CHEE MING WONG'S
PAINTING STEAMPUNK
ENVIRONMENTS
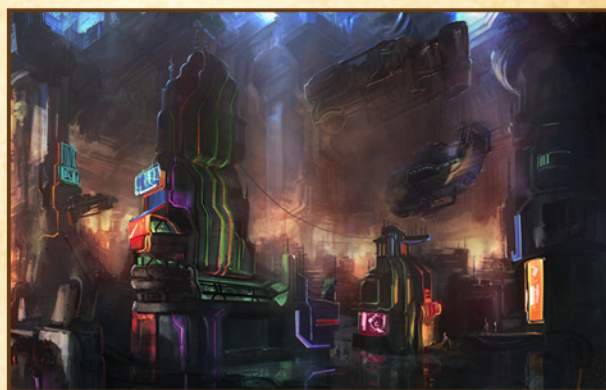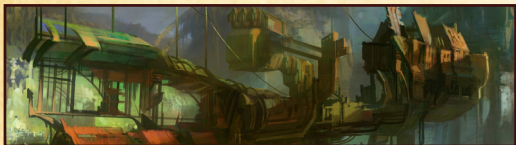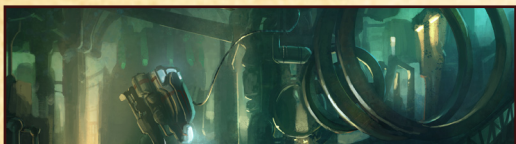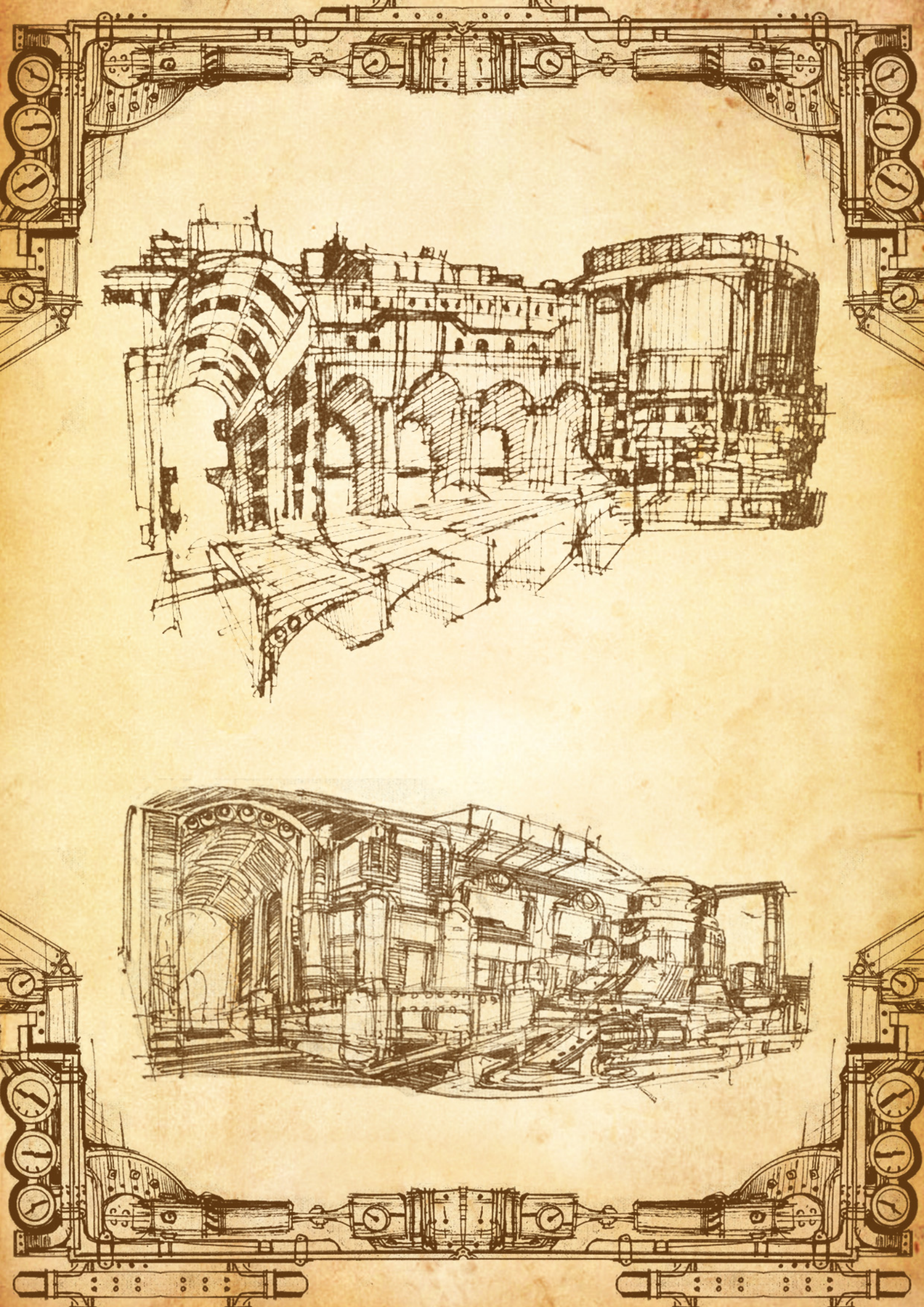
D'AUTOMOBILIS

Painting Steampunk Environments: Chapter 1 - D'Automobilis

Software Used: Photoshop

D'Tour

Welcome to these series of workshops, encompassing the Five Ages of SteamPunk within the alternate Realm of "Steam PanGloria Globus the 3rd" (SteamWorld for short).

Over the course of the next few chapters, our tour will encompass different eras and themes within the five interconnected districts of SteamWorld (D'Inginis , D'Vinci, D'Metronomus, D'Automobilis & Diesel). The central hub of D'Machinis serves as both the administrative sector & self machine engines of the Steamworld, and it's through here that the various travels between the five districts/transitions occurs, via the convenient and yet unrealised Automobilis publik-transport featuring steam trains & various automaton.

Thus, let us begin our tour of the arts, science & practical application of the sub genre of steampunk, via the exploration of the brilliant inventions, and great feats of engineering this realm, has to offer (and where all things though improbable, are possible).

D'Automobilis: Essence of Victorian Steampunk

Our first stop of the tour, we will be taking a glimpse at the basic transportation manufacture & design at the heart of the various districts of the Realm. In essence, the main thrust of the SteamWorld transport is inspired by the discovery, utilization and subsequent daily use of steam technology epitomised by the scientific and global influence of the Neo-Victorians, Britannica. For here, at the D'Automobilis TCEECT Workshops: (The Centre for Extraordinary & Everyday Conventional Transport), we can freely share in the basic principles of steampunk transport design. Victorian England 19th Century represented the height of a technological, cultural, worldwide revolution that helped herald society into the modern age. Amongst one of the technological advancements, was the refinement and advancement of steampower in all sort of mechanical, industrial & scientific endeavours, that improved the quality of their overall life.

But first, let us look briefly into the history of the steam engine.

Steam Engine

Hero (Heron) of Alexandria (10-70AD), invented the first known steam (Hero's) engine recorded as the **Aeoliphile** (Reaction Steam turbine) i.e a steam pressurised sphere/vessel with opposing curved nozzles that spins on its axis due to opposing perpendicular jet streams. He also invented, the first force pump (fire engine), first windmill machine (powering an organ), the syringe, vending machine and wrote books on Pneumatics, Mechanics & Automatons.

Two millenia later, in the 16 to 17th century, steam power was initially utilized to help pump water from flooded mines as the main priority. **Thomas Savery**, was the first to commercially produced a practical steam pump for continous use to help pump water up to 20 feet. However lack of a safety valve meant at high pressure it was frequently unsafe and tended to explode.

Subsequently, **Thomas Newcomen** & **James Watt** developed and iterated upon their atmospheric engines which utilized a weighted piston to create vacuum & thus condense steam. Watts, improved on Newcomen's engine via a separate condenser & applied rotary motion, to thus build the first commercial successful/patented steam engine.

However, it was not till **1799** when **Richard Trevithick** refined and built his "high pressure" steam engines that meant one could do away
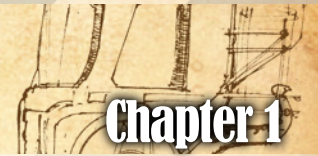
with a condenser, and thus build smaller compact engines for everyday use. Thus in **1804**, Trevithick accomplished the worlds first locomotive journey in an unnamed full scale locomotive near the **Penydarren Ironworks**, Wales.

Atmospheric Pressure & Gas Laws

One has to appreciate, that to finally reach this breakthrough various scientific and technological advances would have had to be achieved. Namely:

1. Understanding Boyles Law

2. Development of materials able to withstand high pressures of steam

3. Understanding of Vaccum & Atmospheric Pressure

Crucially, the appreciation of the effects of Atmopsheric pressure & vacuum (Boyle's Law) led to the fundamental development of the modern steam engine.

Boyles Law states the volume of a given mass of gas (V) varies inversely with its pressure (p) when its temperature remains constant.

$$pV = k$$

where:

p denotes the pressure of the system.

V is the volume of the gas.

k is a constant value representative of the pressure and volume of the system.

Design & Sketching your own Steam Transport (Visual Art Direction)

Now that we have had a brief look at the history of the steam engine, let us consider modifications and improvements upon the conventional horse bound carriage.

A good way to approach this is a "mash" approach as a primer towards thinking/exploring about the design aspects of the horseless carriage. On one hand, over analyzing/thinking the design may produce a stilted design without

much exploration and in contrast, sometimes it is worth exploring the existing design & its variations without worrying about the technical (eg. technological limitations - gameplay, texture budget, VFX budget) aspects of it all. Afterall, the main end objective would be to reach your "high concept" design and then adjust/tailor accordingly towards the required situation.

Thus, in that regards, one should look at the steampunk genre as a unlimited delightful exercise at realization of the realms imaginative, and unbounded.

The Horseless Carriage - HC

So, let us consider the Carriage (**Fig.01**)

From a visual artistic development point of view, one should initially consider its method of propulsion. Assume, for a moment that transport had reached a state whereby, the steam

engines were sufficiently compact enough to be partly integrated within a carriage.

Visually, this has positive ramifications and immediately allows us to develop a personal one to two seater transport that can be supplied with a discreet steam engine attached, including various attachments and paraphernalia to various gears/ pistons and belts to power itself.

Next, to consider the functional aesthetics and overall form.

With reference to the **(Fig.01)**, the designer has considered approaching the HC design with a tri wheeled and duo wheeled approach. For access, the operator would enter via a frontal hatchway system which self folds/ unfurls ingeniously using slats and hinged joints to provide good reliable access into the HC transport.
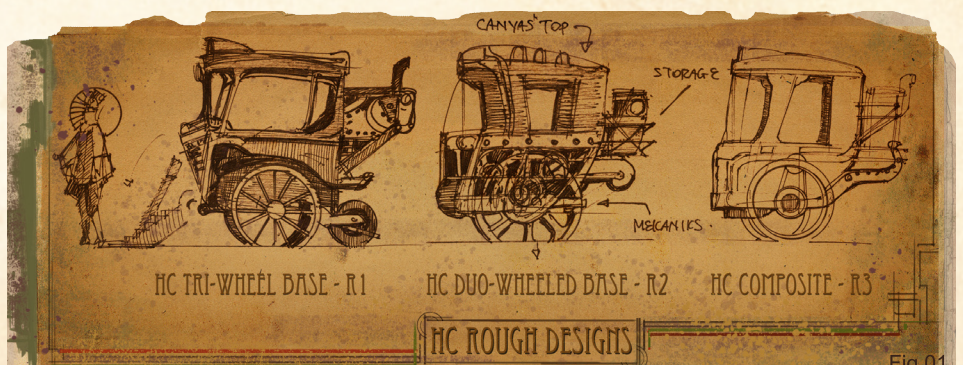

Fig.01

The final aspect, would be to combine the elements that best fit a working design of both, and subsequently experiment using this composite clean-up design as a base.

HC - Schematics

Once a clean-line base design is decided upon, the next aspect is to consider how the HC transport design would appear from various angles. These can be achieved via a set of plan drawings - featuring commonly the orthographic front and side views (**Fig.02**)

During this stage, various opportunities to explore the inner mechanics/workings of a steam engine are worked out. This can range from exploring different wheeled spokes, the application of a small fly wheel/gear belt pulley system or even a partial exposure of a miniature boiler/engine system. In addition, exposure of a simple (fishbone) suspension system can help lend towards its functionality.

