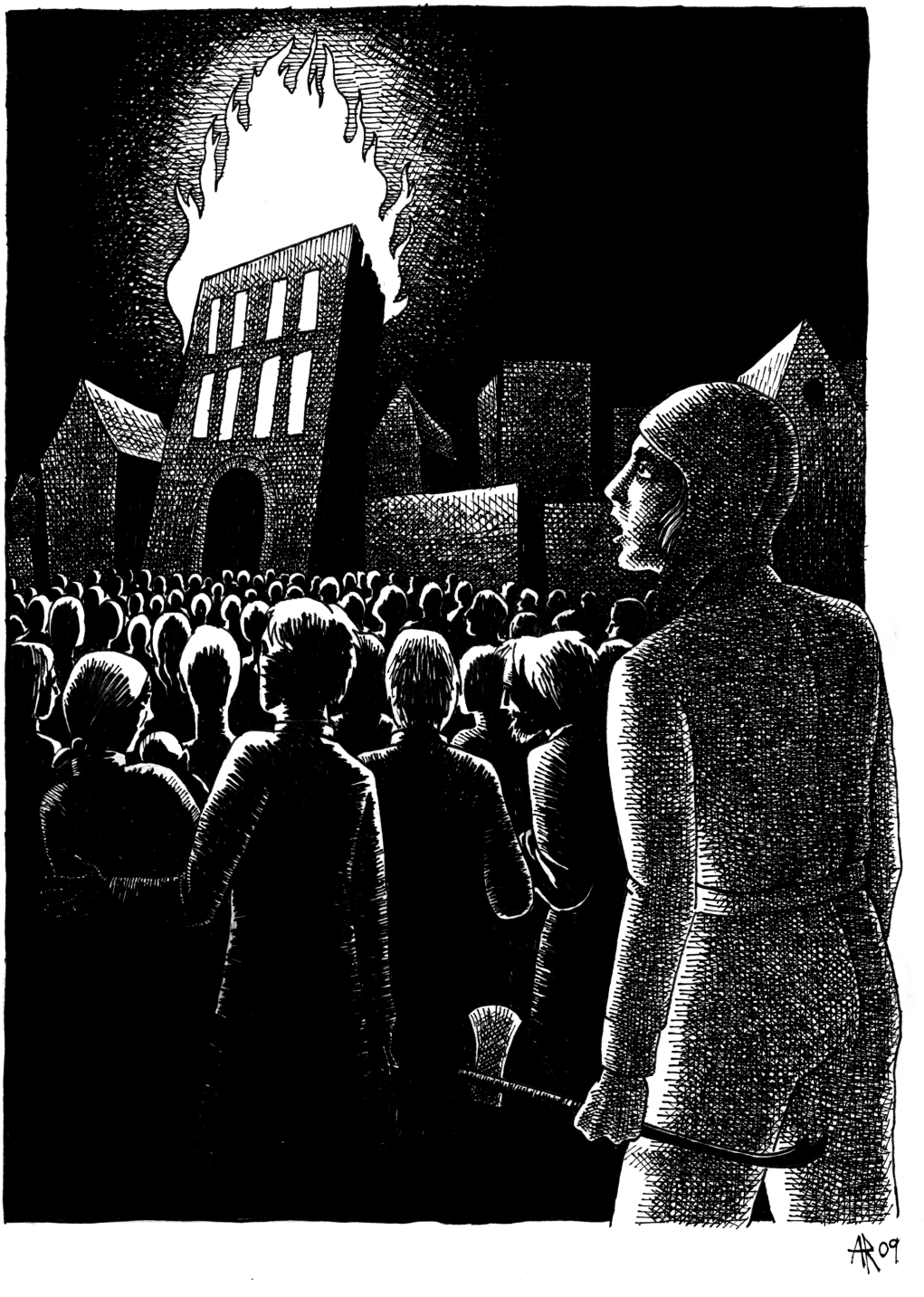
All Things are One Thing

The alchemists have been teaching for centuries that everything is interconnected, and that nothing exists in isolation. And while the external alchemists draw correspondences between all of the phenomena of the physical world—connecting the planets of the solar system to the major metals and days of the week—so Jung understood (as the Taoists and spiritual alchemists do) that each of these physical processes is also a representation of something that occurs within. Since its infancy, it has been the goal of alchemy to understand the wider universe by focusing intensely on just one part of it—whether that part is the visceral, physical compounds, or the more diffuse workings of the soul, it barely matters. In the end, alchemical teachings tell us that all things are one thing.

The fact that physical matter and the mind affect one another is one of the inevitable truths of existence. To alchemists, this means that ultimately the physical sciences and the science of the mind are inseparable. Jung said that, "sooner or later nuclear physics and the psychology of the unconscious will draw closely together … psyche cannot be totally different from matter for how otherwise could it move matter? And matter cannot be alien to psyche, for how else could matter produce psyche? Psyche and matter exist in the same world, and each partakes of the other," and that, "it is only today, when we know that the assumptions of the observer decisively precondition the total results, that the question is becoming acute."

Today, people are beginning to understand the fact that physical reality is only evident through our abilities to perceive it, from George Orwell writing, "if I think I float, and you think I float, then it happens" in *1984*, to recent scientific theories presented in journals like *New Scientist* proposing that physical reality is a holographic projection of three-dimensional space onto a two-dimensional surface—creating an illusion which our minds detect as physical matter.

Suddenly, the alchemical teaching that the physical and the psychological are profoundly interlinked no longer seems so fantastical. Perhaps, then, this ancient, sacred science (which has been relegated to the table-rappings of mediums and the ritual dogma of secret societies for so long) has something more to give humanity, after all.


AR 09

Yena of Angeline in "Lizard Town Woes"

In which our Protagonist learns Nothing, accomplishes Nothing
serial fiction by Margaret Killjoy
illustration by Amanda Rehagen

The fire didn't really *roar*, per se. It was much too loud for that. It didn't *crackle* or *hiss*. No, the fire screamed and it shattered and it deafened. Hot air forced through narrow holes in the library's roof and whistled a cacophony that could be heard clear across town. No one in The Vare slept the night that the library burned down.

The whole town gathered in the public square near the building, close enough to the fire to silence conversation, far enough away to avoid being hurt. The townies stood side-by-side with the squatters for hours, but no blows were thrown and few glares were traded. In that simple moment of awe and disaster, the crowd was of one mind. A simple mind. The kind of mind that lives in every human being, the kind of mind that delights in fires and forgets the consequences.

Of course, no one there seemed to know how the fire started.

Yena stood near the back of the crowd, with several thousand people between her and the spectacle. Her jumpsuit was half-buttoned, revealing her nightshirt below, and she held her crowbar-axe slack at her side. Sleep, or the lack thereof, formed dark circles underneath her eyes.

The fire calmed down, its fuel consumed, and the crowd began to murmur. Factions formed, slowly at first, but then with increasing speed. The squatters grouped beside the stonework fountain — the one that none of them had ever seen run — with its mythical beasts and imaginary birds and unclothed people of every gender. The nightshift gas-workers stood with their signature oversized wrenches, dressed in workclothes, while others stood in their patched woolen union-suits, bare-fisted but awake, and angry.

The townies took the small amphitheatre on the other side of the square. They wore their plant-fiber nightgowns. A few bore canes, but most bore only grimaces.

Obviously, the fault was with the other side.

As the last of the fire died, another disaster began.

"Listen to this," Yena said, three days before the fire. "'The first priority of the musician, much like that of an engineer, is to learn efficiency. If a concept may be better stated in whole notes than 64th notes, it behooves the musician to know this. Complexity may later be built of necessity or ornamentation.'"

"Maybe," Annwyn said, "but I'm not convinced. I think the first priority of the engineer is the creation of things that are useful, aesthetically or otherwise. Efficiency? Efficiency can be developed, I suppose. I mean, maybe it's more true for music."

The two of them were in Yena's workshop. Yena was reclined on a lounge chair, reading, while Annwyn worked on one of her scrap-metal automatons. Ever since Annwyn's workshop had been bombed out by the townies, she'd been using Yena's. There wasn't really enough space for the two to work side-by-side, but Yena certainly didn't mind being in Annwyn's company so often.

"Where you getting this, anyhow?"

"It's called *From The Aether With Love: The Art Of Pyrophonic Composition*."

"Huh. Quite a title. Kind of goes against what the book is saying, being all long like that."

"Suppose so."

"Where'd you get the book?" Annwyn asked. Books were not a common commodity in The Vare, where paper had to be imported from the coast a thousand miles away.

"The library."

"Weird. I've never actually been. Good place?"

"It's lovely there," Yena said. "After my workshop, there's nowhere that I'd rather be. When I first came to town, I think it was my salvation."

"What do you mean?" Annwyn asked. She turned her attention back to her shears, cutting out sheet metal.

"You all are wonderful, of course," Yena said, "but it was pretty crazy first showing up here. I didn't know who to talk to, and I'm not as social as my sister. I think every day I moved back and forth from excited to overwhelmed."

"Huh."

Yena went back to reading when she realized that Annwyn was lost in work. Once again, Yena felt overwhelmed by how hard it was to express herself. That was why she liked reading, engineering, and music. Much better than trying to talk.

"I figure, if I write a book, someone can just stop reading if they don't want to pay attention. Much harder with conversation."

"What?" Annwyn said, confused.

"Nothing."

The evening of the fire, Yena went to return the book. The library was out on the edge of the old downtown; a part of The Vare that was covered in rusted trash and was occupied only by a strange, symbiotic assortment of loners and orphans. The alleys were filled with scrap metal all the way to the tops of the three story houses that surrounded them. The smaller children were often seen emerging from cracks between rusted appliances and building refuse. Lizard Town, it was called, for the reptiles that sunned themselves on top of the junk and nested within it.

Every time Yena went into Lizard Town, strange noises greeted her. The children there had developed their own culture—some say even their own language—and they played games which were quite incomprehensible to outsiders. Screams of delight were indistinguishable from screams of pain, and there was literally no way for an outsider to understand what was play and what was torture. Not well enough to intervene. But the evening of the fire, something seemed wrong to Yena. The sobs seemed to overpower the shrieks.

She thought nothing of it. Not until the fire. Or rather, not until after the brawl that followed it.

After the fire—and after the fight—the sun rose on Lizard Town. The soft morning glow showed cinder and ash in the air, falling lighter than snow on the bloody, earthen streets. No one had been killed, at least not that Yena saw, but the fight had been one of the nastiest in years. Tensions were high, and weapons had been drawn. Yena herself had taken her crowbar-axe to a Townie's forearm, a matter she didn't even try to justify to herself, not anymore. The Townies had tried to kill Annwyn. They were trying to wipe out, or control, the squatters.

Unhurt, Yena stood on the fountain's carved

ledge and let the adrenaline wash through, cleansing her. Beside her, Set sat treating Icar's wounds. The superficial cuts along the side of his waist weren't bad enough to take him to the overcrowded clinic, so they had remained in the courtyard.

A stranger sat smoking papaver on the far side of the fountain; a sun-faded top hat perched on his head, a stripe of ash across his eyes as a mask. His suit was patched wool, marking him as a rare sort in The Vare—one who had once been able to afford fine clothing, but had found a new and lower place in life.

Three orphans ran counterclockwise around the adults, calling out numbers and turning somersaults. Blood covered their faces, and it took Yena a minute or two to realize that the blood was not their own, that the children had painted their faces from the muddy, red pools that were left after the fight.

Once Icar's wounds were treated they tried to talk about the fire, but Icar began to sob and soon Yena followed, curling her head onto Set's lap.

"So much knowledge," Icar cried.

"Who would do this?" Yena asked. She hadn't felt so powerless in years, not since leaving Angeline. The brawl was no catharsis. "Who would do this?" She might have asked the question four or five times between the bouts of tears.

"Enough of your wailing!" the stranger said, leaving his seat and walking clockwise around the fountain to face them. "I set the building on fire. Are you happy to know that? Does knowing it was me solve anything for you?"

Yena was too stunned to react.

"I was paid to do it, much better than I'm paid in this wasteland hell to light the gas lamps. So I lit all those books instead. They paid me, and there's no more library. Write your own damn books if it's so important to you! Just quit your gibbering!"

Somehow, the stranger's emotional outburst brought Yena into a ghostly calm that prevented her from thinking about harming him.

"Why?"

"Blasted if I know, maybe they want you to fight. Maybe they want you to just run at them with axes and die. Or maybe they just like fire. Doesn't matter much, now does it? There's nothing you can do about it, there's nothing you're *going* to do about it. Good morrow." With a sardonic doff of his cap, the arsonist walked away.

Yena let him. She didn't know why.

"Well, what are we going to do about it?" Yena asked Annwyn, back at the workshop that night.

"I don't know," Annwyn replied.

"If we hunt down that man, that lamplighter, and break his arms, that's not going to fix it, is it?"

"No."

"If we hunt him down and make him tell us who paid him, if he even knows, and we hunt *them* down and break their skulls against the cobbles, that's not going to stop the Townies from trying to kill us, will it?"

"No."

"Who would destroy half the books in The Vare just to piss us off?"

"I don't know."

Yena sat in an uncomfortable silence while Annwyn went about her work, tightening bolts on a small clockwork doll.

"If I wanted to track that man down, would you help me?" Yena asked.

"Yes," Annwyn replied, her voice still devoid of emotion.

Another silence, then a pop as a spring wound its way into place through the mouth of the automaton.

"What do you think we should do?" Yena asked.

"I don't know."

"What *can* we do?"

"I don't know."

Yena stopped asking questions. Annwyn finished the doll. The moon rose gibbous over the slum's dark streets.

Eventually, the two women went to their respective beds and tried to sleep. Yena lay unsettled for hours, but no answer ever came to her.

Some questions have no answers, and some problems can have no solutions.

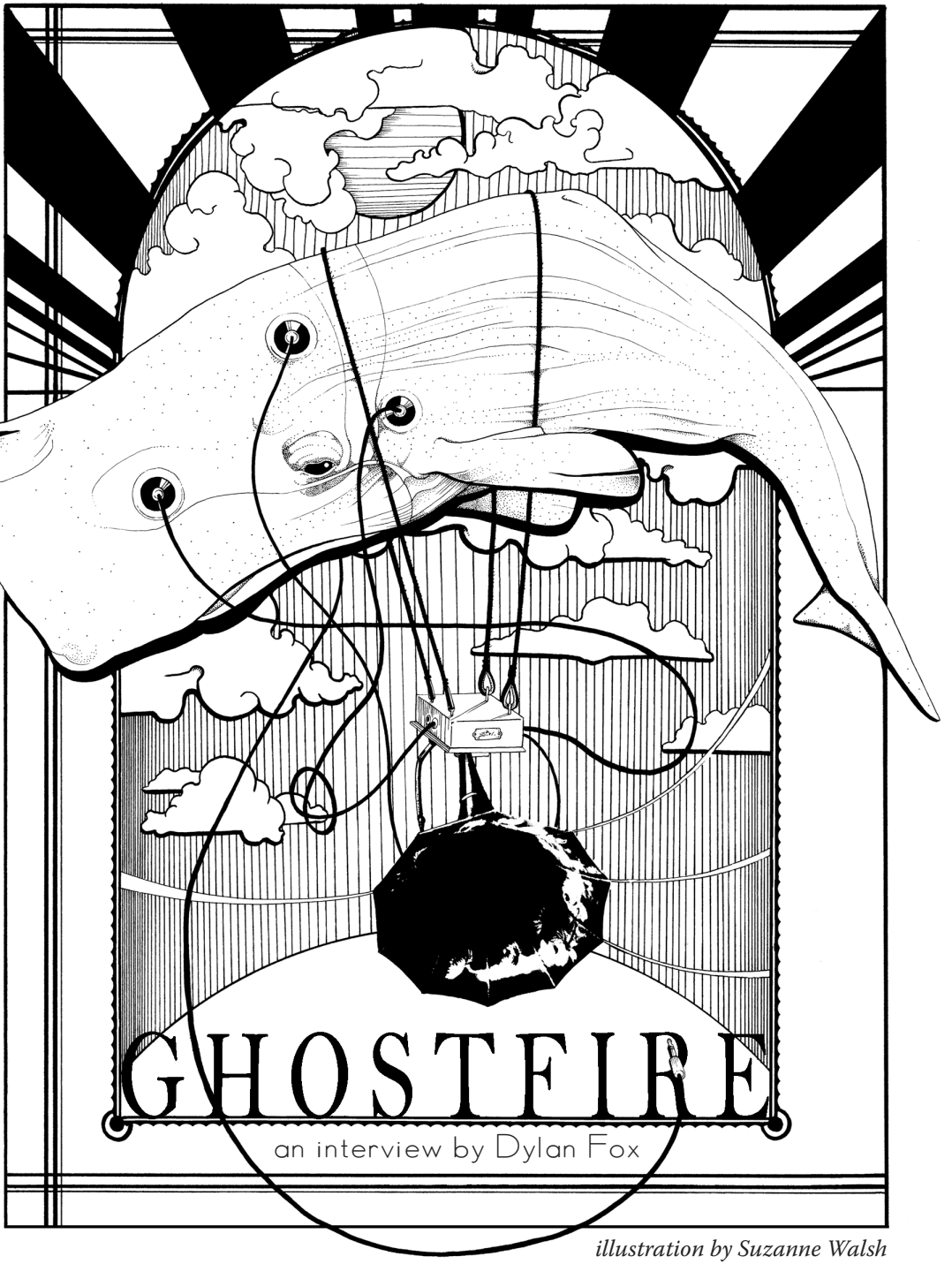


illustration by Suzanne Walsh

Ghostfire are a London-based steampunk rock band who coalesced around their guitarist, Andii. Foregoing the lure of airships and lairs of mad scientists, they instead shuffle down the dark and ill-lit side-streets of the Victorian slums, plucking beggers, murderers, and lost souls from the doorways and casting them in menacing melodramas, opium-tinged fairy tales and alcoholic ballads. Andii kindly agreed to answer a few questions while we sat in a Tyburn doorway, sharing some jellied eels while the rope was being tied.

Dylan: *You have a couple of inches on the playbill to sell yourself to passing trade. How would you encapsulate everything that Ghostfire is?*

Andii: A day trip to Olde Paddington Fayre.

Dylan: *Say we're in some dead-end tavern, with poor lighting and sawdust on the floor. You've managed to coax us into one of the gloomier, danker corners and brought us a drink. What's in that battered old box you're trying so hard to sell to us?*

Andii: Absinthe, opium, laudanum, forged copy of Psalm 51, daggers, alchemist's gold. … Copy of the Times.

Dylan: *I do hope it's a copy of a pre-Rupert Murdoch Times. Or, if not, it's wrapped around some fish and chips …*

Andii: It's a perfectly preserved copy from the infamous "Thunderer" days—artfully concealing a copy of The Sun (which we only buy "for the sport" of course …)

Dylan: *Your music and your lyrics sound different to most other self-confessed steampunk bands—for example, there's a distinct lack of synthesisers, drum machines and airship pirates. Are you purposefully trying to define a different sound for yourselves?*

Andii: Definitely! We're trying to represent the darker side of steampunk. Within our songs there's always been a strong lyrical focus on tales from the underbelly of English history—Victorian and beyond—and steampunk is a great way of getting these stories out to a historically astute audience. While the more whimsical side of steampunk is certainly important to the culture—probably best encapsulated by Abney Park—the English have a reputation for grit and that's where Ghostfire are coming from. In terms of using "real" instruments, we believe in the rock and roll ethic—we're a loud, rude band when we play live, and people seem to respond to that.

Dylan: *What's your greatest triumph?*

Andii: The Triumph Stag—a work of art. I'm also quite keen on the Herald.

Dylan: *Can you recall a time when you wished that the lights would dim and the guy with the hook would hurry up and pull you off stage?*

Andii: Several of the small pub gigs we played in the early stages of our live career. The absolute worst was just before Christmas last year—some hole in the backstreets of Camden, nobody there, and a useless soundman who wouldn't soundcheck us, listened to the whole gig through the mixing desk, and cut our set short. Which was a blessing actually, Steve was ready to hit him …

Dylan: *What is your preferred method of transportation? Airship, paddle steamer, or something more exotic?*

Andii: Peppercorn class A1 Pacific steam locomotive 4-6-2. "Tornado."

Dylan: *Do you think that the UK steampunk scene is different to the scene in the US?*

Andii: The US scene seems more defined and developed. Over here, currently, steampunk seems to be regarded as the latest offshoot of the gothic scene. I've heard it described as "goth for engineers," for example. I'm not saying I subscribe to that opinion, but in the UK steampunk is still very much an emerging scene and the associated bands (not that there are too many of us), are if anything even more diverse that those in the US.

Dylan: *Do you think that diversity is going to be maintained as the scene grows, or are some artists going to split away and find a different path?*

Andii: My personal feeling, based on years of experience of the UK music press, is that they will attempt to pigeon-hole steampunk via a few bands, then a load of inferior copyist bands will jump on the bandwagon. It happens over and over again and it's depressing because it usually ends up destroy-

The music press will attempt to pigeon-hole steampunk via a few bands, then a load of inferior copyist bands will jump on the bandwagon. It happens over and over again and it's depressing because it usually ends up destroying scenes that were initially vibrant, unique, and musically exciting.

ing scenes that were initially vibrant, unique, and musically exciting. I really hope this doesn't happen with the emerging steampunk music culture, but there's not much anybody can do if the mainstream decides to gatecrash … The bands and artists who split away from any established genre in order to find their own path are often the proto-scene innovators anyway, which is something of a paradox I guess.

Dylan: *Your EP,* Drunk Lullabies*, came out in October last year. You've had a couple of personnel changes since then and plenty of time on stage. We hear that you have an album due out in early 2010. How will it compare to Lullabies?*

Andii: It will be better recorded! When we made Drunk Lullabies we'd never gigged as a band. Rob, our keyboard player, had only been in the band for two weeks and I didn't have a decent functioning amp. The past 12 months of gigging/rehearsing has established our sound and this time we know exactly what we want and how to get it. We want the new album to be more powerful and dynamic than the EP, but we also want it to crystallise the Ghostfire sound while retaining the essential sonic elements that many people seemed to like about our first endeavour. We're working on some great new songs at the moment, and we're very excited about recording them—hopefully in October.

Dylan: *When the apocalypse happens, what skills are you going to bring to your rag-tag group of survivors?*

Andii: We will have caused the apocalypse—too much curry and beer! Like a very flatulent form of Skynet.

Dylan: *Where do you as a band, and you as people, expect to be in five years time? Will there be cake?*

Andii: We will be living in France: owners of our own personal vineyard, producing the infamous Ghostfire Chablis and drinking all the profits. There will be a shoe-cake.

Ghosfire have promised to entertain the crowds at The Asylum, the UK steampunk convivial, in September. In the meantime, their music can be enjoyed through their aether-net site at www.myspace.com/ghostfire*, where one can also make purchases of their EP and other sundry items.*

A CORSET MANIFESTO

by Katherine Casey
illustration by Allison Healy

For us, adventure knows no gender, and possibility knows no bounds.

> Contrary to the honeyed words of gentlemen, this Age of Empire is a pestilence upon every continent and soul. Rich men from stone buildings wade blindly through the penniless on their way to the opera, and though these gentlemen are excellent at imposing a world order, they are equally adept at colonizing the women who maintain their homes.
>
> —Erica A. Smith, *On The Political Situation Experienced In Our Era,* Steampunk Magazine #1

Were you to seek an international measure of a woman's value, you would need look no further than her appearance. Across history, women have been treated as china dolls in glass cases, judged only for their beauty, and no era is more guilty of this than the one we build upon; the smog-choked alleys of Victoria's Empire that are our inspirations hid women trapped in parlors and kitchens, bound in gilded cages of silk and steel.

The costumes we create from ruffles and tea-stained lace summon images of the garment-restraints worn by the women we claim as our inspiration. Their identities were bound in laces criss-crossing up their spines; their creativity and passions were labeled hysteria and locked away, leaving them with musty parlors and parasols to keep their delicate skin from the sun should they, God forbid, find the need to step outside. Their young daughters were dressed like dolls in heavy skirts, and quickly learned that the price of a stain or tear outweighed any wish to climb a tree.

We imagine a world of endless potential, where anyone could invent a flying machine, discover a country, or overthrow an empire. We do not see the women whose husbands locked the library door and left for work, leaving their wives to flip through catalogs selling penny-farthings for gentlemen and tricycles for ladies.

And so we come to steampunk, re-creating the Duskless Empire. For us, adventure knows no gender, and possibility knows no bounds. As we create our future from the past, how are we to cast ourselves? Shall we throw aside our petticoats, accept the chopping off of our braids as prerequisite to liberation?

No! This world we make for ourselves exists at the juncture of fashion and function. Our mad scientists' sketches are annotated with lines of poetry, our steam-spitting inventions play stirring symphonies, and our dirigible captain's hair is tied with satin bows.

No longer trapped by standards that crushed ribs and spirits, we are free to define ourselves as we choose. We do not measure ourselves by the dresses in our closets or inches pulled from our corsets; instead, we draw beauty in the margins of our stories and embroider it on the sleeves of our blouses. We refuse to be display pieces, our skirts and curls confined to the frames of sepia-toned photographs. We are not mere dolls to be costumed—we are explorers and inventors, philosophers and madwomen. The women of the Empire gave us computer programs before the computer, cross-dressing surgeons before women could even attend medical school, and volumes of writing under names given and assumed, detailing adventures never imagined for a lady of the day—we take *them* for our inspiration, casting aside the assumptions of docile submissiveness assumed by "proper" ladies. Our goal is not to return to a time of oppressive morals, but to challenge the assumptions sewn in long hems and high necklines: no longer are our dresses a uniform of domesticity (or our trousers a pass to play with the boys). We define ourselves creatively, in ribbons that hold our goggles, and frills that hide dangerous gadgets.

Steampunk will never be a mere revision of Victoria's long-gone London. The walls of tradition (which long held women cloistered) have crumbled, the first cracks made by the brave women of bygone eras. Let us take the stones and build a world of equality and possibility, the likes of which was unimagined just a century ago. We stand before women who broke their ribs for beauty. Now, we shall lace our corsets only as tightly as we want to, able to breathe deeply as we prepare for adventure that will take our breath away.

the zenith and decline of the tramp printer

CHASING THE

by Charles Eberhardt

The transient printer was master of every piece of equipment in the shop, and this mastery came from traveling. "If you had not traveled, no matter how good you thought you were, you were only good in one shop." The International Typographical Union traveling card allowed the tramp printer to work in any union shop, to spread their knowledge and chase their dreams—or try to outrun their demons.

The tale of Peter B. Lee is particularly poignant. "Known throughout the craft as 'king of the tramp printers,'" Hicks writes, Lee "was a fine figure of a man, usually wearing a spike-tailed coat and a wide-brimmed hat … He wore an unusually heavy watch chain and never was without it. He came and went in a quiet sort of way and little was said of his coming or going, how he arrived or what mode of travel would take him away. … Lee was welcome because of his entertaining conversation, his courteous demeanor and gentlemanly bearing.

"The legend of Peter B. Lee was that upon the outbreak of the Civil War, he joined the Union army and marched away, leaving a young wife behind. The war over, he returned home, but was unable to find the wife or any trace of her. The rest of his life, it was said, was spent in wandering up and down the earth, seeking the vanished one. The year after I met him in Cedar Rapids, wearied of his fruitless search, he sank to eternal rest in Lincoln, Nebraska, and was buried there. Later, at the

WILL O' THE WISP

instance of the local typographical union, his body was reinterred in the 'old' cemetery at Beatrice, Nebraska, where it rests under a modest marker:

> And thus we die,
> Still searching. …"

Sometimes, tramp printers were not seeking to find something, but to escape something. According to Thomas W. Holson, a printer known as the Duke of Wellington tramped through Arizona during the 1920s. Everyone always assumed "Duke" was just a nickname, until he was outed as the real Duke of Wellington and brought back home to England. In fact, he was the youngest son of the Wellington family. He had accompanied his father to Arizona, where he learned the printing trade and hit the road as a tramp printer. He never expected that his father and all the other heirs to the family estate would die, leaving him the title of Duke. Upon returning to England, he found that the family estate had been mismanaged into utter insolvency. After guzzling the family's sole remaining asset, a few decanters of whiskey, the Duke scammed one last loan out of the estate to cover his passage back to America and renounced his title. "The Duke said goodbye again and walked away into the night, his boots scuffing gravel," Thomas Holson wrote of his final encounter with the heir of the doomed duchy. "Somewhere he would find work as a printer. He was sure of that. We never heard of him again."

In New Orleans, Hicks writes that he "became acquainted with one Newell, a printer on the *Times-Democrat*, whose father had befriended an old seafaring man and had been given a map to show where Lafitte [Jean Lafitte, "The Gentleman Pirate of New Orleans," 1776-1826] had buried his golden doubloons. The father died, and the son devoted his whole life to the search for the gold, it becoming his only interest. Having little money, he would set type until he had earned enough to fit out an expedition, when he would go in search of the treasure. But alas, the winds and the tides were so constantly shifting the sandy islands that he could never be sure which one his chart called for. … Half a dozen times he returned penniless to his printer's case, saved, and left again, keeping up the search for twenty years, finally being drowned when a tropical hurricane swamped his sailboat. Don't we all chase some sort of will o' the wisp?"

Often Unpredictable, and Frequently Ludicrous Behavior

The harsh and unforgiving lifestyle of the tramp printer ensured only those of almost indestructible character survived. And the characters which thrived were those who were eccentric even among their peers.

Gene Thieme recalled a tramp printer "who carried a .22 pistol in his tool box. Pigeons would fly in through the open windows and sit on the rail above his [Linotype] machine. The first time we heard his gun go off—we didn't even know he had one—we were surprised, but pretty soon we got used to it. One night he shot three or four birds right off the top of his machine. Never damaged the machine. Next morning the printer's devil just scooped up the dead birds and put them into the garbage."

According to John Edward Hicks, the local townspeople of Hannibal remembered Samuel Clemens as a practical joker. Hicks wrote about a joke Clemens played "on Sam Snell, a tramp printer, when he had placed a skeleton in Snell's bed. The tramp printer slept peacefully with the skeleton all night and the next morning had sold it for seven dollars and got cock-eyed drunk on the proceeds."

Hicks writes of one larger-than-life tramp known as "Muskogee Red." "For more than half a century he saw the inside of more print shops and jails than any other man in the trade," Hicks wrote. "On one occasion he burned down a jail of which he was an inmate." To encourage Red toward sobriety, a friend once advised him "that he should, when feeling the desire for strong drink coming on, eat an apple. 'Who the hell,' inquired Red, 'wants to run around with a bushel of apples on his shoulder?' He became a great friend of Jay House, writer on the *Topeka Capital*, and in his early days himself a tramp printer. When the word came up from Oklahoma that 'Muskogee Red' had been found dead with a half-empty whisky bottle in his pocket, Mr. House wrote a touching tribute for his paper … A few months later 'Red' drifted into Topeka and gently reproved House for the premature obituary. 'You might have known it wasn't me,' he chided; 'didn't the report say the bottle was only half-emptied?'"

Booze, Booze, and More Booze

Perhaps unsurprisingly, audacious drinking habits were customary among tramp printers. Alcoholism was prevalent among editors, reporters, and typographers alike; tramps were only fired for drinking when it interfered with their work. And even if they were fired, there was another job waiting for them in the next town over, if not across the street.

"Tramps drink little, if any, booze when on the road," notes Linafont Brevier in his memoir *Trampography*. "A tramp has to struggle to keep from going hungry; he has little or no money for alcohol. He knows, too, that he must be in possession of all his faculties when he hops a fast freight—or he may be killed or crippled for life."

However, once off the train, a dry tramp was likely to quench his thirst at a local watering hole. Tramp printers frequented burlesque houses like Gilmore's Zoo and bars like Doc Zapf's Washington Hall in Indianapolis, and gigantic dance halls like the one in Leadville, Colorado, "where from five hundred to fifteen hundred men would gather."

Other establishments catered to the tourist printer particularly, such as John Jakle's saloon in Terre Haute, Indiana, "where it was only necessary to lay a printer's rule on the bar to get a drink," according to Hicks. "This jovial old German, known to the printers as 'Jake,' would stake a traveler to a meal ticket and a room until work could be found. He told me he never lost a cent on a tramp printer, for as soon as they got work, they would come to him on their first pay day and repay the money advanced and in many cases pay the bill of some pal who had failed to get work."

While on the job, there is no subterfuge that drunkard printers would not seize upon in their quest to conceal alcohol. One tramp printer claimed to have "a chronic medical condition which required that he take frequent doses of different colors of medicine, which he kept on his work frame in plain sight," write Howells and Dearman. "Not surprisingly, it proved to be mostly alcohol … with various food colors added."

Printer Howie Schuneman recalled, "At Miller Publishing in Minneapolis there was this pressman who actually hid his bottle in an ink fountain. We had a big Miehle press with … an inkwell about six inches deep. This pressman would bring his bottle in the morning, slip it into the well, and then—when nobody was looking—fish it out, take a swig, and submerge it again in the ink. He was very precise: never got ink on his hands. He wore rubber gloves—all pressmen had to—and he'd take them off, put on another pair, fish out the bottle, wipe off the neck of the bottle carefully with a rag, take a swig, and sink the bottle in the fountain again. The boss never did figure out where he hid the bottle."