Additional Details to consider:

• **Hand Crank:** Once the general shapes are determined, it is the tiny attention to details such as the use of a detachable hand crank, to help start ignition of a external pressurised starter motor, that would subsequently release a burst of highly pressurised gas into the compact steam boilers.

• **Luggage Rack:** Further thought went into consideration of a foldaway luggage rack system. Initially, this was located towards the rear of the overall apparatus where the external boiler and exhaust pipes are housed. Upon the 3rd and 4th trial, it was felt that a roof based rack system, would adhere better towards an overall vertical design.
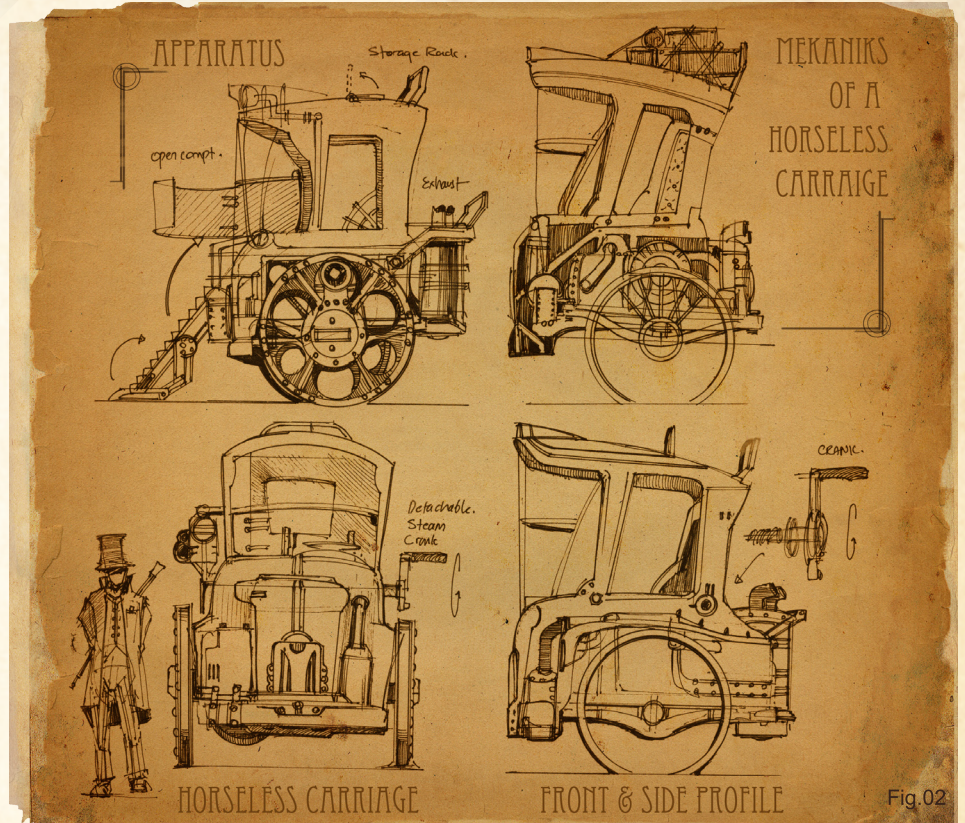
• **Alarm/Lighting Rig:** To further reflect an

Fig.02

unconventional bolted on look, it was felt that a combo Klaxon-Lantern amalgamation mounted asymetrically towards the side of the HC apparatus would fit well (as opposed to conventional forward mounted lamps)

The Steampunk Look

The thing to appreciate is, a steampunk look works best when there are two or more layered pieces joined together by bolts & rivets. Elements of brass, copper and wood are a marked difference from worked aluminium and steel. Even the type of rivets determine greatly the overall final look.

> ## "A fine balance of sufficient believability, aesthetics and functionality offers the best marriage of the trio."

Eg. Up to the 1950s, great seaships of the Admiralty utilized "clench bolts", whereas a set of flushed rivets (vs normal solid bolts) - such as those seen on a WW2 Supermarine Spitfire required skilled training & advanced

Fig.03

production techniques such as that used for mass production of cars, to fit onto elliptical wings (another advanced design that resulted in such slow production results, it almost resulted in cancellation of this 60 year old legendary fighter).

In contrast, a modern streamline look would feature a more minimalist art direction and aesthetic in consideration.

HC - Motion

Once a set of orthographic plans are produced, the next aspect is to imagine the HC transport in a more 3-Dimensional representation within a 2D drawing i.e via a 3/4 perspective view (**Fig.03**). In this instance, the HC apparatus in motion is likened to a self-propelled rickshaw, and thus would only work if there were gyroscopic elements factored into the equation. In contrast, one should also consider how this transport would appear at rest - perhaps a 3rd rear wheels pops out, or the forward aspect of the transport detaches and provides some rudimentary support/stabilization.
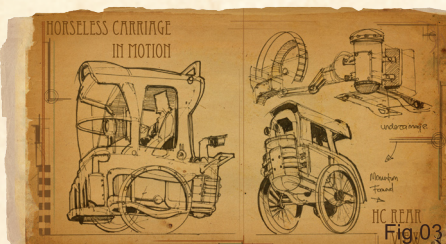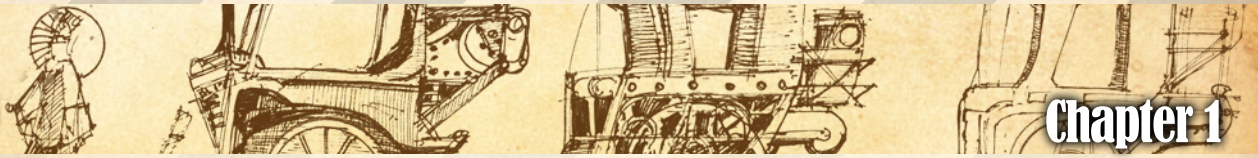
By utilizing a ¾ perspective view, the designer is able to thus help visualize the design as if it were to be produced as a miniature model or 3D object. In terms visual troubleshooting, now is a opportune time to explore various functional shapes that may have appeared promising in a planer/side profile but may cause various teething issues in a solid 3D form. Lastly, whilst it is useful and well commended to take into consideration all these aspects of rigorous industrial design and functionality, perhaps a fine balance of sufficient believability, aesthetics and functionality offers the best marriage of the trio.

We will get the opportunity to realise this design further within the tour of the Diesel district.

Steam Wagon - Sketch & Cleanup

Returning once again towards the Horse & Carriage concept, the designer hits upon the idea of replacing the Horse with a steamhorse instead (**Fig.04**).

Fig.04

The initial ink sketch features a carriage piloted by a driver sitting high at the rear of the carriage. In contrast to the horseless carriage approach, this concept features a wagon that has no combustion/mechanical aspects and in all intents and purposes merely a simple carriage. This is linked up towards a small compact steam engine consisting of a boiler, piping and exposed gear shafts/pulleys and belts.

A mid set of support iron wheels are attached in the middle to afford more stability and fine control. These are relayed via a set of pulleys and controls that afforded manoeuvrability to the driver in the rear.

Cleanup: Subsequently the initial impetus of these designs are used as a template to provide a cleanline sketch.

Steam Wagon - Workup

The cleanline sketches of the Steam Wagon (see **Fig.04**) are utilized as a base from which to work it up further. In this instance, we will only focus on a side profile iteration.

These can be blocked out to accentuate areas of demarkation (**Fig.05**) - allowing one to focus on the textural aspect of materials. For example, a transport that utilizes wood and metal, can expect to have a level of matte finish vs specularity.
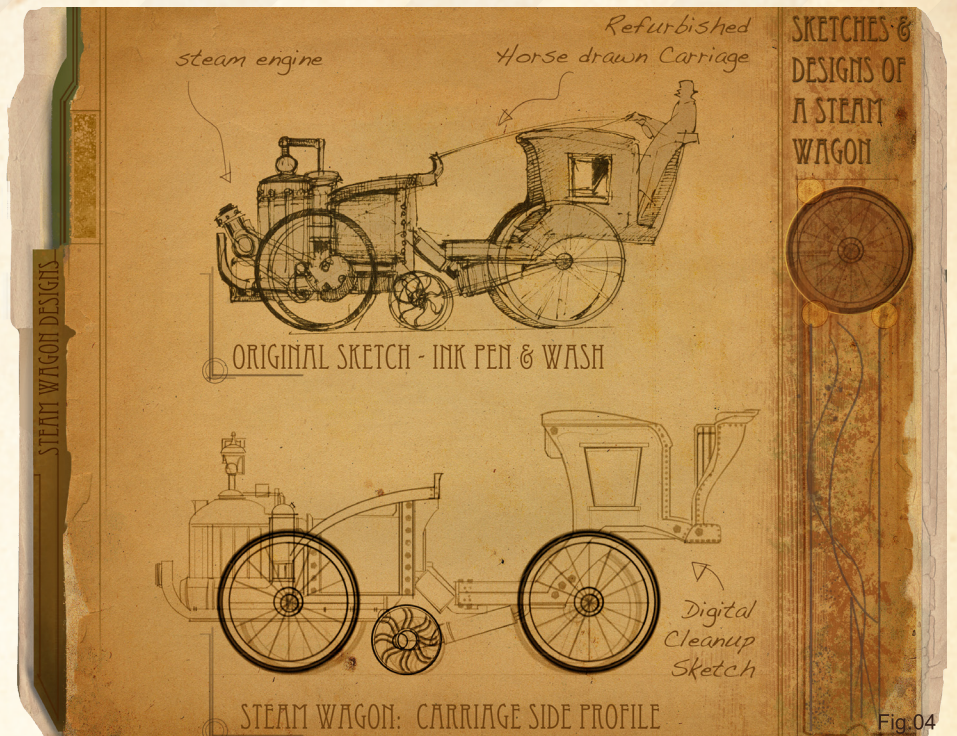

Fig.05

Being able to denote and show these material differences eg. leather, polished wood, exposed steel, riveted boilers - using just pure values can often be a (welcome) challenge and offer a high value concept from which to derive other designs.

Values: (Fig.06) The next challenge is to transform a line drawing into a semi 3Dimensional image using just pure greyscale values. Popular car magazines can help with regards to lighting approaches - and quite simplistically a top down lighting situation is often sufficient to provide some believability in a side profile view.

Additional design elements: To continue the aspect of believability, the designer can add further designed elements such as a exposed steering system.

Touchup: (Fig.07). Once the general lighting issues are sorted, the final aspect to consider is improving readability, bounced lighting and material texture and feel. This image, should

Modelling of Values

Steering mechanism installed

Fig.06

STEAM WAGON - PROFILE DESIGN

Fig.07
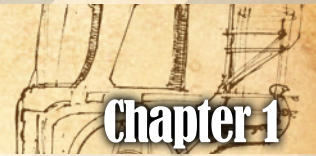
serve as a good starting sketch from which to work up a more refined painting/illustration at a later junction.

Steampunk Reference - Visual Art Direction
This next segment deals with visual art direction and reference.

A good artist & illustrator has a reasonably well developed methodology of collecting, classification, analysis and application of reference. Well... (you would expect) at least the more successful artists would have had developed and coherent system to help bring realism and authenticity into their work.

> "One can explore various elements of construction to simple small thumbnails - featuring basic composition, readability and layering of objects."