Naturally, all this drinking led to some inevitable antics. "A tramp named Rigsby was slugged up on the Chicago Tribune," recalled Jack Reuter and Frank Graham. "After belting away a few drinks at lunch he forgot where he was working. He entered the Sun-Times composing room and was pounding away on the keyboard for about half an hour before the foreman … told him that he was working on the wrong rag."

Nevertheless, according to Gary Thieme, "If anybody tries to tell you that alcohol 'dulled their minds' or interfered with their work, don't believe it! They were sharp, particularly the [Linotype] operators. Alcohol improved their work."

The Fairer Sex and Fair Dues

There were women typesetters in North America from the very beginning. The wives and daughters of printers regularly worked in the family business; two of Ben Franklin's nieces set type in his shop. During John Peter Zenger's famous censorship trial in 1735, it was his wife who kept his little weekly newspaper going during his imprisonment. When he passed away a few years later, she became the publisher.

So we must wonder why the annals of trampography are so devoid of women's stories. There were relatively few women printers, so there would have been fewer women tramp printers by default. Women typesetters also faced chauvinistic discrimination in the workplace, which prioritized the economic needs of "men with families to support." Because of this, "when a woman gained a regular situation by way of her priority, she was more likely to hold on to that job for life" rather than sacrifice her hard-earned priority on the slipboard to carelessly tramp across the countryside. We must also wonder if the history of women tramp printers has not been overlooked for the same reasons that so much of women's history has been ignored and forgotten within the context of a patriarchal society. We do know that much of the equipment, as in other trades, was designed for use by burly men; generally speaking, they would have had an easier time loading a Linotype magazine, for example, which "fully loaded with mats weighed about 80 pounds and had to be hoisted about five feet in the air and slid diagonally upward on the machine."

Nevertheless, as Howells and Dearman observe, "There was no reason why female typesetters couldn't match production standards expected of male workers.." This did not escape the cognizance of shop owners and foremen at the time. They began to bring women into the composing room

during the mid-1800s in an effort to undermine the growing but almost exclusively male unions. Women typesetters were hired at lower wages, which inflamed resentment among some of their male co-workers. They were also perceived by capitalist interests to be "more malleable" than their male counterparts. However, after a short time in the back shop, they found the women to be just as stubborn and militant as the men. "In 1869, the Typographical Union finally agreed that women should be admitted as full-fledged members" and that "women printers must be paid the same as men, and there could be no discrimination against them."

"The thing I especially liked about working in union shops," wrote female tramp printer Le Hanesworth, "was that women's wages were the same as men's wages, not always true in non-union places. Although women were not always welcome at first, once you proved yourself as a worker, you'd quickly earn the respect of all."

Thus, women eventually became somewhat freer to take to the road, and there are a few whose stories are known to us. Tramp printer Lydia Avery entered the printing trade before she was twenty and held an ITU journeyman's card for 75 years. She did a fair bit of traveling before settling down to a permanent situation in New York City. "We took no nonsense from any foreman," she recounted at nearly a hundred years of age. "We developed an independence that remained until the end."

Then there was Big Marie Emory, a true tramp printer through and through. "She was a loud, brash individual who enjoyed bragging about her exploits," write Howells and Dearman. Once she was jailed after throwing a beer mug through a stained glass window in an attempt to get the attention of the establishment's bartender. Another time, when a foreman questioned what kind of work she could handle, Big Marie "went over to him and poked him a couple of times on the shoulder, and said, 'I can do anything a goddamn man can do except piss in a bottle.'" Big Marie continued tramping into the 1970s; the FBI came after her at age 72 because she was drawing checks for a Navy pension from a deceased husband, social security off two other dead printer husbands, her own social security check, and full union wages as a proofreader—and using her food stamps to pay an undocumented worker to clean her trailer. A first-class tramp to the end!

Technology Finally Kills the Dream

For decades, innovations in printing technology had either created more jobs and empowered the workers, or were rejected by the back shop. The computer dramatically reversed this pattern.

The shift began with an adaptation to the Linotype called the teletypesetter (TTS). Instead of operating a keyboard, the operator punched a perforated paper tape by hand and fed it into the machine. The TTS actually increased the amount of labor required and ultimately failed, but it was a hint of things to come.

The introduction of the computer changed everything. At first, it was only used to calculate the justification and letterspacing for each line of type based on the operator's output from the Linotype keyboard. Suddenly, an unskilled TTS operator could set type with punched tape as rapidly as the fastest "swift" of the old days. Consequently, "newspapers were able to effect reductions in their workforce instead of a steady increase." Traveling became more difficult for tramp Linotype operators as job opportunities began to dry up. Faced with looming insecurity, many itinerant printers began trying to secure permanent positions.

Soon thereafter, TTS punch tapes were adapted to operate the new phototypesetting machines, and before long hot metal was done away with for good. Computers and software became more powerful and sophisticated by the month. Optical character recognition (OCR) software was developed that allowed anyone to scan typewritten pages and convert them into teletype tape to operate either a Linotype or a phototypesetting machine. Printers were soon bypassed entirely by the new digital technologies, which also eliminated TTS jobs,

cutting off yet another job opportunity for tramp printers who were trying to adapt.

As the pace of technological change continued accelerating, video terminals linked the newsroom directly with photo-composing machines, allowing reporters, editors, and anyone else who could use a typewriter to become typesetters, entirely bypassing the composing room. Computers could store articles and ads in memory, and layout software allowed editors to compose pages themselves. Tramp printers were no longer needed to get the paper out on deadline. In fact, no printers were needed at all. Linotypes were cast away for scrap metal; machines that cost $50,000 each a few years earlier were given away to anyone who was willing to haul them off. Non-union composing rooms were liquidated without further ado. The ever-tenacious ITU held strong in solidarity, sometimes fighting back with wildcat strikes. But publishers and commercial interests fired the strikers and farmed out the work. They used fear to lure workers away from the ITU, knowing that this was their opportunity to finally do away with the troublesome, militant typographical union once and for all. Deeply wounded, the ITU limped into a merger with the Communication Workers of America (CWA). Soon, unskilled workers were laboring for longer hours at about half the wages previously enjoyed by skilled typographers.

"Tramp printing didn't die a slow death; it happened suddenly," write Howells and Dearman.

They Come No More?

A few tramp printers clung to their way of life, vanishing into lonely, anonymous fates. Bill Taylor got stuck in Denver's skid row as work for tramp printers dried up to nothing; bitter and disillusioned, he managed to escape Denver and move to Montana, where he died of a heart attack, alone, in a cheap motel in Bozeman.

Most tramps attempted to adapt to the new systems and took permanent jobs. Eddie Hayes settled down at the *Santa Cruz Sentinel* for a while but was unable to let go of his wanderlust. He eventually drew a travelers' card and was last heard of heading for Atlanta.

"We tramp printers felt such a deep attachment to the union and the craft that it represented that we mourn its passage like a person who has lost his entire family in a fatal accident," write Howells and Dearman. "The end of the composing room closes an era that began centuries ago and will not likely ever return."

Yet I think of friends and old-time musicians who hitchhike and hop freight cars all over the country, stopping for a while before they are dragged away by the irresistible call of wanderlust. I think of all the youth who cast off worldly possessions and travel from town to town in search of adventure, crossing paths with vagabond friends, comrades and collaborators, sharing their stories and recording their ideas and dreams in music, zines, and journals. And completing the circle, many folks are re-discovering the beauty and utility of letterpress as a means of conveying their words. In all of these things, the spirit of the tramp printer lingers on.

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In December 1893, a crime was committed which sent shockwaves around the world. Readers of the monthly publication *Strand Magazine* were the first to learn of the offence, but news spread fast, and soon the tragic facts of the case were common knowledge: Sherlock Holmes was dead.

After six years of recording his exploits, Arthur Conan Doyle had grown tired of the Great Detective and decided the only way he could be truly free of the character was to kill him off in *The Final Problem*. Doyle's intention was to send Holmes out in a blaze of glory so magnificent that his fans would be more than satisfied. This, however, did not prove to be the case. In 1903, after a decade of pressure from Sherlockians the world over, Doyle finally acquiesced and Sherlock Holmes was resurrected in *The Adventure of the Empty House*. Reports of the Great Detective's demise had been greatly exaggerated, it turned out—Holmes had merely pretended to have toppled over the Reichenbach Falls in an effort to escape would-be assassins. But how did he do it? Struggling for his life, grappling with his arch enemy, Professor Moriarty, at the edge of a precipice, what was it that saved Holmes from certain death?

> We tottered together upon the brink of the fall. I have some knowledge, however, of baritsu, or the Japanese system of wrestling, which has more than once been very useful to me. I slipped through his grip, and he with a horrible scream kicked madly for a few seconds and clawed the air with both his hands. But for all his efforts he could not get his balance, and over he went. With my face over the brink I saw him fall for a long way. Then he struck a rock, bounded off, and splashed into the water.

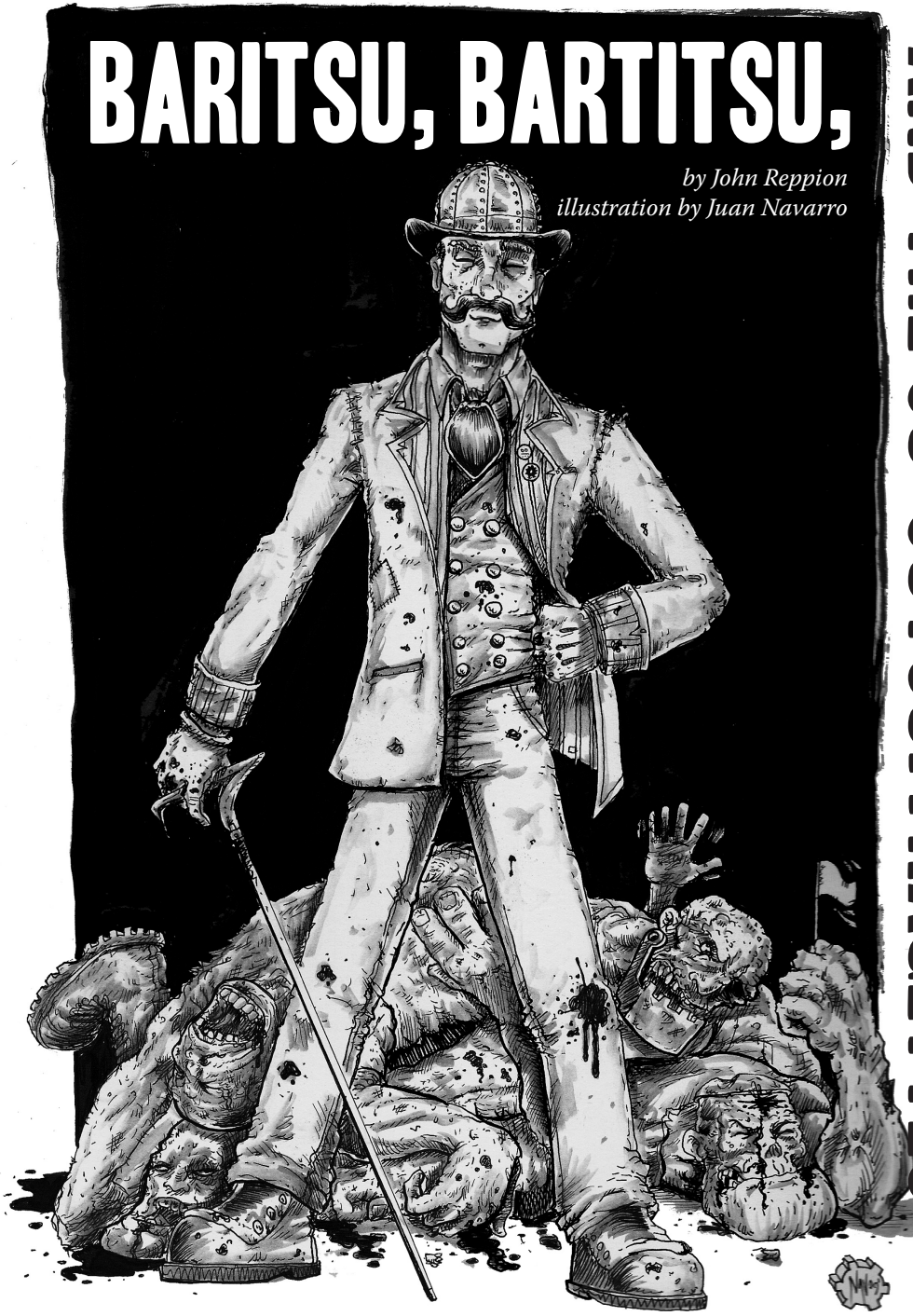
However, as exciting and dynamic as the preceding passage might be, it should be pointed out that Doyle (or arguably Dr. Watson who is the author within the tale) was incorrect on at least two points. Firstly, though published in 1903, *The Adventure of the Empty House* is set in 1893, yet the martial art referred to in the text was not actually developed until the late 1890s. Secondly, it is not "baritsu" but Bartitsu.

There can be little doubt that Arthur Conan Doyle would have read *The New Art of Self Defence: How a Man May Defend Himself Against Every Form of Attack,* which caused quite a sensation when it was published in *Pearson's Magazine* in March 1899. Evidently the article made some impression upon the Scotsman—though not quite enough to allow him to remember the correct spelling of the art in question. Its author, Mr. Edward William Barton-Wright, was every inch the Victorian gentleman: born in 1860 in Bangalore, the son of a British mechanical engineer and Locomotive Superintendent, he was educated in Europe and went on to travel the world as a civil engineer and surveyor. It was while on these travels in the early 1890s that Barton-Wright found himself living in Japan. There, in his spare time, he studied several different styles of Jujitsu including Shinden Fudo Ryu ("immovable teachings transmitted by the Gods") and Judo ("the gentle way"). By combining these techniques and further incorporating aspects of oriental stick fighting, English pugilism and French kickboxing, Edward soon formulated his own mixed martial art which he dubbed Bartitsu—a portmanteau of his own surname and Jujitsu.

Having left Japan and arrived in London in 1898 Barton-Wright found himself in a rather unique position. Crime was rife in the post industrial revolution cities of Europe and its colonies, and the contemporary newspapers' reporting of muggings, garrotting, chloroforming, beatings, and the like were sensationalist to say the least. So severe was the media hysteria that the humorous magazine *Punch* (1841—1992) satirised the over-the-top reporting of

BARITSU, BARTITSU, AND THE JU-JUTSUFFRAGETTES

by John Reppion
illustration by Juan Navarro



other publications by running mock advertisements for items such as the *Patent Antigarotte Collar* ("*warranted to withstand the grip of the most muscular ruffian in the metropolis* […] *highly polished and elegantly studded with the sharpest spikes*"). In reality, sword canes, pistols, knuckle dusters, and other concealed weapons were being carried by an increasing proportion of the population, all in the name of self-defence. People were desperate for a way to protect themselves from the thugs and "roughs" who roamed the streets and Edward Barton-Wright, it seemed, had the solution.

The Bartitsu Club opened its doors on London's Shaftsbury Avenue in 1899, offering classes taught by Japanese Jujitsu masters, French walking-stick fighters, Swiss wrestlers, English fencing champions, and much more besides. Many of those who taught at the club also became students of the other disciplines in accordance with the eclectic ethos of Bartitsu. Barton-Wright's model for the business was that of a Victorian gentleman's club, meaning that prospective members were voted on by a committee before being allowed to join. Once accepted, new members were required to take private lessons before they would be allowed to participate in group classes. Whilst this system may have been quite ideal for keeping out the "riff-raff" it did not prove to be a very sound business model, and in 1902 The Bartitsu Club closed its doors for the last time.

Though the club itself was short-lived, Barton-Wright's ideas unquestionably had a huge impact on the new Edwardian society (Queen Victoria having passed away in 1901). Though Jujitsu was not entirely unknown in England prior to 1889, there can be little doubt that Bartitsu helped to popularise the martial art in the west. Three Japanese jujutsuka had originally travelled to England to become part of Barton-Wright's permanent staff: K. Tani, S. Yamamoto, and Yukio Tan. K. Tani and Yamamoto returned to Japan after a short time, but Yukio Tan stayed, and was soon joined by a young jujutsuka named Sadakazu Uyenishi. After the collapse of The Bartitsu Club, Uyenishi remained in London and was soon teaching Jujitsu at his own dojo, The School of Japanese Self Defence, on Piccadilly Circus. Some readers may be surprised to learn that one of Sadakazu Uyenishi's star pupils was a young woman by the name of Mrs. Roger [Emily] Watts who later went on to write *The Fine Art of Jujitsu*—the first English work to record Kodokan judo kata. It is however worth noting that there were a number of female members at The Bartitsu Club—boxing being the only art women were forbade from participating in (Barton-Wright having deemed it unladylike).

When Sadakazu Uyenishi eventually returned to Japan in 1908, teaching at the Piccadilly Circus school was taken over by husband and wife team William and Edith Garrud (with the former schooling men and the latter instructing women and children). William Garrud went on to pen *The Complete Jujitsuan* (published in 1914) which remained the standard English reference on the art for many years. Edith's fame however was altogether more controversial. A series of photographs published in the *London Sketch* in July of 1910 depicted Mrs.Garrud escaping from the hold of a male attacker and using the art of jujitsu to gain an advantage, ultimately twisting his arm up his back and forcing him into an awkward crouch. Though it was by now accepted that many women across the country were practicing martial arts, the fact that the gentleman in the photographs happened to be dressed in a police officer's uniform gave the piece a somewhat more political slant as did the caption which read, "*Mrs Garrud, a well-known Suffragette, demonstrates the methods of jujitsu she has taught the W.S.P.U. 'bodyguard.'*" The W.S.P.U (Women's Social and Political Union), founded in October of 1903 by Emmeline and Christabel Pankhurst at their family home in Manchester, was by 1910 the leading militant organisation campaigning for Women's suffrage in the UK. The "bodyguard" mentioned in the caption was comprised of both women and men who were sworn to physically protect Suffragettes during their public protests should they erupt into violence. Mrs. Garrud wrote an article, also published in July 1910,

which appeared in the periodical Health & Strength under the title *Damsel v. Desperado*. The opening paragraph of the piece read as follows:

> *In proportion as the Suffragettes increase in number and in power, so also do the JU-JUT-SUFFRAGETTES. (I believe it was Health & Strength who first coined that latter phrase.) The daily papers, by their witticisms, smart or otherwise, at the expense of the Suffragette who goes in for ju-jutsu in order that she may foil her supposed natural enemy, the man in blue [e.g., police constables attempting to stop violent women's rights demonstrations], has certainly helped to popularise that mode of self-defence we owe to the Japanese amongst our women, whether they clamour for the vote or not.*

Punch was one such paper which responded to the phenomenon of Ju-Jutsuffragettes with characteristic irreverence. In response to the *London Sketch* piece they published a cartoon showing a young lady—complete with Votes for Women placard—intimidating a crowd of uniformed policemen, two of whom had already been hurled over some nearby railings. The caption beneath the image read "*The Suffragette That Knew Jui-Jitsu—The Arrest.*"

Unfortunately for Edward Barton-Wright, after the demise of The Bartitsu Club, public interest in his own mixed martial art was soon eclipsed by an enthusiasm for Jujitsu itself. Though undoubtedly responsible for the martial arts craze which swept across the UK and much of the Western world during the early 1900s, Barton-Wright was soon watching from the sidelines as others grew wealthy. Edward is thought to have continued teaching Bartitsu up until the 1920s when, struggling to find paying students, he eventually changed his career. He became an inventor and established "electro-therapy" clinics around London where ailing customers were treated with Thermo-Penetration Machines, Ultra-Violet Ray Lamps and other curious contraptions. The clinics were not hugely lucrative however and, when Edward eventually passed away in 1951, lack of proper funds saw him buried in an unmarked pauper's grave.

In 2001 the *Electronic Journal of Martial Arts and Sciences* began re-publishing some of Barton-Wright's (now out of copyright) articles online. Interest in the long lost art of Bartitsu quickly grew, and soon a group of online enthusiasts calling themselves The Bartitsu Society began searching libraries and newspaper archives for further information on "The New Art of Self Defence." Today The Bartitsu Society draws a clear distinction between what they term "Canonical Bartitsu"—the art as described in material contemporary with the life and times of its creator—and "Neo-Bartitsu"—the art as it may theoretically have developed since its foundation had the public maintained their interest. As well as organising demonstrations, workshops and meetings the world over, the society succeeded in 2007 in locating the spot where Barton-Wright was buried. The grave site is in Kingston Cemetery in Surrey, roughly ten miles from central London. The Bartitsu Society has produced two books: *The Bartitsu Compendium, Volume I: History and Canonical Syllabus* (2005) and *Volume II: Antagonistics* (2008), proceeds from which will go towards the erection of a monument dedicated to the memory and the legacy of Mr. Edward William Barton-Wright. Perhaps the inscription could read "*In memory of the man who saved the life of Sherlock Holmes.*"

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Doppler and the Madness Engine

Part Three of Three

by John Reppion

illustration by Juan Navarro

Extract from Doppler's Journal No. 27.

January the 12th [1866]

Almost two months have passed since those dreadful happenings at the home of the late spirit medium Mr. Sam Thonlemes. My time since has been divided between recuperation and working toward a proper and complete record of those occurrences—the latter indisputably delaying and increasing the need for the former. The transcription of those sounds committed to the cylinders of the remarkable machine taken from Thonlemes' body has proven a far greater task than I first imagined. The broadcast of those resonances having something of the same influence as that which caused the whole terrible business. Before I go any further it is necessary that I describe the device and its workings as briefly as possible.

The apparatus is mounted upon a wooden breastplate which is fastened to the wearer's chest via a system of leather straps. The device has three curved horns; two of which are angled towards the face of the wearer and the third (central) of which curves forwards. The machine is equipped with six cylinders which hold the impression of sound. The cylinders—made of some substance beyond my knowledge which is very much like (but considerably tougher than) hardened wax—are mounted together upon a larger revolving drum in much the same manner that the firing chambers of a revolver pistol are arranged. A single needle-like arm connects with the cylinders, one at a time. The needle's application is controlled by an automated mechanism rather than the operator manually placing its tip upon the surface. The parts of the machine which are key to its operation are clearly marked with small etched plaques, indicating that the contraption was created by some professional maker. For example, the marker above a small, neat crank attached to the device's clockwork motor reads WIND FORWARD UNTIL BELL SOUNDS. A small domed bell with an internal striker, similar to those commonly seen upon shop counters, is mounted a little way below the handle. The switch which controls the application and withdrawal of the needle has three positions marked DISENGAGE (this withdraws the needle from the current cylinder), BROADCAST (this enables the needle to read from the cylinder) and INSCROLL (this enables the needle to record upon the cylinder). There is one final switch, again with three positions. This time, they are marked DISABLE (this halts the mechanism which turns the cylinders), ENABLE (this activates the same mechanism) and AUTOMATE (this allows the device to move automatically to the beginning of the next cylinder once it has reached the end of the last).

To minimise the risk of the sounds affecting others, I have had the machine altered somewhat. A binaural stethoscope—a device used by physicians for the monitoring of their patient's heart—has been fixed in place of its central broadcast horn. The forks of this apparatus fit into my ears, allowing the sounds to be transmitted to me alone. Having made copious notes over the intervening weeks, and listening to those fearful cylinders a number of times, I feel I have now reached the stage where I

may at last make record of that night's happenings here in this journal.

There beneath the streetlamp at the far end of Edward Street, having completed my previous diary entry, Grober assisted me in strapping Thonlemes' apparatus to my chest. It took me no more than a few minutes to understand its workings sufficiently to create an impression upon its cylinder and to then broadcast that impression audibly. Satisfied that the device would serve in creating a record of what lay ahead, the time came for me to put my plan to my companion. Grober was, as I had expected, wholly opposed to either of us venturing anywhere near the house. I explained my theory that, since we had previously witnessed a similar—though much less powerful—atmosphere generated by the action of one of Thonlemes' speaking machines, **the reso**nance which filled those around us with such dread might well be emanating from a device, or devices, inside his former home. Our exchange grew gradually more heated until Grober blurted out that if I was mad enough to enter the house then he must patently do likewise. There was a moment of silence. Though merely a figure of speech, my companion's mention of my mania jarred us both.

As I struggled to gather my thoughts, my temples throbbing, I became aware of the sounds all around us once more. I heard the crash of furniture and mingled cries of fear and anger from several of the buildings in the area. Those who had escaped the confines of their homes were wandering about us, some dazed and bloodied, others gnashing their teeth like wild beasts. The scene was eerie and otherworldly, the fog of steam which rose from the street's drainage gratings clinging silent and low to the cobbled road.

My own memories of precisely what occurred next are vague, as of a dream only half remembered upon waking. I know not if I took flight out of terror, or if I determined to sprint back up Edward Street for some other reason, but somehow I found myself standing within the hallway of that fearful house. The first sounds I recorded upon that foremost cylinder were those of my own laboured breathing followed by my stating of my name and, after a pause to glance at my pocket watch, the date and hour. Listening back to that first impression now, a fearful clamour of shouts and screams can be heard drawing near. I stood with my back to the open front door, but turned at the commotion and saw Grober with a mob about him. I cannot say exactly how many there were—my memories of the sight being distorted through terror and the influence of that dread drone which emanated from the house. The horde was surging toward the house in an orgy of anger and violence—Grober was all that stood between the crowd and myself. I know now how the Viking Berserker must have looked when in his battle frenzy, for Grober was the very embodiment of rage and devastation. I stood in horror at the scene, certain that my companion's rage would not be spent until he had killed every last living thing which approached. I called out his name, but as he turned—his eyes meeting my own—I feared for one terrible moment that his fury might be directed toward me.

Grober's words are loud and clear upon the cylinder:

"I will hold them back for as long as I can. Do what you must!"

Whether I nodded with any kind of understanding I cannot say. If I spoke, my voice was drowned out by the commotion. The next sound upon the cylinder is that of the house's heavy front door slammed by my hand.

The hum I had felt beneath my feet out on the street was more obvious within the residence, the sound—like the buzz of some monstrous hive—seeming louder in the relative quiet of the hallway. I decided I must speak stridently in the hope of making myself heard upon the cylinder. I did my best to narrate my short journey through the hallway into the parlour where we and the others had gathered the evening before. All around were signs of struggle and confusion; furniture and other items overturned or broken, many of the pictures

which once adorned the walls lying shattered upon the floor. All at once I became conscious of a voice other than my own—soft and scratchy and coming from within the room.

"Must not break the circle—Must not break the circle—Must not break the circle" The words, though quiet, are easily discerned upon the cylinder.

I found the speaking machine lying upon its side beneath a chair. The contraption had sustained some damage which caused Thonlemes' assistant's message to become jammed—Gerard's calm voice repeating the sentence over and over. I lifted the needle, silencing him at last.

As I crept further into the house, the pulsation grew ever louder; the floor, walls and ceilings shuddering all around me. My voice as impressed upon the cylinder is soon lost behind the drone. Almost ten minutes of utter cacophony follows, an appalling, nauseating crescendo toward its end. I admit it is this portion of the record which has caused me the greatest distress, for the listening of those sounds has a terrible, almost hypnogogic effect. Within that tumult I have fancied I heard many things—things impossible to describe adequately upon any page. It is as if all sound that has been, and that ever will be, is condensed into those brief yet harrowing moments. When next my voice becomes audible upon the cylinder I speak thusly:

"I have returned to the parlour at the front of the house. I do not know how long I have been gone. The house is in a state of disorder … there is blood … but I have encountered no other living person. I have made as thorough a search as possible of the ground floor. The humming grows maddeningly loud toward the rear … vision and reason becomes distorted … I found a great circular theatre which I could not bear to enter … it shook fiercely … I could see no machines there. I am certain of that."

This room, it is now apparent, was the auditorium which Thonlemes had been constructing in order that he might conduct his séances before a larger audience in the future. I shudder to think of what might have been had he succeeded in his goal, though it is hard to imagine any outcome worse than what occurred.

I remained in the parlour for several minutes, collecting my thoughts. Though the machine was not deactivated during that time, I began my next deliberate address by once again stating my name, the date and hour. I was now convinced that the sound must be originating from below the building rather than within. From the doorway of the theatre I had observed what I believed to be a trapdoor at the rear of the stage and this, I decided, would be a likely entry point into whatever cellars or passageways lay beneath the house. Although the sheer volume and uncanny reverberation within the auditorium had prevented me from entering the room previously, I decided that if I approached at a run, heading directly to the trapdoor, I may be able to gain entrance before being overcome with disorientation.

At this point, my speech upon the cylinder is interrupted by the sudden sound of shattering glass. Whether the man leapt, or was thrown toward the parlour's front window I cannot say, but his blind fury as he struggled to free himself and scramble into the room was—and is—obvious in his wordless screams. Upon the cylinder his cries fade quickly; the sound of my own breathing and the fall of my running feet soon enveloped once again in that near-deafening, maddening drone.

The din was eventually silenced by the closing of a substantial, lead-lined trapdoor above my head as I found myself in cramped space wholly without light. Once I had caught my breath and gathered my thoughts, I was struck with the fresh terror that I might have merely entered a storage space of some kind. After a few moments groping in the blackness however, I found what I took to be the topmost step of stone staircase. Though I could still feel the echoes of the terrible sound in the floor and walls around me, its volume was lower within the space even than it had been out on Edward Street. I took a few moments to explain my situation into the contraption. I could not say if the man who

came through the window of the parlour had followed me, but I imagined that it would not be long before others, similarly affected, made their way into the house. My only hope, I reasoned, was to continue on my course. Cautiously, I made my way down that steep, gradually winding stairway which led I knew not where.

When at last I reached the bottom of the stair, I found a heavy, lead-lined door standing slightly ajar. Passing through the door, I found myself in a circular room of immense height and realised at once that the stairway I had descended must wind around the exterior of the space. The room was lit by several gas lamps set into niches around the walls, but their light did not extend far enough to see anywhere near where I assumed the ceiling must be. The space evidently served as some kind of workshop—its walls being lined with curved shelves and benches on which various tools and curious-looking machine parts stood. From the centre of the chamber there rose a great metallic column some ten feet or more in diameter which towered toward the room's unseen apex. Set against the column on one side was a small, stout furnace or boiler which was evidently in use. The dreaded drone was all but gone down there in the crypt, and only a faint whirring can be heard upon the cylinder at this point. Again I stopped and explained my circumstances and location for the record. I continued my commentary as I made my way around the perimeter of the room. I noted that there were several speaking machines of varying designs, some in states of disrepair, scattered around the space, but not one of them was in action. I was on my third circuit of the room when I was startled by sound from the central column. A loud, metallic clang rang out as if something had struck it with some force. As I approached the pillar, I became conscious of the whirring I had heard before becoming louder—the sound came from within the column!

Examining the pillar more closely I found a curved, hatch-like door set in to it on the opposite side to the furnace. The entrance was not obvious at first, fitting tightly and almost seamlessly into the surface of the riveted metal, a heavy iron latch being the only real clue to the door's location and functionality. Once again I stopped to speak for the record, my face mere inches from the door. Again there came a clang from within the column followed by another and another. The latch rattled, and I realised with some apprehension that the fastener was not securely closed; its bar only partially resting in place. It was then, amid that whirring and the continued banging, that I—and the contraption strapped to my chest—bore witness to those muffled words "Is there anybody out there?" emanating from behind that metal door.

I reached for the latch before I knew quite what I was doing. The metal was hot and hissed against my skin as I lifted the bar from its cradle in one quick, foolhardy motion. The door was flung open with tremendous force, a great cloud of steam issuing from within. I tried to turn away, but the door struck me heavily on the side and I was propelled across the room, the force of my impact bringing shelves and tools raining down upon me. Had I stood elsewhere however, I would surely have been scalded to the bone by that cloud of boiling vapour. Upon the cylinder the sudden violent hiss of the escaping steam is soon eclipsed by that dreaded, maddening drone once more. As I lay dazed and injured amid splintered wood and machine parts, I felt certain that I was to die there in that oubliette; trapped beneath a nightmare London now populated by murderous lunatics hell-bent on destruction. Though certain nothing could be heard above the din, I screamed then; I screamed as loud and as long as I could. That scream is there upon the cylinder today, and when at last my howl is at an end there is a silence. The drone had stopped.

A figure stepped toward me through the scalding haze; inky black and human in outline save for a grotesquely large and misshapen head. There is laughter recorded upon the cylinder then that is my own. As the creature drew nearer, my laughter grew all the more uproarious—whether out of

defiance, mania, or some combination of the two I cannot rightly say.

"Who are you?"

The voice is muffled, as if it were still coming from the other side of a metal door. The question comes again and again until at last I scream my name belligerently.

The creature knelt before me, an oversized hand, black as pitch and slick with moisture reaching out to lift my chin. I glanced up but all I saw was a mirror, my own wretched face staring back at me. Leaning back, the figure's hands moved to its neck and began turning the malformed head, unscrewing it as if it were a fruit-jar lid. Presently, he lifted the helmet and, pointing to the still whirring machine strapped to my chest, asked "How did you come by that?"