Victorian-esque: Thus to develop a steampunk universe, the designer set about analyzing and collecting various bits, aspects and forms of victorian-esque objects. (**Fig.08**). These tend to comprise of jointed shapes featuring L-shapes or D-shapes (perpendicular 90 degree joints). These can subsequently be applied towards lighting, joins, geometrical supports and arches.
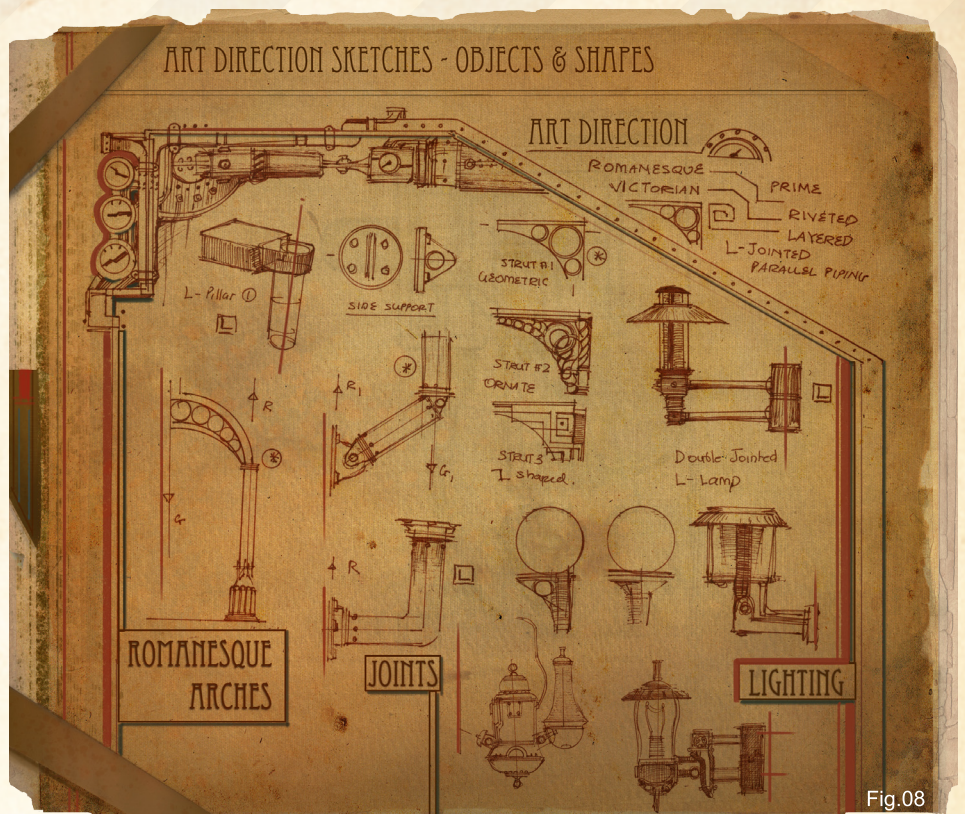

Fig.08

A particular characteristic of British arches are the leftover aspect of the Romanesque period. Unlike Europe which tends to favour a more gothic and art deco/nouveau flavourings .

Industrial Exploratory Sketches: (**Fig.09**). Applying this approach, one can explore various elements of construction to simple small thumbnails - featuring basic composition, readability and layering of objects. In this

instance, these sketches feature elements of a train turntable, tram & fuelling station and lastly a pumping station. We will later apply some of these sketches into a pen & ink wash collage.

Townhouse Exploratory Sketches: (**Fig.10**) Lastly, we can zoom in and consider even more minute aspects of a set of buildings by considering a building, eg. townhouse. On the far left, are various elements of victorian
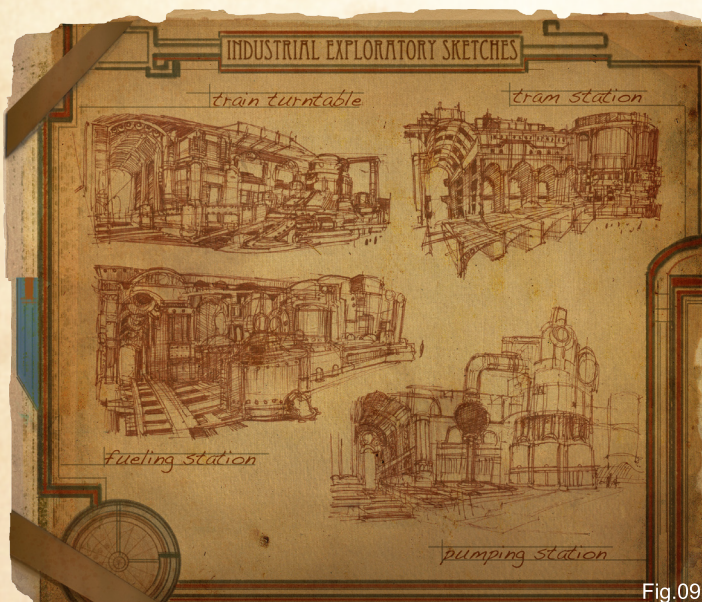

Fig.09

Fig.10

Leadenhall Market
London

Liverpool Street
Station
London

VICTORIAN STEAMPUNK STATION - COLLAGE

Fig.11

townhouses such as a Romanesque doorway, window and triple storied flat. Extrapolating this, one can outline the overall form and accentuate this further to create your own unique steampunk townhouses at will.

Steampunk D'Automobilis Transit Centre - Digi Ink & Wash
Collage: In this last segment of the tour, we will look at a quick digi ink and wash approach towards our onsite sketching of various

steampunk buildings. (**Fig.11**) By amalgamating the various sketches and unifying the various vanishing points into an overall whole, this can provide a rapid and satisfying collage of sketchwork provided as a joint sketch collage.
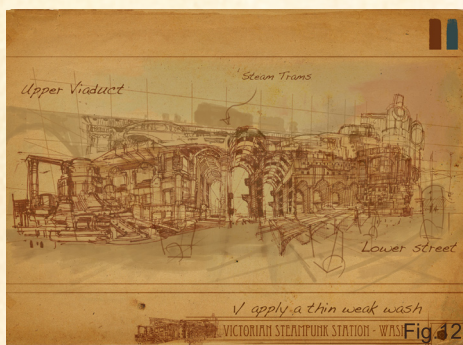
As an accompaniment, various photograph depictions from olde markethalls and rail stations in Victorian London are researched to provide a believable reference point.

DigiWash: (**Fig.12**) The first instance upon completion of the sketch collage is to apply a weak unifying wash. This allows one to explore various shapes and structures with similar values and distances from the viewer. Areas and foreground objects that may have potential core shadows can also be rapidly marked out (**Fig.13**).

Background Plate: (**Fig.14**) For this particular image, we can now work in a methodical stepwise fashion. Starting from back to front. We

Upper Viaduct   Steam Trams

Lower street

1/ apply a thin weak wash
VICTORIAN STEAMPUNK STATION - WASH   Fig.12

3 / BACKGROUND CLOUDS & LAYOUT

Apply a wash of a colour complementary

Block in the Horizon Line & Bulk up Clouds

Fade & Smear In A warm light source

Build up more Layers of warm & cool Clouds accordingly   Fig.14

2/ block in core shadows & shapes
VICTORIAN STEAMPUNK STATION   Fig.13

can firstly work out the main colour of the image which features a roil of warm yellow clouds on a backdrop of grey blue ambient skies. This particular approach will allow us to paint contre-jour (against daylight) as favoured by plain air artists when sketching/painting on site.

"Even the best laid plans may have to be abandoned for a simpler approach."

Steampunk D'Automobilis Transit Centre - Block In & Wash

The next aspect is to bring these separate image together in a layered format, whilst observing the various value relationships of one another. (**Fig.15**)

Starting from constructing a multi-arched viaduct in the rear, this is followed by the midground

Fig.15

elements of central arched buildings and foreground elements. The various elements are separated on different layers to be composited together.

However, there is a large problem that tends to occur. Namely, the overall image may become too diluted or overwhelmed by the various separate elements.
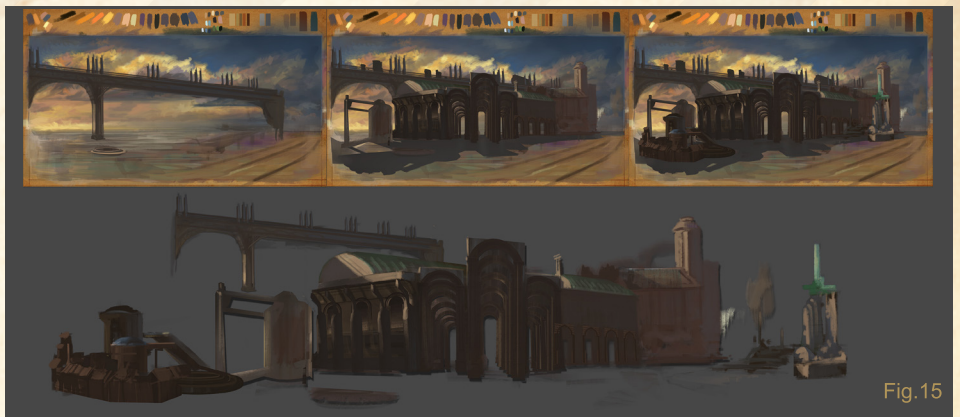
A quick composite of the various element quickly prove (**Fig.16**) that the overall composition is flawed in terms of composition, elements and rendering. Thus, one has to decide at this point on the next course of action.

Murder or Persevere.

About one and a half hours later, there are just too many issue to tackle. Far better to have had chosen the "murder your darlins" approach. In that regard, the crop tool can be a handy aide - allowing us to split the overall image into a portrait view (A) or a landscape format (B).

It is these decisions and being able to develop various strategies that present much of the everyday challenges as a artist and illustrator. Even the best laid plans may have to be abandoned for a simpler approach.

Ultimately, the designer opts for the Landscape format of B - which allows for a more intimate crop that focuses on the buildings, town life and transports.

End of D'Automobilis Tour

Welcome back to the D'Automobilis transit centre, and I hope you have enjoyed our brief tour of the steam transport design workshop. If you would any further information, advice or additional reading, please find out more below, or contact us at workshops@opusartz.com

For our next tour, let us next meet within Transit centre for the D'Vinci leg of the journey whereby the remnants of our partially built TramMetro will

Fig.16

need to be modified and built to take us onwards into the High Middle Ages & Renaissance birth of the various elements of steam. Due to the current instability of the various elements, participants are advised to please be prepared to face extreme aberration in weather & low visibility.(**Fig.17**)

Authors Notes

As a primer & introduction to steampunk, there is a wealth of knowledge & resources abundant on the interweb, popular fiction, art, sculpture & movies. Here are some additional recommendations to immerse yourself thoroughly into your own Steampunk worlds, in no particular order.

Recommended Websites
  • **darkroastedblend.com**
  • **steampunkmagazine.com**
  • **gizmodo.com/gadgets/steampunk/**

Popular Media
  • Sherlock Holmes (2010)
  • League of Extraodinary Gentlemen (2003)
  • Steamboy (2004)

STEAMPUNK - Museum of the History of Science, OXFORD
www.mhs.ox.ac.uk
13 October 2009 to 21 February 2010

"Steampunk is rooted in the aesthetics of Victorian technology. Yet it is not a nostalgic recreation of a vanished past: its devices are both imaginative and contemporary. This exhibition reveals the many possible resposes to Steampunk's characteristic preoccupation with the historical and the contemporary, the mechanical and the fanciful."

If you do happen to drop by Oxford for a day visit, I would thoroughly recommend visiting the Museum of History of Science, to visit its vast and handsome collection of celestial globes, sextants, astrolabes and the world's first steampunk exhibition (basement) - curated by

Art Donovan. Here, sculptures from some of the worlds best steampunk imaginist are on display until late Feb 2010.

Workshop Objectives - How to use these workshops.
When initially suggesting these workshops to 3DTotal, I had in mind the sharing/glimpse into a fictional steampunk world that I have been working upon, and to integrate the viewer via an explorer that both explores and sketches their journey within these realms. Such an undertaking however is currently too vast, and thus I had to be realistic and scale such an experience that was both fictional and yet informative.

I was particularly inspired by the charm and obsessive development of James Gurney's Dinotopia series; the lovely and informative aspect of cut-out books and illustrations, and finally the more rigorous responsibility of the more academic, and technical aspect of explainging this genre of steampunk and art.

Thus, let me briefly explain how these workshops are intended to be applied/ experienced. These workshops are targeted towards a wide range of audience encompassing:

  • **Visual Art Direction:**
  For budding art directors and senior concept artists, these series hope to share the challenges of establishing a visual direction, from which to develop an existing or new Intellectual Property/Franchise.

  • **Technical & Troubleshooting:**
  These share the various frameworks and approaches of developing a reliable repeatable pipeline when working towards a set art direction

  • **Elemental:**
  Lastly, within each segment there will be an aspect of the various elements, mood, atmosphere and time of day to consider.

The challenges of designing visual assets is sometimes best approached in a holistic manner. As such, each workshop will tackle the asset generation via the creation of themed worlds.

Dr. Wong is both a visual imagineer & director of Opus Artz Ltd and has over 10 years of creative visualization and industrial design experience, working with a diverse range of game & animation developers worldwide such as Visceral Games, Sucker Punch productions, 2K Marin & 2K Australia.

His roles have included being the External Creative Director on The Edge of Twilight, External Enviromental Art Consultant on Bioshock 2 and Senior Concept Artist and Visual Lead for the MMO "Infinity: The Quest For Earth"

Fig.17

D'VINCI

Painting Steampunk Environments: Chapter 2 - D'Vinci

Software Used: Photoshop

D'Tour - Part II

Welcome to these series of workshops, encompassing the Five Ages of SteamPunk within the alternate Realm of "Steam PanGloria Globus the 3rd" (SteamWorld for short).