Through hysterical tears of joy I explained that I was a consulting detective and that my associate and I had been employed to investigate Mr. Sam Thonlemes' business. When I spoke of Mrs. Shandon's mental unrest the man frowned with a mixture of puzzlement and concern but did not speak. I went on relating everything as well as I could recall it, laying there still amongst the debris. The rubber-suited man seemed to grow ever more agitated as I spoke, at times striking himself upon the forehead with a gloved hand as he paced before me. Only when I spoke of the mayhem I had witnessed upon the street did he interrupt.

"Damn it to Hell! The latch must have fallen and I was trapped … I … there was no way to deactivate the machine from inside. I *swear* I did not know! The sound … it was never meant to *harm* anyone … The resonator was only supposed to work *inside* the theatre. I … I am an inventor … just an inventor. I never dreamed …"

He reached out suddenly and, as he pulled me to my feet, and I asked his name.

"No point in lying now," he replied bleakly and then, leaning in toward the machine upon my chest, "My name, my real name, is Thornton. Culann Thornton."

I was about to ask another question when he interrupted me:

"How many dead?"

I told him I had no way of knowing, but that I feared it would be many. After a few moments of silence, Thornton seemed to make his mind up about something. He asked me if I could walk, and when I found that I could he had me take out my pocket watch and check that it was still running. Thornton told me I would have five minutes—no more, no less—to get myself and anyone else I encountered clear of the building. Before I could utter another word he began counting down "Three-hundred and two-hundred and ninety-nine and two-hundred and ninety-eight and …"

I had barely set foot in the hallway of the house, its tiles sickeningly slick with blood from some battle I had mercifully not been a part of, when I was struck from behind by an invisible wall of sound—a deafening blast which seemed to turn the air momentarily solid. Still upright somehow, I was propelled forward; skating across the gore soaked floor as if it were ice. Spreading my arms wide I managed somehow to catch hold of the doorframe and prevent myself from being fired like a missile through the now open front door and into the street. The house rocked and shock, and I was enveloped in a great cloud of steam and dust and plaster as the rear of the building collapsed. Thonlemes' great, rounded theatre twisted in on itself as water spirals down a spout, crushing that engine of madness—and its architect—beneath a tonne of wood and brick.

Upon that last cylinder, there follow the gentle creaks and falls of the settling debris.

One can hear little but groans and coughs from those out on Edward Street until someone cries out in surprise "Look! In the doorway! A man!"

The final words recorded upon that sixth and last cylinder are spoken loudly and clearly. They are the words of my dearest friend, my companion and protector, Grober.

"That is no man, it is Doppler!"

for a new age to rise an old one dies:

WATERLOO

by Richard Marsden
illustration by Suzanne Walsh

The world of Victorian-age steampunk is a fascinating place of machinery and sorcery, where Gyro-blimps sail the skies and Dr. Martin's Aqua-submersible prowls the seas. It is a world of regal imperial pomp and a time of Empires, most notably Britain and Germany. But how did these Empires come about?

It was outside a small town in Belgium that the new world was crafted in 1815. A portly exile had fled his island prison and, with a handful of the Old Guard, wound his way to Paris. The Parisian newspapers at the time were shocked at first, calling him an "outlaw," but when Napoleon entered the gates of France's capital, the papers reassessed their opinion and labeled him as their "Emperor."

The European leaders in Austria instantly declared war, not on France, but on Napoleon himself. They had little cause to believe Napoleon's claims that he desired to rule over France alone and was an advocate of peace. The European powers had lived for ten years with the chaos of the French Revolution and spent fourteen years thwarting Napoleon's desire to unify the continent under his Imperial glory. Napoleon had toppled thrones, pillaged nations and brought devastation. Only by combining were the nations of Europe able to defeat Napoleon and exile him to the island of Elbe in 1814. In 1815 the dramatic return of Napoleon meant another generation of warfare unless he could be stopped once and for all. Plans for peace were put aside as a final struggle between the upstart Corsican and the monarchs unfolded. Only two nations were prepared to take on Napoleon: Britain and Prussia.

Napoleon once said, "I may have lost battles, but I have never lost time." He raised a new army of eager Frenchmen, bolstered by old soldiers, to take on the Allied forces. Marching swiftly and favoring offense, Napoleon crashed into Belgium and placed his Armée du Nord between the unprepared British and Prussian forces. On July 16th and 17th Napoleon's army sent the British and Prussians into retreat. He had divided his foes this way before, but unbeknownst to the would-be Master of Europe, the Allied armies were retreating parallel with each other, not in opposite directions as he hoped.

July 18th marked a momentous day. Napoleon planned to launch his numerically superior army at the Anglo-Dutch army of Wellington. Wellington had chosen a series of low rises and stone houses outside Waterloo to make his stand. Rain the night before had turned the fields muddy. Fond of his artillery batteries, Napoleon broke his own maxim and waited for the day to dry out the field. While Napoleon watched mud dry, the Prussians, under

the venerable (and assuredly mad) General Blucher, were marching to join the battle. If the Prussians could arrive in time, the Allies could crush Napoleon between them. If the Prussians did not arrive before the sun set however, Wellington himself was certain he would lose the battle.

When the Emperor was ready to attack, he unleashed a furious cannonade upon the Anglo-Dutch positions. The sound of hundreds of guns was tremendous, and the destruction, from Napoleon's point of view, equally catastrophic. But Wellington was a veteran of the Peninsular Campaigns in Spain, and well versed in French tactics. He placed his men on the reverse sides of the hills, or in the safety of the stone mansions, securing his center and flanks. For all the noise and fury of the Emperor's grand batteries, they achieved relatively little.

The infantry attack went little better. Napoleon's plan was to strike at Wellington's flanks and secure the stone farmhouses. If this could be done, then he was sure Wellington's army would respond, making their center vulnerable. A similar tactic had worked for Napoleon at Austerlitz in 1805 and had won him near-mastery over the continent.

It must have been with great frustration that Napoleon watched Wellington's flanks hold firm. On Napoleon's left, 900 entrenched British soldiers of the Cold Stream Guards fended off nearly a third of his army. On the right, the enemy had fled, but Wellington had made no moves to retake the position. Napoleon's plan to force the Anglo-Dutch army to divide had failed.

Ill from years of campaigning, weary from his rapid reclaiming of France and the battles of the day before, Napoleon decided to take a nap. The Emperor knew the battle wasn't going according to plan, but he outnumbered Wellington and felt that time was on his side. The perfidious English could only resist him for so long. Napoleon slept, and Michael Ney, bravest of the brave, took command.

Bold, adventurous and somewhat reckless, Ney decided to win a great battle for his Emperor. But Ney misjudged British troop movements. He believed they were on the verge of retreat, when in truth they were simply reorganizing their lines under the capable, and cool-headed, Wellington. Ney launched French cavalry, without the support of the infantry or artillery, into the Anglo-Dutch lines. While Ney's mistake might be forgivable once he realized that his efforts to sweep the enemy aside were in vain, he went on to order cavalry charge after cavalry charge. Wellington's army formed massive squares of men, using their bayonets to turn them into a hedgehog of spikes. French cavalry, no matter how brave, couldn't penetrate the wall of steel on their own. The best of France's horsemen died in the attempt. Rumors say amongst the piled up dead of Cuirassiers was a woman warrior.

Napoleon awoke to find two rude surprises. First, Ney had wasted most of the French cavalry on pointless attacks. Second, the Prussians had started to arrive on his right flank. Not just a few either, up to 80,000 soldiers in Prussian black were moving quickly across the Belgian countryside. Glancing to the sky, the Emperor realized that the sun was setting. If he could break Wellington before the sun set, he could stall the Prussians and beat them on the following day. He had been in tight positions before (Austerlitz, Marengo, Aspern-Essling) and won, he could do it again. He just needed a sign.

At that moment, the farmhouse securing the Anglo-Dutch center fell into French hands. Napoleon was sure that Wellington would not let such a valuable position fall unless he was spent. With cavalry, Napoleon could have launched a mighty assault down Wellington's throat, but Ney had seen an end to that. However, Napoleon did have one final trick to play. He had with him the finest, most disciplined, most experienced force in Europe: the Old Guard.

The Old Guard had marched with Napoleon from Egypt, to Italy, to Russia and back again. They were called the "immortals," "the gods," and with some affection by Napoleon, "grumblers." It was to these men that Napoleon turned and asked to win the battle. They were jovial about the affair, and in a

blocky formation, their Eagles held high on banner poles, marched to the sound of steady drumbeats. Napoleon marched with them, until the Old Guard forced him back. Victory without Napoleon was no victory at all.

Wellington had been waiting for the Old Guard. He knew the Emperor would only use them as a last resort. As the sun began to set and cast orange light over the field, the shooting lulled. All eyes turned onto the sight of the Old Guard marching towards Wellington's center. By a lone tree, Wellington waited, and all around him British soldiers were lying down, unseen by the closing French.

"Now's your time, Maitland," the hook-nosed man said to one of his officers. As the Old Guard neared the rise, hundreds of British soldiers rose to their feet and let loose with a hellish volley of shot. Weaker men would have run; the Old Guard marched on. Another volley and another dropped rank upon rank of the men whose hair had long ago turned gray, men who willingly served with Napoleon when they could have retired. Weaker men would have run; the Old Guard retreated. They stepped back from the formidable British lines in good order, but it didn't matter. The gods had been cast down.

The French army, upon seeing the Old Guard retreat, ran for their lives. Broken sword in hand, having had several horses shot out from under him, Ney tried to rally the troops. They ignored him. Napoleon begged his men for another hour but even his charisma had no effect. Napoleon was swept off the field of battle and in the process he lost his hat.

The Austrian diplomat Metternich later picked it up and blamed it for all the trouble in Europe for the past two decades and Wellington told him that the hat, or rather the man who owned it, was worth 50,000 men on the field.

Hatless and without an army, Napoleon retreated. The Old Guard made a final stand on the road as the combined Allied army spilled onto the field, driving the French before them. Under the final rays of the sun, the Old Guard held back the will of Europe, and like Napoleon's dreams, died on that June day.

Napoleon was exiled once again to a bit of rock off the coast of Africa, which he would never escape from. The glorious French army was disbanded, and many of its heroes were dead. Ney himself was taken by the restored monarchy and shot, as an example to all others who would betray them in favor of the Corsican. The dreams of the Napoleonic Empire were over, and the victors, Prussia and Britain, embraced as friends. For about ten minutes.

With French power over Europe shattered, Britain remained as the dominant force. It was Britain who held the most influence at the Congress of Vienna which reshaped Europe in 1815. It was Britain who began to colonize uncontested Africa and Asia, and it was Prussia who watched with growing jealousy. The seeds of World War One were sown in fields of Waterloo and watered with French blood.

For the world of steampunk, Waterloo is a critical and memorable moment. The Victorians were fascinated by the era, it was a defining moment in their history. One that marked the death of one age, and the start of another. With Napoleon's passing, the Industrial Revolution came to Europe. Inventors could spend their time creating mills and presses, rather than marching around Europe killing one another. France and Britain, enemies since the Middle Ages, came to an understanding with one another that Prussia (and later Germany) was a threat. As for the Prussians, their military success at Waterloo convinced them that war was the best way to gain power, and in 1871 the Prussians would march into Paris—and leave as Germans.

As steampunks, we can only dream of what Waterloo would have been like if British forces used mechanized cavalry, or if Napoleon launched a sudden balloon attack on his enemies. Besides, who can't see the charm in a mad French scientist developing an army of automatons in his basement so as to get revenge on the perfidious English? *Vive L'imperur!*

BLOWIN' IN THE

a study on the construction of windmills

by Professor Offlogic

Sea-faring people have been using the wind to move their craft for at least 4,000 years, but land-lubbers didn't start harnessing the power of the wind until a clever bunch called the Persians created the first known windmill (circa 500-900 CE) for pumping water and grinding grain.

Where one leads, many can follow: soon simply *everybody* who was *anybody* was building windmills. Though fickle, the wind is free, which makes up for a lot.

While it blows it can do lots of useful things: milling, pumping, running sawmills, and providing wonderful accents to the view of the countryside with no smokestacks required. Useful stuff, this wind!

So, Just How Much Power is in the Wind?

The classic equation for power carried by the wind is:

$$P = 1/2\ \rho\ \Pi\ r^2\ V^3$$

Where:

P = power in watts

ρ = that's "rho," density of air per cubic meter (in Kg/meter^3), or 1.22 at sea level

r = radius of your swept area (in meters)

V = wind velocity (in meters/second)

Don't get hung up on the math; just note that the two most prominent terms of the equation are the "r," or length of the blade (which is squared), and "V," or velocity of the wind (which is cubed): doubling the size of your 'mill increases the power four times, while doubling the wind speed increases power 8 times. So, if your 'mill gives you 50 watts out at 8 mph, you'll see 400 watts at 16 mph. Finding a windy site is better than making a bigger 'mill. (Note: water is even nicer! Plug "1000" in for the value of rho: YEEE-HAW!).

Mechanical to Electrical Conversion

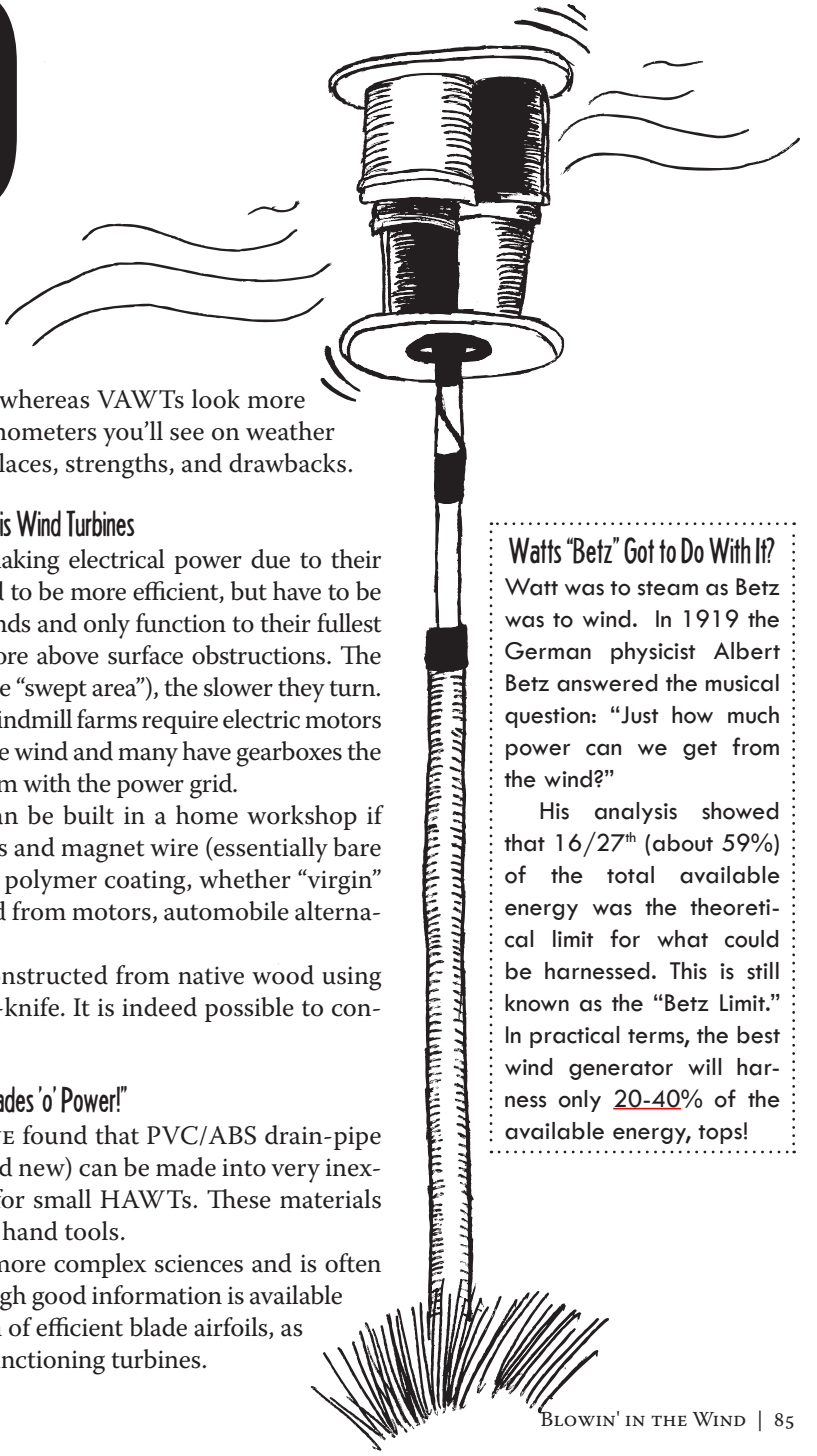
Thanks largely to the work of Hugh Pigott, the *dual rotor axial flux alternator* has become a stalwart tool for turning wind power into electricity. This is a design that is relatively simple to build in a home workshop (by a dedicated tinkerer), brushless, and environmentally sealed. Unlike brushed DC motor/generators, the axial flux scheme produces no "cogging" (the resistance produced by the attraction of magnets to the iron cores in motor/generators, felt as "bumps" when turning the shaft of a motor) prior to reaching the start-up speed, when battery charging commences. This makes for a smoother start in lower wind conditions.