Over the next few chapters, our tour will encompass different eras and themes within the five interconnected districts of **SteamWorld** (D'Automobilis, D'Vinci, D'Metronomus, Diesel & D'Inginis) and administered by the central transit & engineering hub of the Guild of D'Machinis.

Previously, the first leg of the tour started within the **Victorian Era of D'Automobilis** - whereby,


Fig.01

Fig.02

we had the opportunity to briefly discover how transport became the mainstream thrust of the Brittanic Victorians, starting with the steam engine. Our tour also looked into designing and developing a steampunk transport and environment using a themed period as a starting basis.

D'Vinci: Essence of Renaissance/Middle Aged Steampunk

Returning to the **Transit Centre** whereby central public transportation is governed, we discover that the *TramMetro* responsible for our next leg of the journey, is still being retrofitted with the appropriate apparatus to enter and co-exist within the D'Vinci realm with sufficient stability.

In **Fig.01** the TramMetro is being retrofitted with D'Vincian equipment and Renaissance technology, vital for the safety of the various InterRealm travel whilst travellers adjourn to the nearby Cafe. The physical and **InterRealm** energies of each era are entirely unique, and thus require careful measurement, calibration and maintenance via the vast might of the engines of the central administrative hub of D'Machinis.

Thus, without the right outfitting and maintenance of the *TramMetros*, our tour may veer off course or even overshoot into the interRealms of the physical worlds, resulting in malfunctioning of the steampunk technology, or even worse - being marooned to a indeterminable existence. In **Fig.02** we can see the schematics for the Tram Metro, showing its various modes of deconstruction and retrofitting.
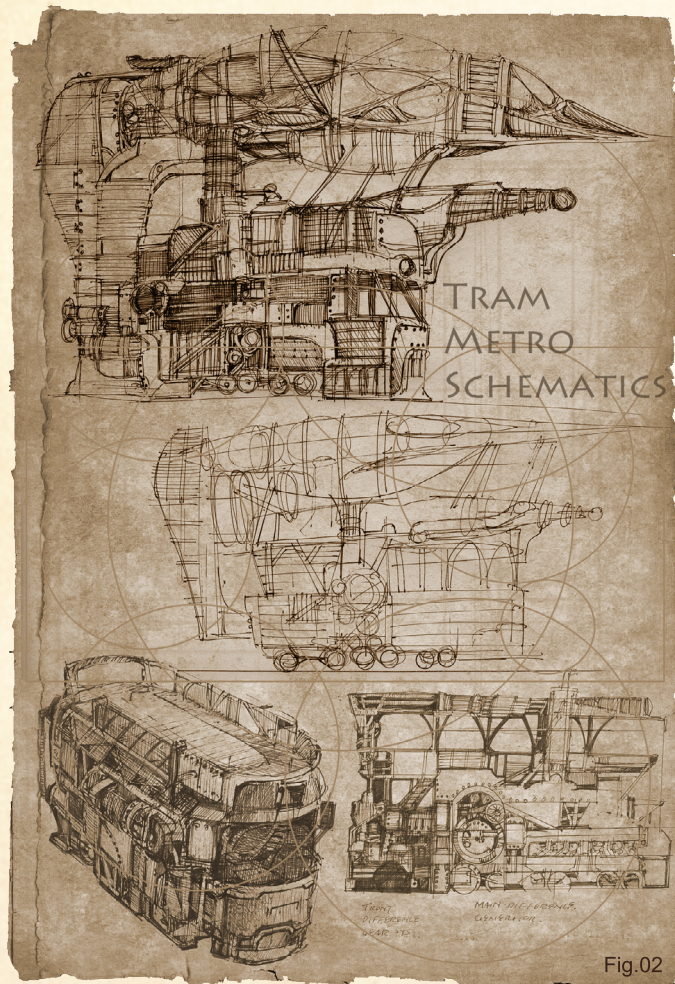
So, apologies dear ladies and kind sirs whilst we adjourn for tea in the nearby Transit Cafe to allow for the completion of the retrofitting. Meanwhile, one of our plein air artists has taken the opportunity to produce a rapid sketch for completion at a later juncture.

Journey to D'Vinci

Finally, our tour has taken off safely via the Transit Arch, towards the mountainous Village of D'Vinci.For it is here, that all the brilliant inventions of Astronomy, Mining, Sail Barges, Research into the Noble gasses and so forth were discovered and pioneered.

I forget to add that , on occasion strange elemental hazards of nature do visit this strange

Fig.03

Fig.04

Village in the mountains. Such that, it is not often unusual to have both a beautiful verdant spring morn, followed by hail and snow at noon, that rapidly melts into a warm summer rain and ending with a perfect golden glaze of sundown. And sometimes all of the above in a flash.

We can see in **Fig.03** a value sketch of the approach to D'Vinci produced in sepia washes featuring the vast looming relic that both serves as a haven for D'Vinci engineers, powersource of its amazing technologies and natural abberation of its local weather and more unusual levi-stone properties

Tram Metro Retrofitting

During our short break within the Town of D'Vinci, one of the artists has just completed a painting comprising of the scene at the Tram Metro. Thus, we have time to share a brief dissection of the painting produced. In **Fig.04** we can see a plein air sketch of the TramMetro being worked up into a full painting

En Plein Air: French expression - *'In Open Air'* used to denote the study of light and shadow on location, a revolutionary artstyle utilized by 19th Century Realist to Impressionists. They believed that rather than rely of various formulas, one should trust your own eyes and paint from life, what you saw and perceived. Thus, for environmental and landscape artists,

this practise of studying from life is fundamental in evolving and growing as a artist, and to paint with light.

With reference to the image, the painting can be distilled into a four part process:

• **Block In:** The initial image comprises of main tones and shapes worked into a plein-air sketch. Diffuse lighting and various bits of machinery are seen throughout the workfloor, and all the key features of the subject matter should be noted. A rapid 30-40 minute colour sketch such as this is sufficient (with additional linework/information such as that gleaned from the Tram Metro schematics – see **Fig.02**) to be worked up further in the studio.

• **Arrangement:** Once within a studio (or a quiet area to work) environment, the first step is to rearrange the various elements into a composition, that would both attract and appeal to the innate sensibilities of the viewer. The diffuse lighting is strengthened, to provide focal direction whilst still retaining the soft overall ambience. In addition, various objects within the scene can be grouped and arranged within a complementary manner.

• **Setting:** Sometimes to complete a painting, one needs to remove all foreground

objects to paint various elements in the background and to consolidate the design overall. In this aspect, various wheel & brake clamps are implemented onto the TM transport, and elements of a oil spillage can help gel the horizontal plane. Rail tracks are also implemented (featuring a middle track for electrical conduits in areas utilizing/receiving electrical powersources.

• **Completion:** The painting is finalized with diffuse lighting and atmosphere, and various crates and cargo being loaded whilst bands of light and shadows are cast across the TM transport, to help provide contrast and relief, thus accentuating its overall form as it is retrofitted with technology suitable for its onward journey (**Fig.05**).

Visual Art Direction: In the development of the D'Vinci township, various options and approaches come to mind. As such, for sake of brevity we will cover 3 approaches towards building a believable fictional ecosystem by covering life in a Medieval Town, textural building materials and constructional methods, sketchwork and ending with a map view to help aid in its development. It is via these various steps that a richer visual asset for film, animation and games can be approached.

Village of D'Vinci - Creating your own Village

As a designer responsible for the InterRealms of Steamworld, often the various Realms grow

Fig.05

and expand with linear progression of time. As such, there is a need to step in as Role of Town Architect/Builder and Manager.

Well, you are in luck. It just so happens that at this very Age, this very moment the townfolk of D'Vinci are in need of a new expansion in the allotment earmarked for expansion within the empty areas of the D'Vincian map. Various townbuilders and residents are in favour of a new sister township.

Thus, let us visit the Guild of Architects to help oversee the necessary ingredients of building a successful town.

D'Town Recipe

• **Ingredients:** Townhall, Village Square, Central Water Reservoir, General Goods store, Transport centre

  • **Additional Ingredients:** Bakery, Tannery, Inn/Pub, Hopper, Blacksmith, Armoury
  • **Resource Points:** Lumber Mill, Water Mill, Wind Mill, Ore mine + Refinery

  • **Alternate Local transportation:** Airways, Waterways, Pneumatics.

Over at the local Guild of Architects, within the Department of Logistics and Accessways is local master mason/builder. He explains that

the Main architect is away on travels at present and any help with the half finished plans would be much appreciated and ably executed by his team of assistants and master builders.

Using such a basis, one can approach the construction and development/layout of a city/township as a living/breathing ecosystem rather than one or two unique art assets. As such, this will help the artist develop an integrated and functional living space, that can be especially useful for level design within games and augmented reality developments.

Visual Direction: Style & Materials

D'Vinci as a fictional blend of medieval/high Renaissance. As such, one approach is to perhaps look at existing architecture and re-imagine such time period within an alternative setting.

Starting with a look at rooftops, this often forgotten element of a township/city is the quintisential character of any medieval township as the overall forms and shapes seen from within and without, form the overall horizon and landscape when approaching a township. In **Fig.06** you can see a study of various rooftops at Trafalgar Square, London.

VIEW OVER TRAFALGAR SQUARE
NATIONAL PORTRAIT GALLERY
LONDON

Fig.06
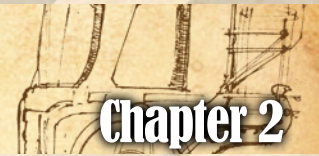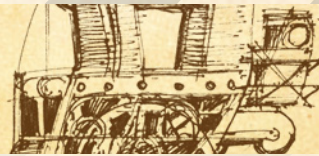
Another approach is to consider the primary function of medieval life. Such time periods often consist of main central areas of worship and congregation such a town guildhall, cathedral/church or town square interspersed with various allotments for housing consisting of a mixture of grand multi-storeyed townhouses to poorly constructed rickety townhouses of 2-3 heights around any opening, orifice or allotment. We can see some main shapes & forms of Medieval D'Vinci in **Fig.07**.

In addition, one needs to consider the building materials used for such buildings/constructions - a mixture of stone, recovered wooden ship timbers, slate, granite, decorated marble, stone. Take for example the use of stone, this can be often quite varied especially where such stone cladding is more decorative externally than say, for functional construction purposes, which tend to be more limited by regional and transportational limitations (**Fig.08**).

Larger constructions such as fortresses and administrative constructs can often go to lengths to obtain rare soapstones, decorated marble/granite/ stone relief panelling and exotic woods/materials to cater towards the more

GUILDHALL, LONDON

Fig.07

extravagant and lavish tastes of a regions ruler/administrator.

Design: Sketching the Medieval life

The next aspect of developing and designing a

township is to imagine life within a medieval (steampunk) township.

Using **Fig.09** as a main reference point, of particular interest are various bridges and connections between townhouses within

STONEWORK

Fig.08

TOWNHOUSES

Fig.09

a medieval town. Notice how narrow the alleyway appears to be, in ancient times such a passage would be the norm as the main street (whereas in Roman times, the main road would be foursquare the size and width of the alley above). For even narrower back alleys, imagine more congested and narrower alleys 1/4th the size of the alley depicted above (often around 5-7 feet in width). One has to recall that folks in ancient times were much shorter and smaller than our current modern weights/sizes.

The next aspect is to perhaps explore the main areas of congregation such as a place of worship. As such, let us re-imagine the Gran Cathedral of D'Vinci (**Fig.10**). For this aspect, blendings of Romanesque roofs and pillars, interspersed with grand statues and Gothic arches help provide a sensation of larger than life, as the inhabitants walk up these elaborate stairways - filling them with awe, piety, humility and reverence.

SIDE VIEW ELEVATION SKETCH

GRAN CATHEDRAL TOWN OF D'VINCI
Fig.10

BRIDGE TO D'METRO NOMUS

UPPER STREET HULLED

- RECOVERED TIMBERS
- GRANITE
- SHINGLE
- BRASS/COPPER.

LOWER PORT

PORT OF D'VINCI
Fig.11

From the elaborate grand buildings, let us next re-imagine most utilitarian areas such as the Port of D'Vinci (**Fig.11**). For such an area, a good aspect to explore would be the various buildings and materials used in their construction. In addition, let us imagine that this port had to be built towards a reclining topography. Townhouses of such a period would tend to be narrow but tall townhouses with two to three level of heights, with high ceilings and elaborate frontages for the more well to do. Stone bases and slate roofs were the norm, often using local resources and materials. In addition, recovered ship timbers are incorporated within the various roofs, and we will explore this element further.

Imagine, that the industrious builders of D'Vinci can often be short of local resources. However, what is available in large abundance are various ships that are too heavily damaged or shipwrecks that are to be recovered within the region. Thus, it is a simple progression to sketch and develop designs of housing and transport
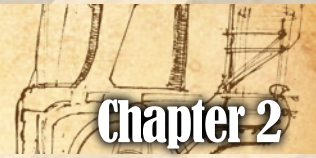
built purely from the hulls of ancient ships and wrecks (**Fig.12**).

In this instance, we can conveniently utilize the main hull of a small trading ship for the roofing of a Mill workshop, and construct it from steel, stone and recovered ship timbers. In addition, a small black iron reinforced forge is attached and thus, should be well built and ventilated away.

Lastly, let us incorporate all these elements into a simple town sketch down the main street (**Fig.13**). The view, thus includes a look out onto the various rooftops, ship hulled buildings and tall narrow townhouses, that can serve as a template for future paintings/compositions.

Aerial Views

Lastly, the best and simplest way towards building a city is perhaps by drawing a plain old map. Many successful and well loved stories, always involved a crude map and from whence, grand epic world building could begin and serve as a basis for lost treasure, high adventure, dark fantasy and epic greatness.

SURFACE MATERIALS - GRANITE & SHINGLE

WINCH

WORKSHOP/MILL.

PORT OF D'VINCI - MILLHOUSE

Fig.12

Fig.13

THE
SHIP
WRECK

TOWN OF D'VINCI - EARLY PERIOD

Fig.14

AERIAL
VIEW
SKETCH

TOWN OF D'VINCI - MID PERIOD

Fig.15
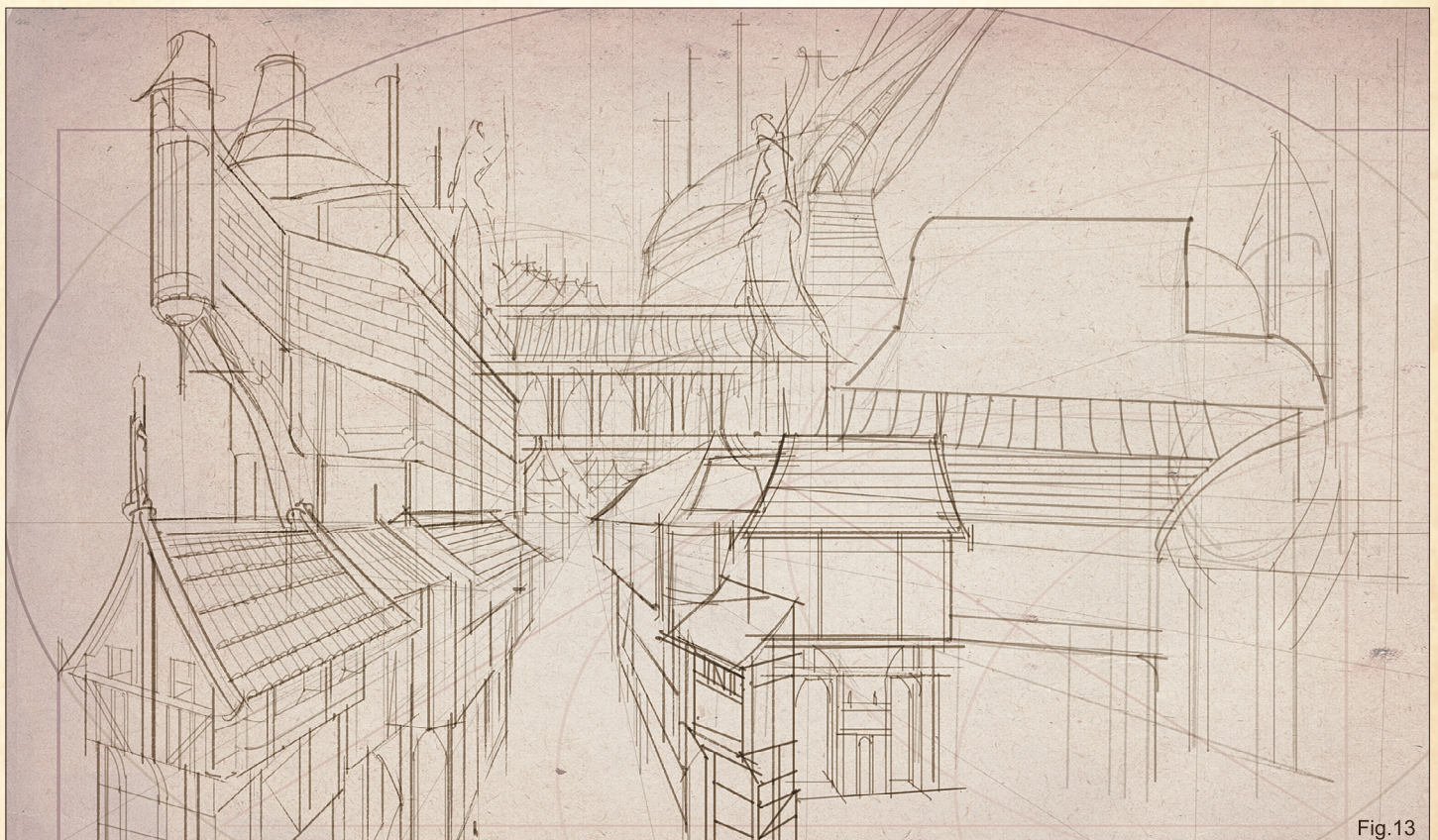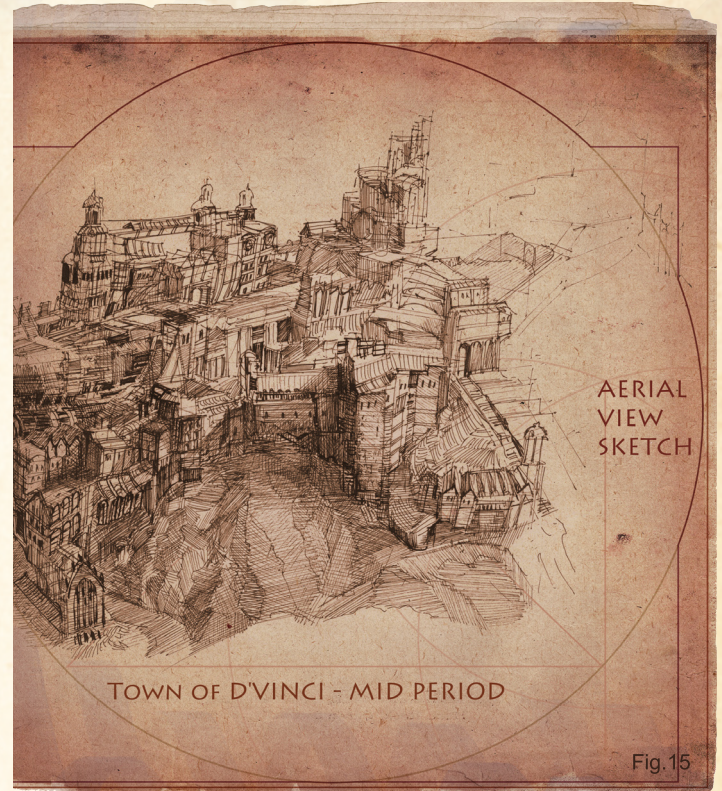
Thus,

In the beginning, there was the map....
And from this map, grew a CITY.

And so forth...

One thing that features prominently in fantasy novels, and games of yore is a world map. If you had to develop your own world, perhaps it is both logical and prudent to layout the key areas of interest and prominence, followed by any gaps in between occupied by secondary and tertiary structures, and a hodgepodge of filler inhabitations.

If you look at any old world city in the current day, the layout of streets and squares and buildings may not have any coherent structure on initial impression. However, it does have a logical practical basis. Inhabitants build for absolute practicality, and convenience.

Thus, most farmsteads would have logs stacked within easy reach but not next to a fire hearth which may result in flammability, and

thus where to site stables, livestock and such were all gleaned from practical considerations, experience and previous accidents.

Location of townhouses and streets were often built towards allotments and located towards local watering holes and wells, and how well one was in society determined various other considerations as decorations, stronger robust construction materials, and so forth.

HISTORY: D'Vinci Early-Mid period

The preliminary steps are best explored by sketching how such a township could have evolved. These can be rapid sketches with ink and quill (or pen) on various parchment.

In the realm of D'Vinci, it was originally said that the first inhabitants espied this relic from ancient times, and decided to build an abode. Upon further exploration, the first inhabitants found all forms of tools, technological wonders and automatons that helped provide bountiful harvest, food, water and a safe haven from the extremes of weather.

In time, their first civilization of engineer inventors came to inhabit this Realm and established a society of high arts and craftmanship, featuring intense studies and philosophy into sacred geometry, arithmetic and astrology. Being within the mountainous regions near the roof of the world, the inhabitants of D'Vinci felt they were closer with the oneness and thus initially built vast vertical temples and areas of worship dedicated to sacred geometry. **Fig.14** shows the early period township of DVinci - illustrated as a gigantic ship relic within the high mountains with few grand structures and inhabitants built into it.

This soon grew into a thriving village and subsequently a powerful small trading community filled with tinkerings into the machinations of the various Realms, and exploration into all things arts and mekanical. We can see in **Fig.15** an example of mid period township of DVinci - featuring improved battlements, fortifications, inhabitants and stripping of the Vician relic into a useful fortress township.
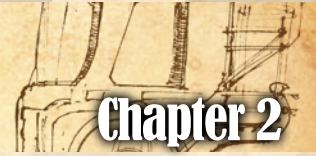
The Aerial Illustration

Saving the best for last, we can establish this scene with a bit of moss and snow (**Fig.16**). Let me explain.

With limited resources, one has to be a bit creative, and take the approach of studying miniature moss gardens and such when approaching an aerial perspective view. This view was taken during one of the many recent winter showers (apparently one of the coldest winters in London in many many years) during a walk through the London Guildhall and high gardens of the Barbican.

Using one's imaginations, and a simple camera one can thus scout various locations to feature your high mountain city (much like a location

Fig.16

scout) and thus plan accordingly. Pebbles become mountain peaks, and moss become vast plains of forest covered with ice fields. Thus, the next step forward merely comprises of 2 parts.

Step 1: Layout sketch (**Fig.17**). This is fairly straightforward involving a layout of various shapes and buildings relative to an established perspective and need not be a intricate prolonged affair.

Step 2: Is a bit more wordy and involves a 4 stage process (**Fig.18**).

• **I Block In** - A low saturated wash of grey blue-purple tones are roughed in over the preliminary linework, with various shapes and buildings blocked in relative to the general lighting (2 O'Clock). Rocks that protrude and areas with significant snowfall are blocked in. And far off mountainous regions are planned out.

Fig.17

BLOCK IN   TEXTURE & DETAILS   COLOUR GRADE   MOOD & ATMOSPHERE

Fig.18

• **II Texture & Details** - One way could be to paint every single village/hamlet/roof in or perhaps, to initially layout everything on a square grid and paint in the general shapes, lakes, gardens and squares and subsequently transform it onto the illustration. For this, various coloured roofs, cobbled roads and garden paths were painted. Subsequently, small village squares and town allotments were built and arranged accordingly.

• **III Colour Grade** - Subsequently, a colder green blue overcast sky predominates and helps to gel the overall scene. Areas of light and shadow are demarcated, with areas in relief receiving a cold blue tone for snow, and lit areas a warmer yellow tinged cast.

• **IV Mood and Atmosphere** - Lastly, aerial perspective, low lying clouds, rain, mist and fog are all added to sell the sense of being within this large aerial scene.

To complete the illustration, all that is required is a large frosted frame with which to depict this scene.

End of D'Vinci Tour

Welcome back to the transit centre, and I hope you have enjoyed our brief tour of the quaint fortified town of D'Vinci and a visit through the various plazas and workshops.

If you would any further information, advice or additional reading, please find out more below, or contact us at **workshops@opusartz.com**

For our next tour, let us next meet within D'Machinis nexus for the onwards journey towards D'Metronumus Realm whereby Gears, Clockwork and Springs feature prominently within the life and society of this Era (**Fig.19**).