Two Tribes

Windmills fall into two general structural types: Horizontal Axis Wind Turbines (HAWTs) and Vertical Axis Wind Turbines (VAWTs).

The HAWT, similar to a child's pinwheel in operation, is now the prevalent design used by utilities

WIND



for electrical power generation; whereas VAWTs look more like the spinning "egg-cup" anemometers you'll see on weather stations. Both types have their places, strengths, and drawbacks.

Horizontal Axis Wind Turbines

HAWTs are well suited for making electrical power due to their generally higher RPMs. They tend to be more efficient, but have to be able to turn to catch changing winds and only function to their fullest capacity if elevated 20 feet or more above surface obstructions. The longer the blade (and the larger the "swept area"), the slower they turn. Large, utility-scale types seen in windmill farms require electric motors to start them, turn them to face the wind and many have gearboxes the size of a sedan to synchronize them with the power grid.

Small (~1-4 KW) systems can be built in a home workshop if one has access to strong magnets and magnet wire (essentially bare copper wire covered with a thin polymer coating, whether "virgin" or, much less preferably, salvaged from motors, automobile alternators, or etc.).

Turbine blades are readily constructed from native wood using little more than a saw and draw-knife. It is indeed possible to construct such a device by hand.

"Whirling Blades 'o' Power!"

Many scratch-builders have found that PVC/ABS drain-pipe (whether scavenged or purchased new) can be made into very inexpensive and serviceable blades for small HAWTs. These materials are easily worked with common hand tools.

Aerodynamics is one of the more complex sciences and is often extremely counter-intuitive, though good information is available to builders of 'mills on the design of efficient blade airfoils, as well as documented designs of functioning turbines.

Watts "Betz" Got to Do With It?

Watt was to steam as Betz was to wind. In 1919 the German physicist Albert Betz answered the musical question: "Just how much power can we get from the wind?"

His analysis showed that $16/27^{th}$ (about 59%) of the total available energy was the theoretical limit for what could be harnessed. This is still known as the "Betz Limit." In practical terms, the best wind generator will harness only 20-40% of the available energy, tops!

Blade design is of critical importance in a HAWT, not only from an efficiency standpoint, but also to minimize noise. VAWTs tend to turn more slowly and be very "forgiving," but HAWTs are driven by lift: the blade tips of a HAWT will often reach speeds six times that of the wind driving them, and poorly designed blades can be noisy!

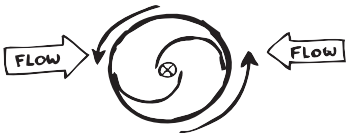


figure 1: VAWT, seen from above

Vertical Axis Wind Turbines

VAWTs are good for high torque applications like pumping water, grinding grain, or powering tools via belts and pulleys. Easily constructed using scrounged materials, they are less sensitive to turbulent surface winds and can capture the wind from any direction without tails or yawing mechanisms, but are less efficient than HAWTs. They are said to require higher maintenance (due to the weight born by the lower bearings), but being mounted low to the ground, any maintenance is easier to perform.

The Savonius VAWT

The most common, useful, and easily constructed version of the VAWT is the Savonius rotor. The Savonius (AKA "**S-rotor**") was named for its inventor, Finnish engineer Sigurd J. Savonius, who introduced the design in 1922. When viewed from above his basic design looks similar to the letter "S" or a "yin-yang" pair, as shown in *figure 1*.

The S-rotor has several advantages over most HAWTs:

- Simplicity. They can be constructed from scrounged materials (split 2-liter bottles, 55 gallon barrels, scrap flooring materials, wheel-barrow tubs or even framed fabric or animal skins). Lower RPMs also make them less sensitive to minor mechanical imbalances.
- S-rotors can start up in very low wind-speeds (~3 MPH) and still deliver significant torque. Unlike HAWTS over-speed conditions aren't a problem for S-rotors.
- S-rotors catch wind from any direction and function well in the turbulent air flow down low to the ground.
- S-rotors are unique in that they also work well as watermills in "flow of river" installations without earthworks or dams; just anchor two floats in the water and lay the s-rotor shaft across them with the "scoops" half-submerged: excellent for pumping water!

Just Want to Get Your Feet Wet?

Any DC motor (whether a stepper motor from a scrapped printer or a brushed type from a dead toy or cordless drill whose battery packs have all gone flat) will harvest energy from the wind at near zero cost,

Wind Turbinology, in Brief

Cut-In Speed: the wind speed required to produce rotation. This includes overcoming the friction of the system, and is influenced by the number and aerodynamics of the blades.

Start up Speed: the wind speed required to generate electricity. For a 12 volt battery system, this would be the wind speed to get 13.5 volts from your generator.

Maximum Power Output: this is the most transparent term here, the peak power level on the power output curve (a plot of power out versus wind speed for a given pairing of turbine and load).

Tip Speed Ratio: the ratio of the speed of the blade tip to the speed of the wind driving it. S-rotors are pretty much limited to the .8-1.1 region; HAWTs routinely achieve 5-6.

as well as providing you with a usable power for charging batteries. In general, if it spins when DC power is applied, it will likely produce power when you spin it (AC motors from fans & etc can also be used if you disassemble the motor and grind out places for permanent magnets to be added).

Outputs of 100 watts can be harnessed using treadmill motors. Treadmill motors have carbon brushes that will eventually wear out, but they are easily replaced. Key selection criterion for these motors is a) high DC voltage, b) low RPMs and c) sturdy construction (especially the bearings).

Rolling Your Own S-Rotor: Smaller is Better

Since I'm fairly cheap and a leisurely sort, I wanted to find the simplest and cheapest way to make my first S-rotor. One of the large home improvement stores in my area had plastic 5 gallon buckets for $3 each. I bought two and used a jig-saw to slice them in half lengthwise. These made up the "scoops" for my small S-rotor.

The S-rotor benefits by having the "scoops" overlap, leaving a gap for air to pass through from the windward to the lee side, imparting some lift to the "scoop" that's rotating against the wind. I went with 2 inches, though 20% of scoop diameter has been documented as being the optimal value.

The S-rotor also gets a slight boost in efficiency (by a few percent) by having a disk that's 5-10% wider than the diameter of the overlapped scoops affixed at top and bottom, to help capture some of the wind that would otherwise slip around the ends. I used some scrap plywood for my end disks, sloppily cut into 30 inch diameter circles.

My split buckets (with split lids attached) were screwed to the plywood end disks with drywall screws, with the two layers mounted 90 degrees from each other. This makes for easier start-up: if one layer of the rotor stopped edge on to the direction of the next breeze, the other layer would be there to catch it.

For the axle I used a 5/8^{ths} inch steel rod. I fitted an 11 inch v-belt pulley around the axle, then drilled and screwed it to the bottom plywood disk for a power take-off.

Since my small yard is surrounded by a 6 foot wooden fence, a ground level mounting would be rather pointless, so I invested in a 10 foot length of 1 ¼" electrical conduit. I found an axle bearing with a 5/8^{ths} inch bore that nested neatly into the end of the conduit.

I hoisted my "Flying Bucket" S-rotor on its mast eight months ago (firmly c-clamping it to a fencepost). A $10 bike computer was added to measure the RPMs and total rotations. It has been spinning happily in my back yard for 8 months without maintenance of any kind. I've clocked it at a maximum 233 RPM, and in 20 MPH winds it has with enough torque that I can't stop the axle by hand (without burns!).

While the maximum power output from this rig is a mere 50-75 watts (in anything short of gale-force winds), that's not too shabby for a total investment of $50. Compared to the cost of a solar panel of similar output, it's practically free!

The Future Past

At present, there are many "off-grid" communities based on the energy they produce/collect themselves. The confluence of the "mortgage crunch," "banking crunch," and "peak oil" economic realignment will no doubt spur the establishment of many more (if we featherless bipeds *shouldn't* become extinct).

Here in the twilight days of Crude Technology, $100+a-barrel oil may be our only hope to avert catastrophe: if the *status quo* isn't painful then no change is likely to happen. As more communities shift to locally maintained, resilient micro-grids (rather than the oligarchic, single point of failure "macro-grid" we now "enjoy") we will achieve true freedom.

Every step of small-scale change that happens from the ground up will be a tweak on the noses of the Oil Barons, their methods and madness, as we set out on a new and more sustainable path.

THE ANGELS OF INSURGENCE

the life and times of the romantics, and their world

by C. Allegra Hawksmoor
illustration by Amanda Rehagen

Government is an evil; it is only the thoughtlessness and vices of men that make it a necessary evil. When all men are good and wise, government will of itself decay.

—Percy Bysshe Shelley,
An Address to the Irish People, 1812

To most of us, the early 1800's probably conjure up images more suited to the latest Jane Austin film adaptation: quick-witted girls in empire-line dresses; perfectly manicured gardens; and gossip and rumours whispered in parlours and back rooms. And perhaps all of that is true. However, there was another side to the early nineteenth century that doesn't spring to mind so easily: A time when the Romantic movement which swept across Europe was in full flame; a time of revolution and upheaval, when artists, poets, musicians and philosophers reacted against the cold rationality of hard science and the ever-spreading wave of industrialisation.

But before we forget about the Box Hill picnic, the social manoeuvring and the carefully arranged engagements, perhaps we should ask ourselves why exactly those images come to mind when we think about the period around the Regency. In fact, this impression of the past has less to do with what it was actually like to live at this time, and more to do with what it was like to live after it.

During the Victorian age which immediately proceeded the Georgians, more and more people

abandoned the countryside and were forced to move into cities that were choked by smog and watered with blood. For many people living in these swollen cities, this change created an incredible longing for a simpler life in a more idyllic time—and so they began to look back to the age that had come before theirs. They began to think about what they'd lost.

This sort of romanticising of the past is hardly alien to us, and even thousands of years before the Romans had looked to the Greeks and the Etruscans and sought to re-claim some of the lost wonders of the past.

When the Industrial Revolution came, it heralded time of tumult. It should hardly be a surprise, then, that the people who were forced to live through such turmoil would look back to a time before it all, and wonder if they were better off back then. Lord Byron had written a half a century before of "the 'good old times'" because "all times when old are good," and the people of an industrialising world looked back to the Regency and romanticised it—just as the Romantics had looked back at pagan Europe with nostalgia, and just as we steampunks look back at the valves, top hats and boilers of the Victorians.

We seek to bring a little of the mystery and wonder of that age back into our own lives. Lives which are so often reduced by cold, clinical science, and the same mass reproduction that the Romantics were reacting so violently against at the beginning of the nineteenth century.

And that isn't the last thing that we steampunks have in common with the Romantics, either.

The Nature of Romanticism

Romanticism was a movement born out of the love of freedom, individuality and equality. It valued the imagination over arid intellect, and sought to develop a more sustainable relationship with Nature and the land in which we live our lives. The movement was home to radicals, outcasts, and free-thinkers that would not be too out of place in the worlds of the future that we create from the pages of the past. And if that isn't enough, Romanticism also gave birth to some of the earliest anarchist thinkers.

However, before we can understand who these people were and perhaps even what we can learn from them, we need to take a closer look at Romanticism itself.

At War Against the Past

Almost every age is the result of (or a reaction against) the age which preceded it, and the Romantics are no different. In fact, the age was very much a revolt against the heartless rationalism that was typical of the late eighteenth century. The Age of Enlightenment was characterised by an aristocratic society that tried to impose their own order over the world around them, reducing Nature and everything She contained into a series of cold and unforgiving facts.

Out of this so-called enlightenment, Romanticism was born: instead of standing by while it stripped everything of its innate mystery, the Romantics began to create a world for themselves where emotional and creative expression was held above pure intellect, and people turned away from their equations and immersed themselves in the Natural world.

At War Against the Future

At the start of the nineteenth century the Industrial Revolution was just beginning, and increasingly the land was covered with the urban sprawl of factories and cityscape. Machines were being built that put the men and women out of work, and reduced some areas of the countryside to abject poverty and starvation. And (while they were no more adverse to technology than they were to the expansion of human knowledge), the Romantics sought to escape the ever-more-quickly grinding wheels of industry just as they turned from the desire to reduce everything beautiful into a series of diagrams and numbers.

They sought out their beauty and wonders in the rivers and the mountains, in the deep mysteries of the past, and the exoticism of foreign lands …

A History Revealed

Before the Romantic Age, most Europeans believed that their ancestors were ignorant heathens who had only been enlightened with the coming of the Roman Empire. However, in the late seventeen- and early eighteen-hundreds archaeology was an emerging field of interest, and many discoveries were being made about pre-Roman Europe that revealed the Celtic and pre-Celtic civilisations were populated by an intelligent and advanced people.

Several years before, Jean-Jacques Rousseau had spoken about the idea of the "noble savage": An uncivilised and yet honourable primate who existed beyond enlightened society. Stories about the wise and gentle people native to the Americas added weight to Rousseau's ideas for many, and no doubt it was still fresh in people's minds as they began to discover that their own ancestors had not been the unenlightened monsters they had presumed they were. This led to a huge surge of interest in local customs and folklore as people once again began to identify with the land that they lived in, and turn to their own history—no longer as something that they should be ashamed of, but as a source of admiration, inspiration and amazement.

Liberté, Égalité, Fraternité

With this new concept of a national identity gathering momentum and people beginning to rebel against the ever-tightening grip of the ruling classes that had dominated the previous age, it's not surprising that many of the early Romantics saw the rise of the French Revolution as an inspiration: An indication of what the new world that they were trying to build may look like.

But, as the great French Republic became Napoleon's Empire and Europe found itself at war, the Revolution became the very enemy they had been fighting so hard against. As war continued, the countries of Europe became increasingly suspicious of any signs of dissent that may lead to a repeat of what had happened in France, and the possibility of any further revolution and reform became increasingly unlikely.

As a result, those that had been caught up in the ideals of the Revolution (and with the promise of radical individual freedom and social harmony which it had ultimately betrayed), instead began to adapt those values into the worlds of aesthetics and philosophy, undermining the established order from within.

The Rise of a New Class

The last of the factors that led to the rise of the Romantic movement came in the form of the emerging middle classes. Whereas previously, society had been divided between a relatively small number of nobility and a far larger number of workers who had to suffer and struggle in order to survive, the coming of the Industrial Revolution meant that there was an ever growing gulf between the two. A gulf that was filled by merchants and factory owners who had worked their way up from the lower classes into a position of relative wealth and luxury. Many Romantics saw this emerging middle class as a wonderful opportunity for a new beginning away from the centuries-old strictures of a two-class society.

Writers and philosophers such as the early feminist Mary Wollstoncraft had great faith in the opportunities that this developing class provided. There was an opportunity for them to be something other than another oppressive layer of high-society. She encouraged the new middle class to educate their children—both boys and girls—in the hope that this new generation could be raised in equality, distinct and separate from the entrenched practices of the aristocracy.

The increasing numbers of the middle classes also meant that there was now an growing number of people that were able to afford not only education for their children, but also the arts which had previously been the luxury of the nobility. The art-

ists, writers and musicians of Europe needed to make a living for themselves as much as anybody, and previously their only way of doing this was by catering to the upper classes. However, the new money generated by the social shifts meant that much more of society could afford to indulge in music, books and paintings. Suddenly, writers and artists were no longer simply indulging the fancies of the rich, and this access to a wider audience meant that they could enjoy a degree of freedom in their art that would have been unthinkable before.

The Infinite Horizon

One of the core principles of Romanticism was the development and exploration of a relationship between the individual and the infinite—of making connections between the self and the world in which we exist.

The past century had slowly been turning Nature into something to be scientifically assessed, something to be unravelled, understood and precisely documented. Instead, the Romantics grew to see Nature as something truly sublime: She was vast and untameable, capable of the unimaginable creation of everything that lived and grew within Her, but She was also able to reap untold destruction with storm and flood. The Romantics saw themselves as individuals standing at the bottom of great mountains, dwarfed by the sheer scale of Nature to the point where it overwhelmed them.

It was inevitable that, as the developing field of archaeology uncovered more and more about the history and pre-history of the land, that the Romantics would jump in with bare feet and wild eyes.

As the archaeologists uncovered more about the history of the Celtic peoples, society began to take interest in its ancestors. In Wales, Iolo Morganwg began a revival of Druidic spirituality that was part fact and part the product of his own mind, taking what he knew about the past to build a new religion that spoke above all else of a deep respect for Nature. William Blake was also deeply interested in the history of the land. His engravings were influenced by the illuminated manuscripts of the Medieval period, and he would eventually count himself as a part of Iolo's new religion built from the spiritual practices of the past.