GREAT CANTILEVER BRIDGE
D'METRONOMUS

Fig.19

Chee Ming Wong

For more from this artist visit:

http://www.opusartz.com

or contact them at:

chee@opusartz.com
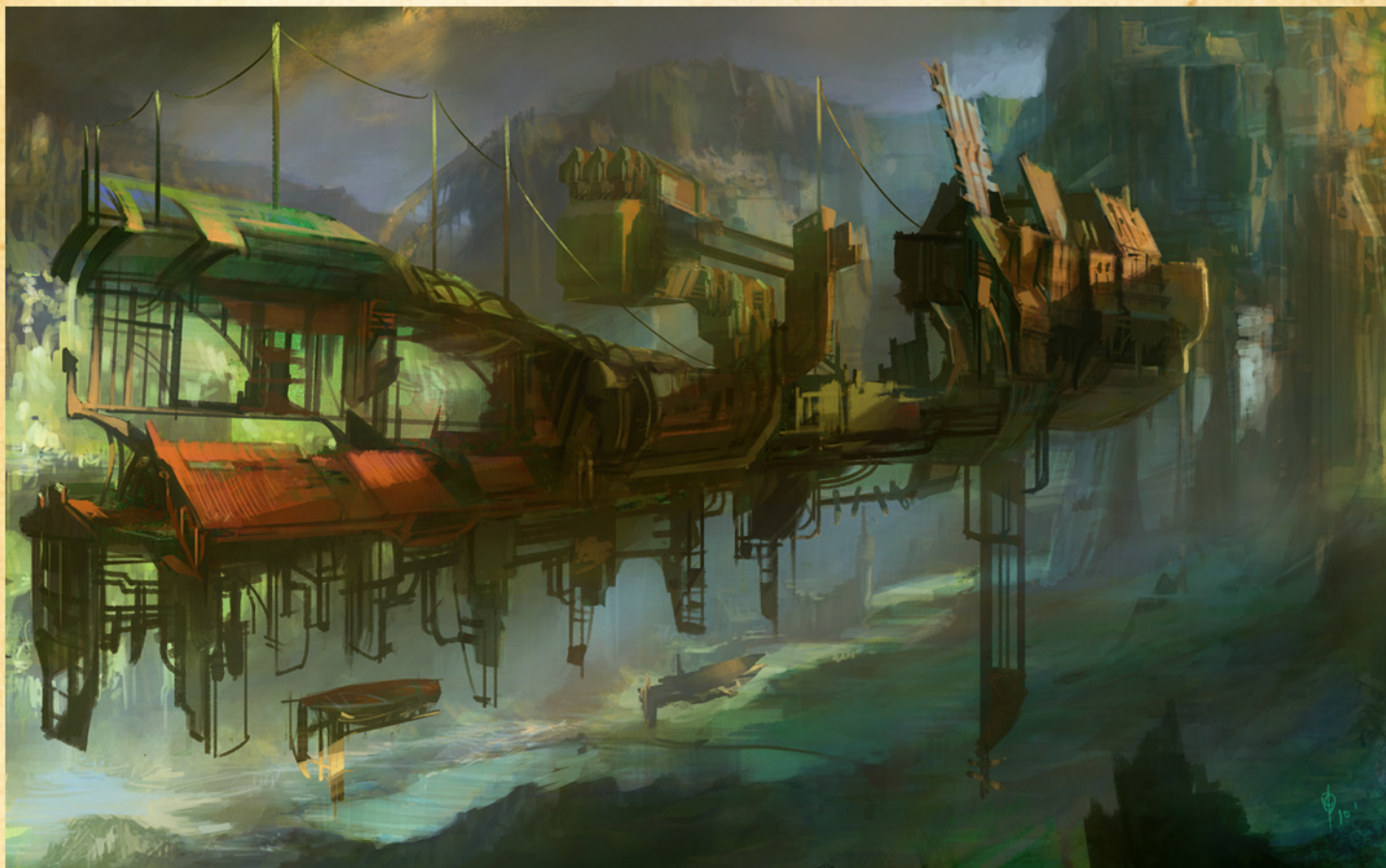
D'METRONOMUS

Painting Steampunk Environments: Chapter 3 - D'Metronomus

Software Used: Photoshop

D'Tour - Part III

Welcome to these series of workshops, encompassing the Five Ages of SteamPunk within the alternate Realm of "Steam PanGloria Globus the 3rd" (SteamWorld for short).

Our tour is now midway through the InterRealms and encompasses different eras and themes within the five interconnected districts of **SteamWorld** (D'Automobilis, D'Vinci, D'Metronomus, Diesel & D'Inginis) and administered by the central transit & engineering hub of the Guild of D'Machinis.

Previously, the first leg of the tour started within the **Victorian Era of D'Automobilis** - whereby, we had the opportunity to briefly discover how transport became the mainstream thrust of the Brittanic Victorians, starting with

the steam engine. Our tour also looked into designing and developing steampunk transport and environments using a themed period as a starting point. Subsequently, the second aspect of the tour involved travel within the Medieval Era of D'Vinci of high renaissance architecture, places of worship and towering edifices of rock amidst a skeletal frame.

Let us leave our transport behind for now and continue the journey on foot. For it is thus, that the realm is better seen, felt, heard and appreciated with the artists eye the walk of the First Sone. This is experienced via the crossing of one of the vast expanses of the skybridges (an amalgamation of the five disciplines, that have fused together these constructs and the great sky port) into the Realm of D'Metronomus. For here, it is where the first Sones discovered its raw potential for artifice, and sought to fuse aether with the raw metals and ore mined within, to form the Five principles of Alchemical Mechanics (A'Mekhanos).

D'Metronomus: Essence of Fantasy Steampunk

The Realm of D'Metronomus is old. By far the oldest of the Realms, it was once quiete desolate and derelict relative to the bustling ports of the SkyBridge.

Indeed, a soujourn deep towards the old quarter still reveals the raw energies that suggest vaguely the mysteries of how this Realm came to be. For you see, much of D'Metronomus failed to exist when it was first inhabited. That is, the vast inhabited ArcBridges and intricate weave of Levisones are said to have been literally sung into existence by the vast Guild of Sones.

(**Fig.01**)Legend foretells of the first Sone, an explorer known as D'mar Sonas who discovered the strange qualities of this isolated mineral rich land mass. Some experts predict when delving into the Legend that once there was a ancient sea in this region and over the millenia, periodic shifts in land plates and multiple land

Fig.01 - A traveller walks the road through the old quarter. It is autumn, and leaves of all colours red, yellow and green scatter in abundance amidst the aeons old functioning equipment powered by aether.
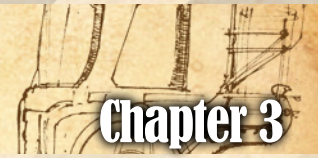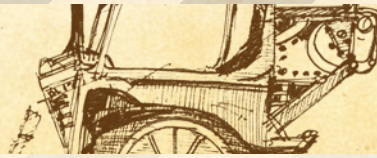
Fig.02 - A walk through the old quarter warehouse district (adjacent to the Skybridge Pierpoint centre.

quakes resulted in the draining of this ancient sea, resulting in the impossibly saw toothed land struts and bridges jutting out of the entire region.

Art Direction

For the art direction, a decision was made to implement an oriental twist to the steampunk genre. In part, this is reminiscent of the travels to Realms of the Bund, Shanghai - which combines the aesthetics of Art Deco west meets Oriental construction, materials and shapes.

In that regard, it also allows for a exploration of an overgrown, derelict aged process combined with strong graphic design visuals thus reflecting the eastern art styles of saturated bright colours.

Old Quarter

As one enters the Old Quarter of the Sones, of particular interest is the Old warehouse district.

For it is here, that in its heyday the first SkyBridge pierpoint was thus established, and provided trade and commerce in gears, ancient

constructs, and barrels of raw refined aetherium to all the five realms. Whereas, over time the needs of the Realms have thus expanded and the great skyport and a gigantic construct of Seven ArcBridges form the gravity defying construct of the skyport (**Fig.02**). held together by the fusion of both Sone and Alchemical Mechanics, it is here that old and new technologies lead the way to new constructs, and possibly new Realms.

Nowadays, the raw aetherium has been mined to depletion and it is within the partially submerged Realm of the master pumps and gears of D'Mechanis that various caches of Aetherium may be located that allow for InterRealm maintenance, and construction of future constructs.

To SkyBridge Pierpoint.

Finally, our journey takes us into a clearing from which we can take a short break for lunch and enjoy the view.

So, let us take the opportunity to review the first two sketches and deconstruct how our group of artists developed these paintings.

For this sketch (**Fig.03**), the composition and finish was approached as a Four stage process.

1. **Block in Large Forms:** - Key forms are blocked in with one value, whilst areas in relief (receiving direct light) apply their own singular value in contrast. Lastly, the background has a low contrast monochromic value approaching neutral grey
2. Perspective Guide & Focal Interest:
3. Colour Grade & Atmosphere:
4. Contrast & Details

Once the core elements are in place, the next aspect is to take the sketch into a fuller painting.

Moss & Lichen

Thus lighting, ambient light, bounced light and local set dressing eg. Moss & lichen, are applied on various elements of derelict equipment and

1 Block In Large Forms

2 Perspective Guide & Focal Interest
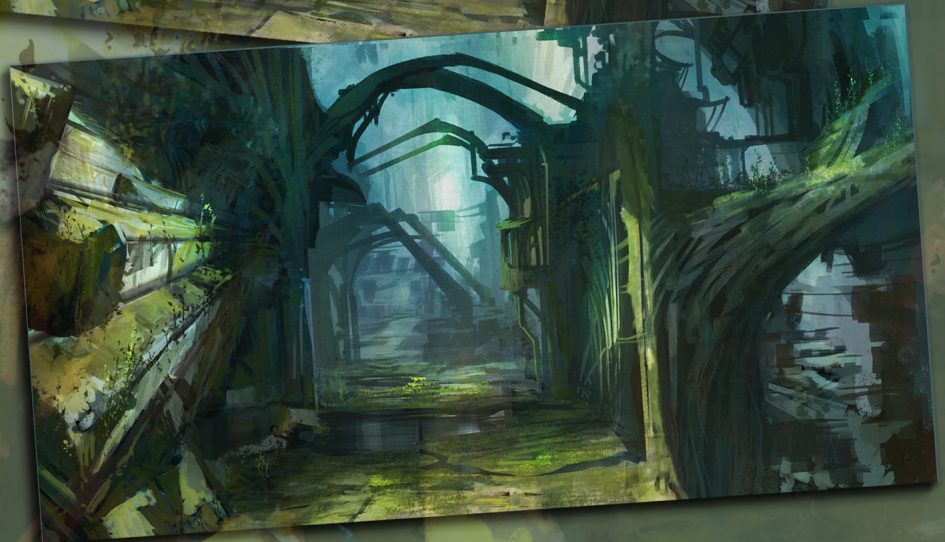
3 Colour Grade & Atmosphere
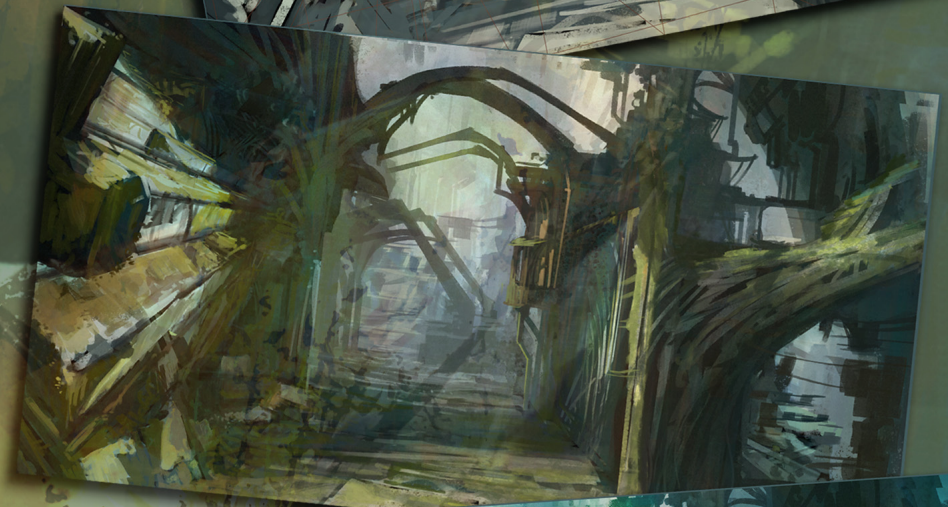
4 Contrast & Details

Fig.03 - Four part process to start an image in colour
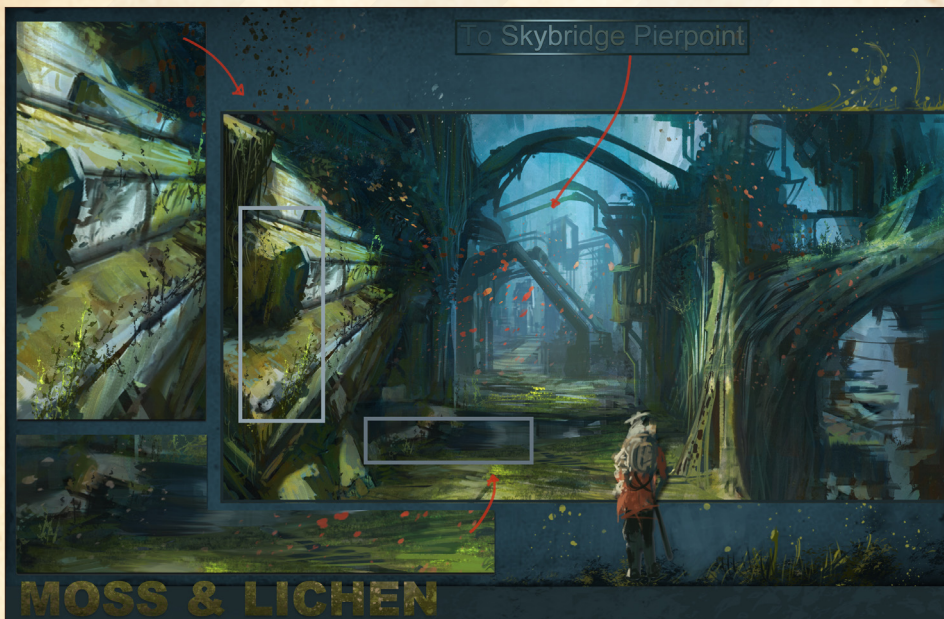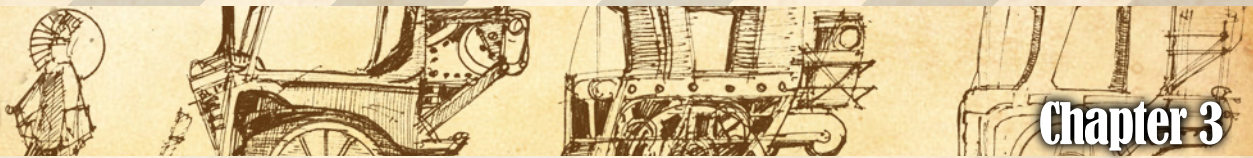
Fig.04 - Bringing a sense of aged, calmness and zen serenity via a moss and lichen painted setting

Moss & Lichen Types
Fig.05 - Illustrated Lichen/moss

Building A SkyBridge Fig.06

pipes that through sheer age, weathering and time tends to form semi-abstract shapes akin to naturalistic roots and tree branches(**Fig.04**). Certain machinery taken on a fossilised interlocked stony appearance akin to that of basal columns seen spectacularly within the Giant's Causeway (Antrim, N Ireland) or similar igneus rock formations of the Devil's mountain (Wyoming).

This aged effect has to be applied meticulously throughout the whole scene, and suffice to say a traipse within a rainforest featuring a mossy forest clime, is the best real-life reference for such a scene.

Moss and Lichen are an interesting pair (**Fig.05**). They are a composite of a fungus and a photosynthetic partner (green algae or cyano-bacteria). Lichen come in all shades of greyish blue-green, to yellow-green - and derive its colour in part from its enslaved photobiont - of which there are over 13,500 species! In terms of shapes they can be leafy, crusty or flaky, branched, powdery or gelatinous and are extremely hardy, being often found living in extremes of weather conditions.

In contrast, moss are soft small plants.They germinate as spores sexually in the presence of water. Often found in colonies, they prefer the

damp and low light conditions. Aesthetically, moss is cultivated to recreate forest carpet scenes and is said to bring a feeling of zen calmness and peacefulness, especially appreciated within Japanese moss gardens. In terms of art, these form brilliant saturated hues of vivid greens and viridians, and are suited in depicting rich damp forest scenes. (**Fig.06**)

Old Quarter Warehouse

To carry this theme on further, we choose a top down view overlooking the Old Quarter Warehouse.

In this instance, we try a different approach to painting. The importance is to establish **tonal contrast** between various shapes, and allow the various abstractions to appear accordingly. Due to the loose manner of which these kind of paintings can progress, it is vital to have a back story or designed element prepared beforehand so as to steer the end result into the direction of painting required. (**Fig.07**)

The advantage of this approach is the images tend to have a richer, more vibrant end result. The offset of this is that, as your own art direction, artistic execution and innate painting aesthetic offer various options and possibilities,

DERELICT SKYBRIDGE
Fig.07 - Building an old Sky Bridge

it may tug you in opposing directions, and can end up horribly (whereby certain parts of the image look good and contrariwise, look awful / subpar indeed)

Thus, once you have a vague notion of the direction your painting is headed it develops a life on its own. Allow for some **happy accidents** and a gentle nudge here and there (use the force Luke) should see you in good stead towards the end result. Almost as if you had planned it all serendipitously.

Indeed, like the force an element of Intuition is crucial towards the successful outcome of such a painting. One could argue Intuition is part of the knowledge of art theory, emotional intelligence and artistic insight manifests itself as an almost preternatural instinct of where to lay one's strokes economically, that a element of abstraction and focal detail provides continued contrast and delight to the viewer.

In the right hands this can often lead to reliable spectacular results, and in the novice hands sometimes you win, sometimes the piece is better left unfinished/unpursued to join the vast ranks of storage where stillbirth paintings go to rest and retire until a later such date of ressurection.

In brief:

1. **Large shapes and tonal contrast** allow for domination of the scene. In this instance, a diagonal shape suggests movement that leads the eye to the far left.
2. Akin to **moulding clay**, one can nurture and mould the shapes to form pipes, cylindrical forms interspersed with rigid rectangular blocks of wood, metals and various architectural constructs. Some suggestion of strong lighting from the top right is cast upon the forms, to aid in a sense of three-dimensionality. **Shadows or bands of light** across forms can often be pleasing to the minds' eye.
3. **Additional shapes** and secondary detail are etched in to provide support to the main shapes.
4. **Mood and Atmosphere** - involves some slight atmospheric perspective, accounting for humidity and amount of "air" between the viewer and the end object. It helps provide welcome relief and softens the overall painting.

Once all the main elements are in place, we can apply more of the same aging and weathering process as the painting before (**Fig.08**). Thus, one has to ensure that moss and lichen read well in both light and shadowed relief to ensure a believable read. Lastly, some slight colour

Fig.08

adjustments and balancing will ensure the overall image is presentable and reads well.

Skybarges

As we continue onwards from our short lunch break, we step through a shadowed arch onto a bustling port powered by gears, globes and mechanical wonders of all assortments. On to Pier 39, we espy a gigantic Levistone barge coming in to dock upon the great stone piers (**Fig.09**). Comprising of a amalgam of Levistone, aetheric sails and vast storage facilities to contain the rare aetherium, these behemoth ships ply the high air currents from realm to realm and slowly but steadfastly navigate the trade winds to capture and harvest the fine microscopic aetheric dust that permeates the upper atmosphere.

Much like vast shipping fleets of the sky, these barges may take weeks to months on end, to accumulate a significant amount of aetherium before pulling into dock.

It is here, within the high thin altitude and climes that navigational and astrological equipment can have the best view of the stars and orbits above. Thus, these barges are often occupied by a swarm of academia and astro-alchemical instrumentia to better divine the meaning of life or the birth of the heavens.
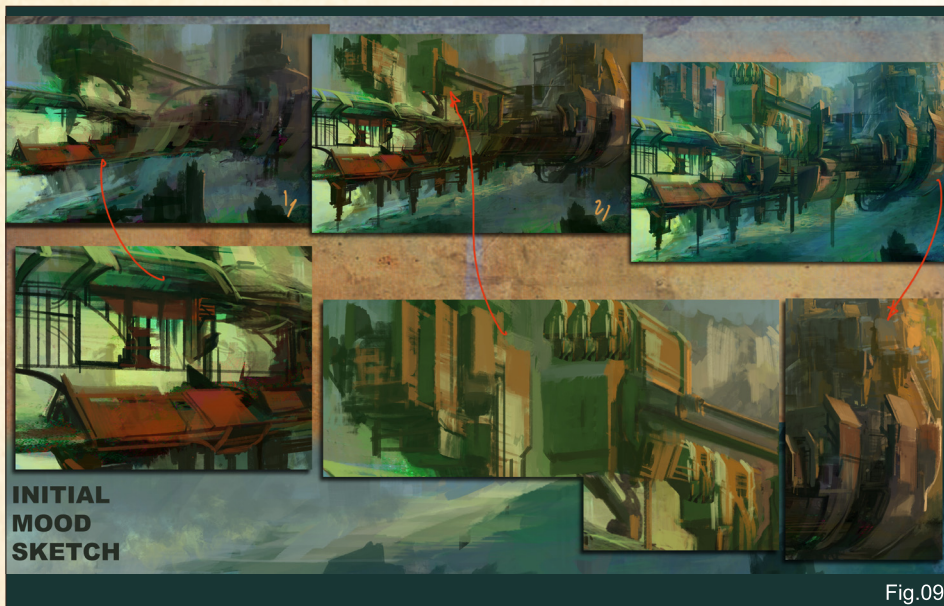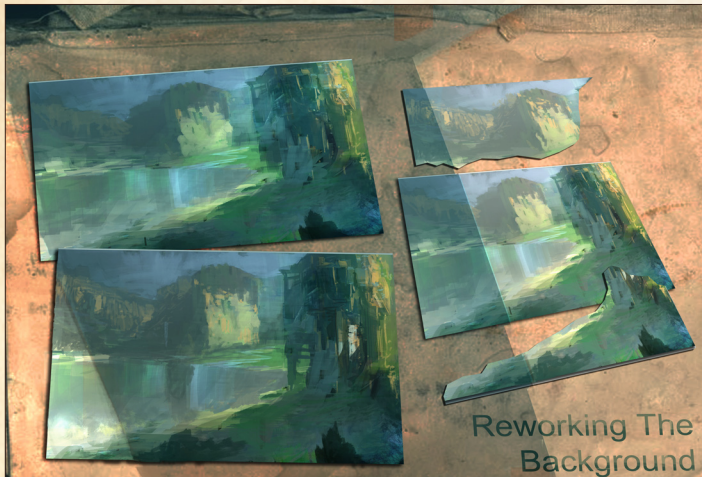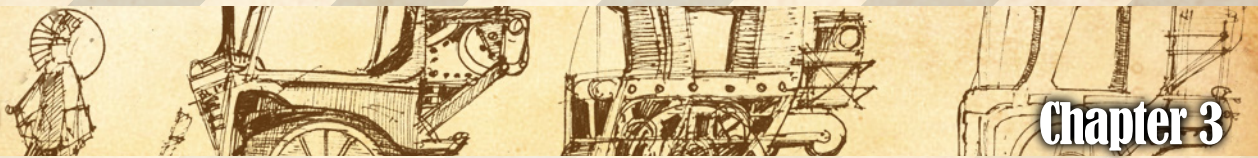

INITIAL MOOD SKETCH
Fig.09

Fig.10 - Mood sketch to explore colour, lighting and atmosphere

Fig.11 - Working from back to front, the background is revisualized

Building the SkyPier 39

Let us reconstruct such a skypier as it looks in its heyday. In the initial instance, we can use the same approach towards painting the Old quarter warehouse district in our final painting using a modified 3 part process.(**Fig.10**)

• **Large Forms & Contrast:** Block in large forms and establish tonal contrast in the initial instance.

• **Lighting & Supporting Forms:** Mould in supporting details and cast a directional and ambient lighting

• **Grade:** Grade the overall sketch to unify (NB: there is a tradeoff between overall cohesion vs the loss of detail/contrast/and distinctive elements within a sketch)

Fig.12 - Reconstructing the Sky Pier block by meticulous block

Once the initial sketch has been established, the next aspect is to deconstruct it to generate a more refined illustration.

Please note, that this sketch was produced painted on the big canvas, and with some forethought, perhaps one can be more organised in regards towards some forward planning. Perhaps you can have better luck and forethought in that regard!

NB: Another tradeoff in refining an image is the slight loss of spontaneity and immediacy generated in a mood sketch. Nevertheless, not all sketches go on to be sucessfull illustrations, and it is certainly worth going that extra mile or furlong to develop more consistent illustrations which create an immediate impact.

Constructing an Illustration

With the initial sketch as a base, the next crucial step is to provide critical analysis to deconstruct the image into its main components. To keep things simple, this image can be broken into the background vista and the foreground skypier. (**Fig.11**)

Starting with the **background element**, all foreground elements are selectively removed and stored away. Next, the main background is reconstructed to be reimagined to what it could be - without any obstructions or overlapping element. And finally, the focal detail, lighting and a background grade are applied to form as an overall background plate.