Meanwhile, writers and artists across Europe were beginning to uncover the myths, customs and folklore of the land that they belonged to, and use them in their work. But the Romantics were no more historical reenactors than we steampunks are today, and while Iolo Morganwg was embellishing Celtic spirituality with stories and ideas of his own devising, in Germany the Brothers Grimm were creating new epics and folktales for their country, teaching that folkstories uncovered something of the primordial nature of the land.

The Romantics mixed the old with the new, unchecked and unchained by anything save the bounds of their own imaginations, and used their stories to develop a new sense of identity. This is something that was especially important in countries that were being suffocated of their own individuality beneath the rule of another. In Wales, the Druidic Eisteddfodd festivals that Iolo Morganwg founded to promote the native customs of his homeland (as well as songs and stories written in the native Welsh language) would not have struck such a chord with his people had Wales not been struggling under the rule of the English. Meanwhile in Spain, there was a sudden resurgence of literature and myths written in the native languages and local dialects like Catalan, and in Poland, the exploration of local myths and legends helped the people to maintain their own identity as they suffered under Russian rule.

At first, the sort of nationalism that Romanticism embraced may seem to be at odds with its ideals of freedom and individuality, but in practice the two things were not incompatible. In fact, the nationalism that the Romantics fostered came from

the same ideal as their love of individual freedom: By exploring the folklore and customs, they were creating a sort of national individuality. As we have already noted, Romanticism often focused on the building of a relationship between the individual and the infinite, and developing a sense of identity—an idea of the self within a specific place and among specific customs. This exploration and reinvention of national folklore started to encourage people not just to understand themselves, but also to understand the Natural and social landscape in which they existed.

Writers and artists began to take this message not to the aristocracy who they entertained in palaces and parlours, but to society as a whole. The middle class meant that musicians were no longer restricted to performing solely for the courts, more and more their music was enjoyed by a larger audience. Composers were free to experiment. Instead of remaining confined inside the strict boundaries of orchestrated music, they started to use melodies and progressions from folksongs, and the music produced by composers such as Beethoven became more and more personal and emotional. At the same time, Samuel Taylor Coleridge was developing what became known as "conversational poetry": poems which expressed high poetic ideals in a common, everyday language that was accessible and understood by all. This style of writing would go on to be adopted by William Wordsworth, the whole generation of Romantic poets who followed, and continues to develop even to this day.

Artists and poets began to communicate with the general public to a degree that had not been seen since the close of the Bankside theatres which had provided entertainment to the all in the time of William Shakespeare and Kit Marlowe.

And it was just as well that the Romantics were beginning to explore ways of communicating with society on a larger scale, because in the face of growing industrialisation and the French Revolution, they certainly had a thing or two to say …

The Building of a Brave, New World

"I must create a system, or be enslaved to another man's"—William Blake

In February of 1812, Lord Byron (famously described as "mad, bad and dangerous to know" by his lover) used his maiden speech in the House of Lords in defence of the Luddites.

Byron had not long returned from travelling across Europe and Turkey, and when he came home to Nottingham he had found the mills that he had grown up among in chaos. He used his speech to urge the House to be more compassionate to the workers who had lost their jobs to increasing mechanisation, arguing to the House that these people had been deprived of their only way of supporting themselves by the machines of industry.

But Byron's travels abroad had not simply kept him from the realities of what was happening in England during the early days of the Industrial Revolution and given him the taste for the exotic that the Romantics were so enamoured with. His travels had also given him an appreciation for diversity. Later, he would make another speech to the House, this time attacking established religion for discriminating against the peoples of different faiths. Unfortunately none of it would do him any good. It was not long before Byron grew disgusted with the political system, and Great Britain, and retreated into self-imposed exile on the continent. The establishment feathers he rustled weren't sorry to see him go.

But while Byron was making his speech against established religion in the House of Lords, a young radical named Percy Bysshe Shelley was getting himself expelled from Oxford University for publishing The Necessity of Atheism—a tirade against the oppression of the church and the evils of organised religion.

Shelley was a vegetarian who believed firmly that the working classes were treated no better than the animals that ended up on the tables of the aristocracy. He, like Byron, had been born into the landed gentry, but he quickly turned his back on it all. It did

not take his father long to disinherit him. Instead, Shelley began to attend nationalist rallies in Ireland where he attracted the attention of the British Government as a troublemaker. A few years later the courts were to deny him the custody of his own children on the grounds that he was an atheist, and therefore unfit to be a parent. Disillusioned and in debt, Shelley too left the United Kingdom in favour of mainland Europe with his future wife Mary Wollstoncraft-Godwin. There, in the summer of 1816, Shelley and Byron would meet in Switzerland and, in the atmosphere of unrestrained creativity, Mary would to begin her work on Frankenstein.

Both Byron and Shelley had been left frustrated and enraged by the restrictive policies of the British government, and (with Europe now free of the war that had followed the French Revolution) they made it their business to revive the original radical spirit of the Romantic movement and decried the likes of Wordsworth for turning his back on it in the first place. Neither of them was content just to wander in the mountains and reflect on the immensity of Nature. As far as they were concerned, it was more than time for art to begin show its teeth to politics again.

Shelley was by far the more radical of the two. Before he left England, had had spent time studying under two of the most progressive thinkers of his age: William Godwin and the ghost of his wife, Mary Wollstoncraft; preserved in her writings in Godwin's library. Both Wollstoncraft and Godwin were ahead of their time: Today, Wollstoncraft is counted among the earliest feminists, while William Godwin is seen as one of the founding fathers of the anarchist movement. Godwin believed sincerely in the perfectibility of humankind—the idea that each individual has the potential to be just and noble. He had taught Shelley that a person acting in their own best interests will always act in the interests of the community that supports them, and that any failings in the individual were ultimately due to the failure of society. Similarly, Mary Wollstoncraft had insisted in her Vindication of the Rights of Woman that any perceived shortcomings that men saw in the female sex were due to the fact that girls were not educated by society, instead of being down to any innate weakness on the part of womankind.

They were not philosophers, but activists who lived by the values they extolled and fought to fashion a new society for the world around them. And, just as Wollstoncraft and Godwin had promoted education and the reform of society around the needs of the individual, so other Romantics planned to abandon the system entirely and build a brand new society of their own devising.

Although it never came to fruition, Robert Southey and Samuel Taylor Coleridge had also planned on creating a society for themselves while Shelley was still in the cradle. Originally planning to form a community in Wales, Southey and Coleridge eventually moved their plans to Pennsylvania and the banks of the Susquehanna River. Here, they wanted to found a society that would function on a mixture of personal liberty and communal agriculture, imagining a community founded on farming, poetry and philosophy that they planned to call the Pantisocracy, or "government by all."

Eventually, their dreams of a society ruled by all fell apart. Southey and Coleridge grew distracted, and were unable to agree on a location of their brave new world. But America would have appealed to Coleridge for a reason: Romanticism may have found its way to the United States far later than it developed in Great Britain and the rest of Europe, but when it did arrive it found a new voice. It appealed to the American revolutionary spirit and longing for personal independence, and its arrival in the United States would go on to influence the likes of Emily Dickinson, and Edgar Allen Poe.

The Rights of Woman

Although it is often played down, ignored or argued, there is much evidence to support the idea that the Romantics desired a society of equals not just among men, but between the sexes too.

Women enjoyed a short period of relative freedom during the Romantic age—especially when it is viewed between the panniers and powdered wigs of the Age of Enlightenment, and the tight-lacing and prudery of the Victorians. During the early eighteen-hundreds, the fashions also increasingly turned towards the past, and corsets were cast aside in favour of thin, white muslin dresses (which echoed the robes and togas of ancient Greece and Rome) as well as the short (often unboned) stays that gave the empire-line silhouette familiar from so many Jane Austin adaptations.

And just as the fashions became less restrictive, so too did the oppression of women abate somewhat within Romantic circles. Romanticism venerated Nature and as such many Romantics came to celebrate femininity: With Mary Wollstoncraft beginning to convince society that women should be viewed as equals, and Shelley advocating the ideals of free love for both sexes.

This changing attitude towards women is evidenced, if nothing else, in the literature of the time. In the mid seventeen-hundreds Samuel Richardson's novel Clarissa had painted a very clear picture of what a woman's place should be: Pious and naive, with the heroine of the novel suffering oppression and abuse only to go on to forgive and even marry her abuser. But by the early eighteen-hundreds when Mary Shelley wrote Frankenstein, the world had changed. Mary herself was the daughter of the most radical feminist of her age, and it is easy to see her most famous work as an attack on the masculine world of science. Mary used Frankenstein to strike out against the scientific hubris that the Romantics so opposed, but it is also interesting to note that the story is also that of a deformed creature that is created by a man who has used science to usurp a woman's role in the reproductive process. And of course, Mary Shelley's creature then goes on to be turned into the familiar monster that we see in Hammer Horror films by the society that created it.

After the waning of the Romantic age, it is likely that the prudishness and purity that was expected of Victorian women (and the harsh restrictions under which they lived), were in no small part a reaction to the relative freedom that women enjoyed during the Romantic age. Just as those same liberties had been, in part, a reaction to the Age of Enlightenment that came before. Also, it is often said that the Romantic movement was a predominantly male endeavour, with the likes of Mary Shelley and Dorothy Wordsworth relegated to the place of handmaidens to their male counterparts. However, in truth, there were many independent female Romantics in the first half of the nineteenth century (such as Charlotte Smith, Helen Maria Williams and Mary Robinson) who were well-known at the time. But notoriety and critical acclaim are the providence of history, and the fact that these women have been relegated to obscurity to modern audiences again says less about the Romantic Age than it does the Victorians who followed.

The Legacy of the Sublime

By the time that King George died and his niece Victoria came to rule, more was changing than just who was sitting on the throne: The Industrial Revolution was in full swing and turning the cities of Europe into smoke-drowned metropolises. The age of science was only just beginning.

Shelley drowned in 1822 just off the coast of Italy, and Byron would die of a fever two years—caught out in a rainstorm while fighting for Grecian independence from the Ottomans. Coleridge had slowly poisoned himself to death with laudanum several years before them both. Godwin outlived the generation that had followed him and died in 1836, while his wife Mary Wollstoncraft had died many years before when her daughter Mary was only ten days old.

As the greatest champions of Romanticism died, so the Romantic cause began to die with them—giving way to an age of mass production that would have horrified Lord Byron, who once said that everything produced by machine is inferior anything

that was made carefully by hand. Modern science developed at a breakneck speed despite Mary Shelley's warnings about what could happen when humanity used it to try and steal the fire from the gods, and the cause which so many of the Romantics had fought for was forgotten.

For many years after his death, Shelley was relegated into almost total obscurity for the ferocity with which he had defended the causes of atheism, vegetarianism, liberty and the rights of the working classes. A generation later, Matthew Arnold would try and re-introduce him to the masses as an aristocrat and lyricist who had little interest in political causes. Arnold called him a "beautiful but ineffectual angel," and it was not until the first part of the twentieth century that critics began to understand Shelley for the radical he really was.

But the values to which the Romantics had given so much were not lost in their entirety. It was still yet to come to the United States, and there it would inspire a whole new generation of writers and artists, as well as continuing to develop the relationship with the gothic that Mary Shelly had started in 1816. Meanwhile, in Europe, the ideals of the Romantic cause became the cornerstone of the new crusades of the Victorian age, such a the Arts and Crafts movement and the Pre-Raphaelite Brotherhood.

And perhaps there is still something that it can teach us now, over two centuries later. The Romantics once believed in valuing emotions over arid intellect, which led to the "romantic temperament" characterised by so many Byronic heroes, while Godwin taught us that we cannot expect the individual to change until society is prepared to do the same. And how much of that is still true today? How much of the violence and brutality evident in our world is due to the narrow, handicapped range of emotions through which society allows us to express ourselves?

Moreover, what can we as steampunks learn from a movement that extolled the values of freedom and equality, encouraged us to respect the land and draw inspiration from it and from its past? The Romantics opposed mechanisation and mass-production without eschewing technology, just as we try to do today, and told us not to be limited by anything other than the bounds of our imaginations as we combine what was with what could be, to build a future for ourselves.

As steampunks, of course we will always love the Victorians with their boilers and corsets and steam trains, and that is exactly as it should be. But, maybe it is time that we began to look a little more closely at what came before the period in time that we all love so much. Maybe it is time for us to wonder whether we have just as much (and if not more) in common with the feminists and freedom fighters of the Romantic Age. People who once dared to mix the myths of the past with the fantasies of their own imaginations, and fought against a world of violence, exploitation, and soulless replication.

If nothing else, it's my opinion that we owe them no small amount of gratitude for the things which light a fire in our hearts today.

The Useless Pistol

by Leah Dearborn
illustration by Ivan McCann

Picture me today as you would the famous painting of devout revolutionary, Jean-Paul Marat, as he lay murdered in his bathtub. From the coffin on my balcony, overlooking the gaslit French Riviera, I mirror his positioning almost exactly—paper held close in my decaying left hand and an inkwell at my side. My name is Olivier Brouillard, and I died on March 17, 1789.

As I lean into the satin lining and hear the crackling laughter of today's living from over the black water, I feel a sudden inclination to create something of beauty. But I am no longer human, and lack human potential to expand upon artistic skill. And so I must settle upon the only thing I *do* possess: my memories. All of my gears are wound for the night. The dainty brass pieces implanted in my wrists shine brightly even in dim candlelight. Some nights, I pretended that they are only a trail of buttons following the fabric of my sleeve. Tonight, however, I must put aside such a charade.

Perhaps I have something to give to this world yet. Even if these pages only serve as an obscure, didactic warning for those who yearn to change society as intensely as I once did.

Dying, as the uninitiated often fail to realize, is a unimaginably long process. My own fate was set in motion long before my actual death occurred. It started years before, in fact, when a foreign man stepped off the Paris docks. He was charming and brassy and brilliant, and he soon had the town at the tips of his shoes. The words that came from his lips contained all the chemistry of chocolate: decadent sentences constructed with enough opioids to trick the female brain into a night beneath silk covers. Although he was getting on in years, there was not a countess that was born immune to his wit. His name was Benjamin Franklin, and the gentry loved him.

He had come from a country torn by war. The revolution across the frigid Atlantic—which he himself had helped to kindle into life—was beginning to disintegrate. After a Bacchanalian night of champagne fountains and pantomime—of gold-threaded bodices in the candlelight and the slip of masked figures before a hall of mirrors—the nobles sat down at cards. Wigs askew and powdered faces smudged, they listened as the clever American humored his hosts with uproariously

funny, and well aimed-jabs at the British. The aristocracy fell across their hands with laughter, dripping cards onto the carpet like tears of hysteria. When the dukes and barons and barons' mistresses could at last sit straightly (or almost straightly) once again, they put on pouting faces.

"Thazz terrible!" they slurred. "About your revolushun, that is. Isn't there anysing you can do? Not nearly time to throw in the towel yet!"

"Well, now that you mention it," Franklin must have remarked casually, "That's actually why I'm here in Paris."

It's not difficult to imagine the twinkle in his eyes as he sipped the wine more slowly than anyone. Franklin had come to France with an intuitive understanding of the upper class, and left with its money. But the money had not been the providence of France to give.

It was borrowed, and in following years there was nothing to repay it. The economy rapidly declined, and the poorest of the poor were the ones who felt the sting. The most meager, maggot-infested loaf of bread became unaffordable. But this was unimportant. It was as things had always been for the members of the Third Estate—the lowest level of the French social hierarchy—beneath the Second Estate, the noblemen, and the country's First Estate: the church. This was the *ancien regime*, the order of things, ordained by God and King for as long as anyone could remember.

It was surmised that, because the nobles were the descendants of France's most ancient and revered warriors, it was their spilt blood that watered the grain and the olives. In payment for their family's sacrifices of antiquity, nobles were exempt of taxes and received ten percent of most crops grown on their land. So it was that chaos reigned across the countryside. The Second Estate simply did not give *un l'âne d'un rat* . They painted pictures of figs, and learned new dance steps.

The nobility remained indefinitely in their cloistered *chateaux*, deaf to the howls of the giant silver wolves that had begun to surround their elegant homes and murder the village children. Blind to the decaying roads into the cities that now crawled with murderous thieves and bandits. Sometimes, the peasants whispered that roguish men rode on the backs of wolves beneath a low, red moon as villainous companions in their savagery. Even the most frugal man living at court, King Louis XVI himself, spent 2,190 livres a year on *lemonade*.

It was in this world of heinous inequality that I spent my entire life. Injustice, hatred, and oppression brewed in the air I breathed like stale ale. I couldn't wake up in the morning without being reminded of who I wasn't. Eventually, my society made a monster out of me.

The day I died was cold and windy. I was drunk, and had gone to crash a wedding. A pair of kissing pistols were tucked into my tattered shirt for when the appointed moment came. The river of wine glasses that I had consumed earlier that morning dispelled any remaining fear about the deed that I was going to perform. As I staggered across the muddy fields, the old stone manor house jolted across the line of the horizon. I felt nauseous then, so I stopped to empty my stomach beneath a leafless tree. Only then, wiping my lips, did I approach the house.

Peals of laughter and the tinkle of piano keys echoed from within. I knew that I could not enter through the front, and so I began to climb towards an open third floor window. It is amazing to me now that I made the climb in such a state. Had I fallen and broken my back … I do not know. I suppose that would have been the end. There would be no black ink words upon this paper now. But the mortar between the stones was loose and crumbling, and provided me with footholds.

Perhaps by fate, or by the will of Nemesis (the only woman that I had ever worshiped, beloved goddess of revenge) I made it to the window. I entered into a room of women who were sitting speaking quietly and practicing their stitching by the fire. I clattered to the wooden floor and stumbled to my feet, swearing drunkenly.

I remember how my entrance produced quite a horrendous cacophony as though I had disturbed a brood of nesting hens. They taught wenches to be so timid in those days! One drunk man comes in through their window and they all start screaming their damned heads off. The women of today's France tend to view the situation with a form of joyous anticipation—great ladies and street whores alike.

The chaos came to standstill when I grabbed the nearest girl and put my pistol to her temple.

"All right!" I shouted. "*Je veux que vous tous de fermer votre putain de bouche*!"

Silence reigned. They stared as though I were a fox that had managed to infiltrate their coop. I bared my fangs, and smiled.

"That's better girls," I said softly, almost gently. "A definite improvement. Now, I want one of you ladies to be a lamb and go fetch me the Lord of this manor."

The girl nearest to the exit slowly unfroze, and inched her way out the door. Before she rounded the corner I called out,

"And tell him to come to me alone, sweetheart, or I'll shoot the sheep's brains out from between these fine ladies' ears."

There was a sharp intake of breath around the room. One girl, a mousy thing, fell into another's arms. I looked around at them, disgusted. They were so weak. I despised what others found so fashionable: those soft, unblemished hands; the fine damask dresses; their creamy, untanned skin. I abhorred it all as a sign of the selfish class that they belonged to.

The girl that I had sent away reentered with a tall man at her side. He was as pale and gangly looking as I remembered from last autumn.

"Sir!" He was attempting to use his noble bearing to cow me into submission. "I suggest you drop that weapon immediately."

I laughed at him and fired a shot at the chandelier over our heads. A rain of crystal dust exploded overhead as I drew the second pistol from my belt. The women screamed again. The Lord flinched as diamond shards tracked tears of blood across his pampered skin. In my manic mirth, I pulled the girl that I was holding into a clumsy minuet. The dust sparkled around us, I tried to catch the crystal flakes on my tongue. Her eyes were huge with fear.

I whispered to her softly, "Just like snow."

I realized how close I was to what I'd come to do. I simply wanted to enjoy one moment before it ended. But the Lord was yelling again. The moment passed.

"State your business, festering street sore. Do you mean to murder me? I know from those rags that you are no gentleman, but please, at least have the decency to commit the deed away from the sight of these impressionable ladies. I'll even stoop to a compromise: I will face you alone in an equitable and legal duel." He was talking to me now very delicately—the way one speaks with a lunatic. "You can't really hope to have my blood and escape alive, not in my own house on the eve of my son's wedding. The guards will have you as soon as you try to leave the room. They'll shoot you down like a duck as you scale the manor walls, and they'll hang your filthy body from the town yard for crows to pick at. If you duel me legally and win, then you can leave unharmed."

"No." I sighed, pausing mid-trot. My mood was changing rapidly again. I was beginning to feel nostalgic and melancholic. Best to get things done fast. "I'm not interested in your offer. Not that I believe that I could ever leave unharmed. I don't intend to kill you, not if I don't have to."

I didn't budge from my position with my arm wrapped tight around the girl's waist. "But you have my word that she *will* die if you don't meet with my demands."

The Lord's already bleached skin whitened to further resemble bone. A bubble of triumph welled in my breast: his fear was transparent.

I thought, *I've caught his son's precious bride.*

"I have always speculated that peasants are born into the world as soulless things. Here is an-

other fine example of that fact."

I focused my own eyes on his beetle-black pupils.

"My only demand is this—take me to the room with your most expensive carpet."

The aristocrat's plucked brows raised like Roman archways.

"My most expensive carpet?"

"Yes, that's what I said."

With a shrug, he gestured towards the door. I followed behind and bolted it shut behind me. Listening to the screams that the action produced, you would have thought I'd thrown a live cobra into their midst. I began to wonder if howling was the only thing that these girls were taught to do. I walked my captive down the hallways that the Lord chose. I began to study her. She was definitely the bride, that much was obvious to me now that I thought to look. Her gown was one of remarkable quality. Dark locks of hair had been pinned to the top of her head, and curled like shavings of carved wood down to touch a fox pelt that warmed bare shoulders.

"What's your name?"

"Marie." She trembled.

"Marie," I repeated. "An uninteresting name."

She didn't say anything.

"Don't worry, Marie," I told her. "This will all be over soon."

The Lord swung open a large mahogany door and waited for us to enter.

"This is my parlor," he informed us. "I do most of my entertaining here."

Cushioned armchairs surrounded a large oval table. The carpet was a pale blue Persian.

"Perfect," I said to myself. "How much did you pay for this carpet?"

He thought for a moment. "About 20,000 livres."

"Excellent." I sat on it, pulling the girl down beside me. "Now I am going to tell the both of you a story. I was born in that village at the bottom of the hill. I know you've probably never noticed it, but humor me. For the past eighteen years I had a father. For the past seven I had a sister. Our mother died giving birth to her, but we lived in quiet harmony together just the same. That is, until a certain Lord," I inclined my head, "taxed us until we had absolutely nothing. My sister withered away until she was less substantial than scarecrows in the fields. She died of starvation, every one of her ribs showing as clearly as if there was no skin to cover them at all. We dug through the snow to hard, frost-scarred ground so that we could find worms for our meals. For five months we dined on them, and all for nothing. She was just seven years old! Seven!"

I stopped and realized I was screaming my head off. Marie was watching me with eyes as big as saucers.

"And now, you stupid bitch, you cow, you think you pity me. But you would never lead the life that she led. You would never step into the ragged clothes and eat the fleas in your hair, just to live for one more day."

By now my voice was hoarse and coming in gasps. "I can't destroy the old order by myself—the evil *ancien regime*. I can't kill you, because then you won't be able to think about what I am about to do. I am going to put a bullet through my heart, and bleed all over your carpet. The blood will soak through and stain the wood beneath it, so that even when you remove the tasteless rug that cost more than my father made in his lifetime, the splotch will still be there. *My* splotch. And whenever you entertain, when you serve tea to all the fucking dandies that visit you, that stain will still be there. A little piece of me in your manor house, until the day it falls to ruin. A stain on your floor—it's not much to trade my life for, but it's enough."

I took the gun away from Marie's head and put it to my chest. But I felt her lily-white hands around my waist, trying to twine long fingers through the trigger, to wrench it away from me.

Then there was a quiet *click* and the bullet exploded through both our bodies, and the last thing that I heard was my own heart exploding. The last thing I saw was hers: a crimson pulp upon the floor.

There would not be one eternal stain in the Lord's manor house—but two.

My next conscious memory is of a crow. It was staring at me with curious black eyes like dewy beads of ink. A brass clock gear (at least that's what I thought it was) hung from its large beak. I closed my eyes again then, unable to keep the heavy lids open any longer.

I do not know how much time passed before I finally awoke again, but when I did it was with far greater sense of clarity. I saw that I was surrounded by the rusted skeletal ribs of an iron cage, hung high above the cobblestone streets of my village. A full moon rose over the horizon, swollen and pale like the corpse of a drown victim. It showered the single hooded figure that was moving quickly through the rutted carriage lanes in sickly, lime-colored light.

The figure stopped below my cage—my gibbet, I realized with dawning horror—and propped a ladder against the side of the court house from which I swung. A gust of cool wind blew up from the river Rhône and the sound of the rungs of the wooden ladder shaking against the brick wall was audible, along with a string of soft curses.

Tufts of wild white hair rose into my line of vision, and below them, the face of a wizened, elderly gentleman. He was smiling as though the Second Coming had arrived, and the Lord Himself was handing out free breakfast crêpes. A crow perched contentedly on one drooping shoulder.

"There's my *étoile chanceux*, my lucky star! How are you doing tonight, awake at last?"

I tried to speak, to ask who in Hell's loins he was, but found my jaw was wired shut.

"Sorry, sorry!" sang the petite gentleman. He reached forward and pulled at something behind my cheek where the jaw bones connected. There was a loud grinding noise in my ear, then a tickling sensation. "I just installed that gear last Thursday. I suppose I must have forgotten to wind it when I left in such a hurry. Mustn't let anyone find me here, you see."

"Where am I?" the words were expelled from my throat with fine cloud of dust and debris.

"You are dead. Correction: *were* dead. I fixed you."

I squinted my eyes. Something clicked into place.

"I believe you are Monsieur Engins, the town clockmaker."

The little man appeared to be delighted that I had recognized him. He gave his crow a hard pet on the head, and it flew to perch elsewhere with a

look of obvious irritation.

"That is true, my criminal friend. Clocks are my trade and my life. But I have always been fascinated by the human body, the greatest working mechanism ever made. So one night I decided, as I sat drinking a glass with my crow friends, that I would attempt something rather different from the routine. I had fixed clocks successfully my whole life, hadn't I? So why not people?"

It was now at last that I ventured to look down at the rest of my body. Screws protruded from every socket. When I flexed my dead fingers, I felt the coil of metal springs.

"Your heart was completely gone," Monsieur Engins was saying now from some distant place. "So I replaced it with a piece that functions much like internals of a grandfather clock. Your human chest acts as the chamber for a pendulum. As you breathe in and exhale, the hand on the piece advances and eventually trips a pivotal gear. That gear lifts a pin which then pulls back a chime hammer that strikes a tuned steel tube. Everything is put together, and you have a synthetic heartbeat."

I didn't know what to say. I wanted to cry, but couldn't quite remember how it was done.

At last I asked, "What about the girl who was shot with me? Marie?"

A puzzled look crossed the wrinkled face.

"There was no girl that I know of. She must have been buried. I chose you because you were situated so high above everything in this cage, right in my line of sight for when I needed to make my measurements. See the wonders that civil dissent can do for you?"

A single tear, the last one I can ever recall shedding, slid down my nose then. I think it was the last my corpse would allow, as the tear ducts were already mostly atrophied.

"There is no greater curse on any man than a cage," I said. "And mine is now tenfold stronger than it ever was before. When I carried my pistol with me up to the manor house that day, I thought I was oppressed then. I was wrong."

"Why, sir?" The clockmaker spread his arms wide to the night and almost toppled from the ladder. He regained himself and added, "The entire world is yours again. In Paris the people's revolution gains momentum. Why not stick your foot into that?"

And so I did. I hid my gears beneath baggy peasant clothes and headed to the city. I stormed the Bastille and the palace, staring death in its eyes of red gore and not flinching for fear. I shoved the writhing bodies of nobles into the waiting embrace of the guillotine. I saw the headless cadaver of the Lord who murdered my family—a wriggling mass against a mound of sawdust. I drank in blood and justice.

When Monsieur Engins succumbed to fever some several years later, I returned to my village completely unrecognized. The young apprentice now running the clock shop presented me with a box that the old man had saved for me. Inside it was my old pistol, rusted, but with flecks of crimson blood still clinging to the trigger. I sat and thought then about Marie, as I had many times since I woke up on that full moon night in a gibbet. She may have lived ninety years more in sheltered oblivion, unaware of the hunger of every street beggar, content to feed her children from silver spoons.

But I do not regret on that account. And so it is exactly as I said: Olivier Brouillard became a monster, and a machine.

And now I have traveled the earth, always moving as discreetly as possible. My time has passed, my purpose served. Now it is no longer my world to tamper with. Exactly one century after my human lifetime ended, I came back to the country of my birth. It is a more peaceful place now, and I allow myself to feel just the smallest bit compensated by it. But I must still spend each night in the coffin that I ship ahead of myself everywhere I travel.

And that is the truth of it: I am no longer human. And I might as well be dead.

SUBMIT TO NO MASTER!

but please consider submitting material to us!

We are always looking for content for our magazine. Keep in mind before submitting that we publish under Creative Commons licensing, which means that people will be free to reproduce and alter your work for noncommercial purposes. At the moment, we are paying $30 per article or story that is accepted and $20 for illustrations and poetry. This is still an experiment: after another issue or two we may have to/get to change our rates.

The next reading period is **1st August 2009 to 30th September 2009**, when we will be accepting submissions for Issue #7 of SteamPunk Magazine, which is due out sometime in December. Having looked into the deep and distant past in Issue #6, the theme for Issue #7 will be "New and Future Worlds"—a chance for everyone to share their ideas about what might yet lie ahead. Some ideas for fiction and articles on this theme are:

- The future of steampunk
- The building of steampunk communities or communes
- Reinventing society from within
- Living a steampunk lifestyle in the everyday world
- Activism in steampunk
- Adapting old technology and materials to new uses—recycling, upcycling and reuse
- Reclaiming derelict spaces
- Diversity in steampunk and its development in different countries and societies

As always, we will accept both themed and unthemed material, so please don't feel restricted by the ideas and examples above. Go mad!

Content Guidelines:

Fiction: We appreciate well-written, grammatically consistent fiction. Certainly, we are suckers for 19th century prose styles, but we do not limit ourselves to this. We are more interested in representing the underclasses, the exploited,

rather than the exploiters. We have no interest in misogynistic or racist work. We will work with fiction of nearly any length, although works longer than about 5-6 thousand words will be less likely to be accepted and will probably be split up over multiple issues. We have volunteer fiction editors who, if you would like, can provide feedback on your work; other than this, we will only edit lightly and will always check with you before any changes are made. Submissions can be in .rtf or .doc format attached to email.

Poetry: We are happy to announce that we are now accepting steampunk poems for inclusion in the magazine. These can be written either in a specific form, or as free verse. We can work with poetry that is of almost any length, although work longer than 40 or 50 lines will be less likely to be accepted. As with fiction, submissions can be in .rtf or .doc format, attached to email.

Illustration: We print the magazine in black and white, and attempt to keep illustrations as reproducible as possible. Ideally, you will contact us, including a link to your work, and we will add you our list of interested illustrators. Any submissions need to be of high resolution (300dpi or higher), and we are quite fond of the .TIFF format. This said, contact us before sending any file over 500k.

How-tos: We are always looking for people who have mad scientist skills to share. We are interested in nearly every form of DIY, although engineering, crafts and fashion are particularly dear to us. We can also help to adapt things to print format, if you need it.

Comics: We would love to run more comics. Contact us!

Reviews: We run book, movie, zine, music, etc. reviews. However, due to limited space in the magazine, we will only run reviews of releases that are truly exceptional.

Fashion: Although we are quite interested in steampunk fashion, we are more interested by DIY skill-sharing than exhibition of existing work. If you want to share patterns or tips for clothing, hair or accessories, then please let us know!

Other: Surprise us! We're nicer people than we sound.

Issue #6 Editorial Team:
C. Allegra Hawksmoor (Managing Editor)
Margaret Killjoy (Layout Editor)
Libby Bulloff (Contributing Editor)
Dylan Fox (Contributing Editor)

Contributing Artists:
Benjamin Bagenski (Pages 68, 95)
Bethalynne Bajema (Page 11)
Paul Ballard (Page 28)
Molly Crabapple (Cover)
Sarah Dungan (Pages 48, 94)
Dr. Geof (Page 4)
Allison Healy (Pages 33, 62)
Ivan McCann (Page 96)
Juan Navarro (Pages 65, 72)
Amanda Rehagen (Pages 54, 86)
Suzanne Walsh (Pages 58, 78)

Colophon:
We're getting better at not using so many fonts. This issue, we used: oldstyle, **HEADLINE ONE**, Headline Two, and Persnickety from the H.P. Lovecraft Historical Society. Nars (Nars), by Eduardo Recife. Twentieth Century, by Sol Hess. And our body font is Warnock Pro, designed by Robert Slimbach.

Published By:
Strangers In A Tangled Wilderness
www.tangledwilderness.org

This is the free, internet-distributed version, so if you run into this printed out, good on whoever did the printing! Unless they sold it to you, in which case they are an asshole.

While it's the fault of industry—and not DIY producers—that the forests are being destroyed, we're still into 100% recycled paper.

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published by Strangers In A Tangled Wilderness
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