Going forward, we can develop the foreground elements of the pier - block by block. Utilizing repeatable shapes and elements, one can align these components towards a perspective grid. (**Fig.12**)

NB: Drafting a simplified perspective grid by hand each time, can allow you to think through the image beforehand, and thus help aid that intuitive process when you paint. Much like visual troubleshooting, each illustration has its unique challenges and rewards.

Subsequently, the task now involves rejoining all these disparate elements into a more cohesive whole(**Fig.13**). In addition, each block element should relate one with the other, so as to visually appeal towards the viewer as to its innate purpose and function.

In addition, using the perspective guide can be used as subtle visual guide for the viewer via the subtle use of colour temperature contrasts and shifts.(**Fig.14**)

In the perspective guide comparison, as shown above, various objects that receded towards the vanishing point form positive or negative shapes; some are placed utilizing the guidelines of the golden ratio, whilst the rest according to various nexus points along the 3 point perspective grid.

Lastly, the final image can be colour graded and focal interests added accordingly to desired finish and stylization. It is often best to leave the visual effect manipulations towards the end, thus allowing the core underlying structure to remain unchanged, should at a future point such changes become necessary.(**Fig.15**)

As a final design element, interconnecting pipings and vents are added alongside the whole Skypier, to reflect the mechanical steampunk nature of this large construct.

Thus with that, our daytrip of the mechanical realms of D'Metronomus comes to an end, and we shall reconvene at the local transit centre.

End of D'Metronomus Tour

Welcome back to the old world SkyPort of the D'Metronomus transit centre. Our tour has taken a look at the Old quarter, and learnt about the history of the Sones and subsequent

Colour Grading

Fig.13 - Lighting and basic colourgrade applied

Fig.14 - Perspective guide as a visual guide

visual storytelling in the development of visual world building and development of a rich visual vocabulary via development of a city as a whole. If you would any further information, advice or additional reading, please find out more below, or contact us at **workshops@opusartz.com**

For our next tour, we will abandon our retrofitted TramMetro in exchange for the DeepCable express which wil take us through the partially submerged diesel-powered Realms of D'Inginis.
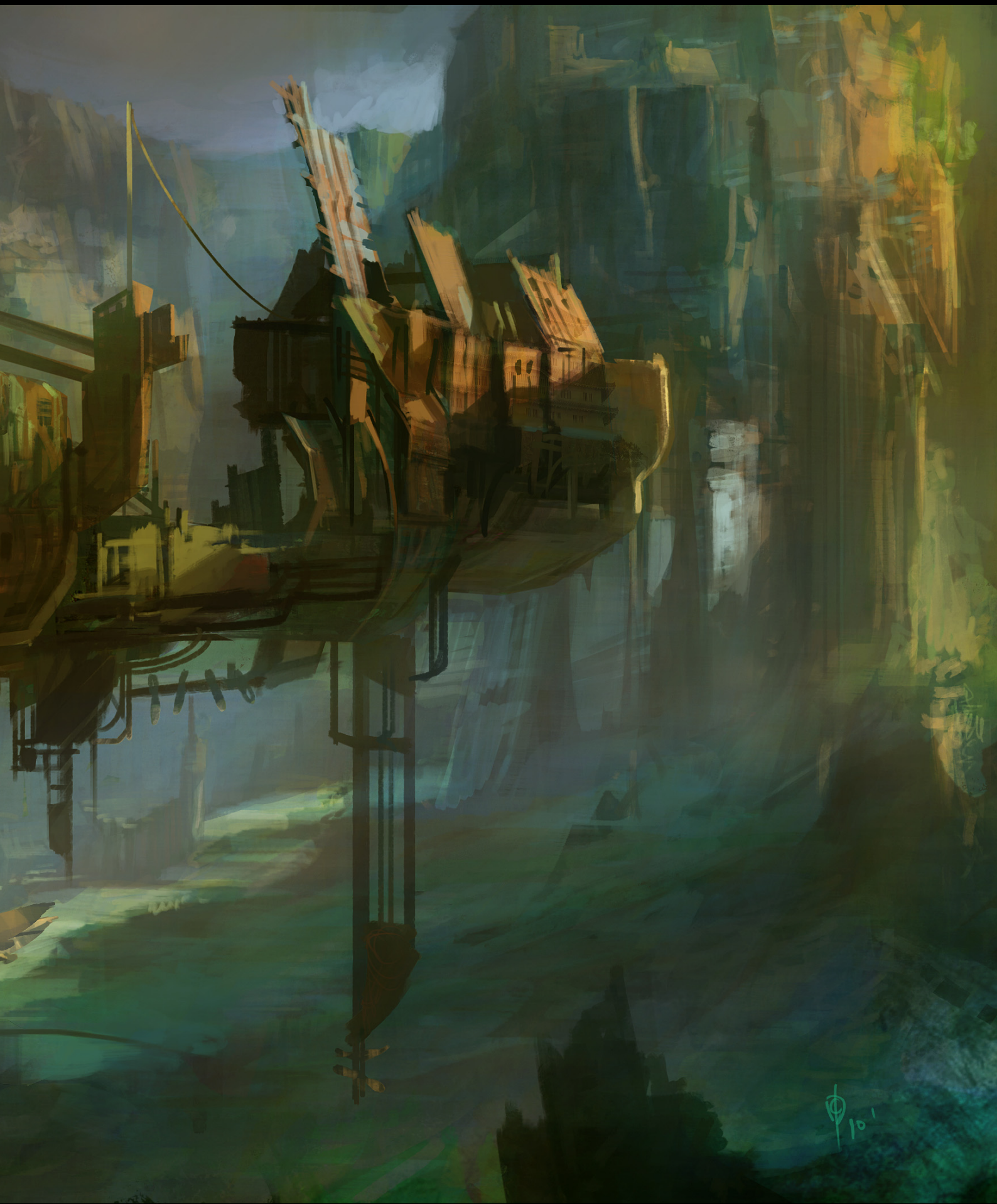
DIESEL

Painting Steampunk Environments: Chapter 4 - Diesel

Software Used: Photoshop

Realm of the Diesel Punk Engineers

Welcome to this series of workshops encompassing the Five Ages of SteamPunk within the alternate Realm of "Steam PanGloria Globus the 3rd" (SteamWorld for short).

Our tour is now midway through the InterRealms and encompasses different eras and themes within the five interconnected districts of **SteamWorld** (D'Automobilis, D'Vinci, D'Metronomus, Diesel & D'Inginis) and administered by the central transit & engineering hub of the Guild of D'Machinis.

Previously, the first leg of the tour started within the **Victorian Era of D'Automobilis** - whereby, we had the opportunity to briefly discover how transport became the mainstream thrust of the Brittanic Victorians, starting with the steam engine. Our tour also looked into designing and developing steampunk transport and environments using a themed period as a starting basis.

Subsequently the second aspect of the tour involved travels within the Medieval Era of
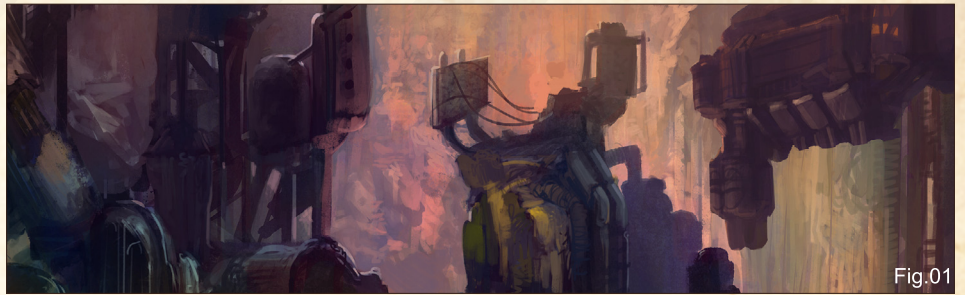
Fig.01

D'Vinci of high renaissance architecture, places of worship and towering edifices of rock amidst a skeletal frame.

Within the clockwork fantasy of the third realm D'Metronomus, our intrepid explorers undertook a historic tour within the oldest heart of the inter-realms whilst an appreciation of moss covered texturing of various elements was shared.

D'Inginis Diesalis

From the ancient heartland of D'Metronomus, we continue on our journey into the inner workings of the Fourth Realm.

It is here, that the tireless powerhouse of Diesalis powers the various furnaces and aetheric energies of the Steamworld. Key to this distinctive Realm, is the usage of industrial pipes, weldings, bolts and engine components. There is a minimalism when it comes towards aesthetic considerations, with the beauty inherent relative towards the prominent display the D'Inginis.

And thus at the magic twilight hour, we finally reach the border of The Drop.

The Drop

The drop represents a sharp demarcation between the cloud and mist of the ancient overgrown heartland of D'metronomus, and the pipe laden, humid underworld of D'Inginis Diesalis. It is from here we have to continue further afoot towards a lower vantage point of this chasm whereby we come across the derelict scrapyard of the Drop. (**Fig.01**)

It is here we can choose a suitable location to set up an evening composition from which to depict the merging of two styles. That of a diesel steampunk laden style and that of a overgrown naturalistic nature.

The first thing to note is that with such a twilight scene, one needs to work fast. For there will barely be half an hour to an hour before the light fades fast. It is also during this time that lighting can be at its strongest - providing strong contrasts and saturated lighting. (**Fig.02**)
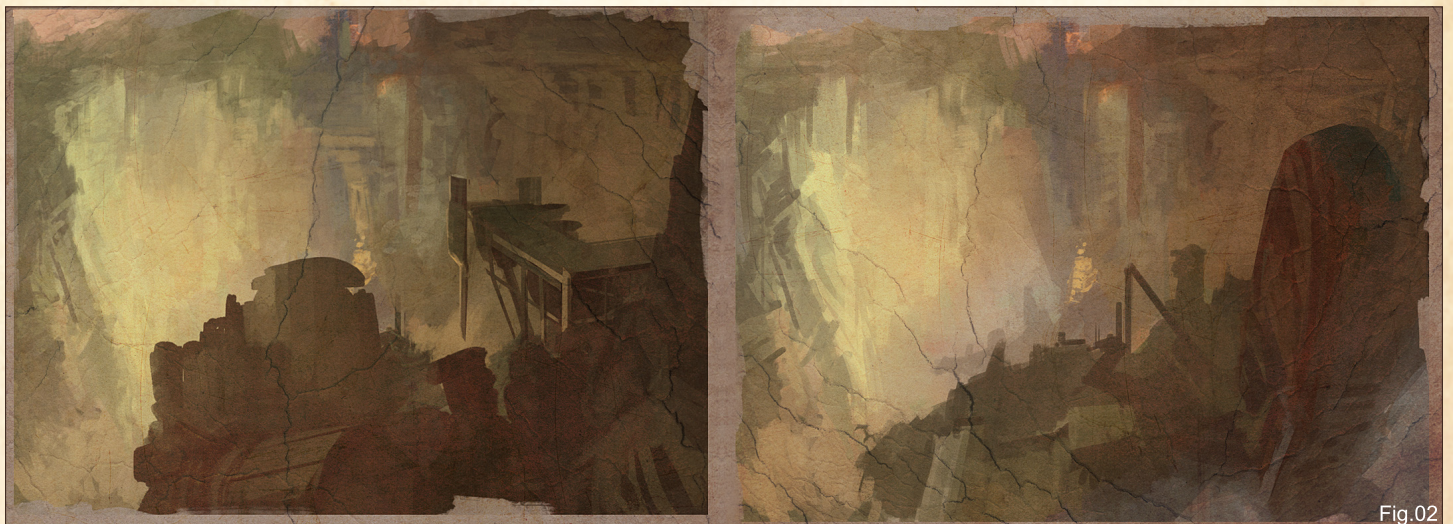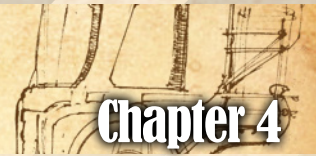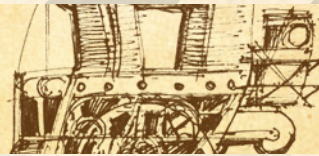

Fig.02

The initial canvas should be rapidly prepared with a rapid block out of the strong key forms and objects, thus providing a strong read (and contrasts). Two similar compositions are explored initially to depict a naturalistic harmony between a strongly lit scene, and one that depicts its steampunk nature.

The Composition

Following the initial sketch, one can combine the best of the two sketches to form the "bones" of the composition. (**Fig.03**)

One thing to note is a level of readability, whereby background is clearly demarcated from the foreground objects. In addition, the main lighting direction should be determined in order to plot the core shadows and local ambient occlusion.

Roughly translated into plain speak, this means a depiction of hard and soft forms, angular and
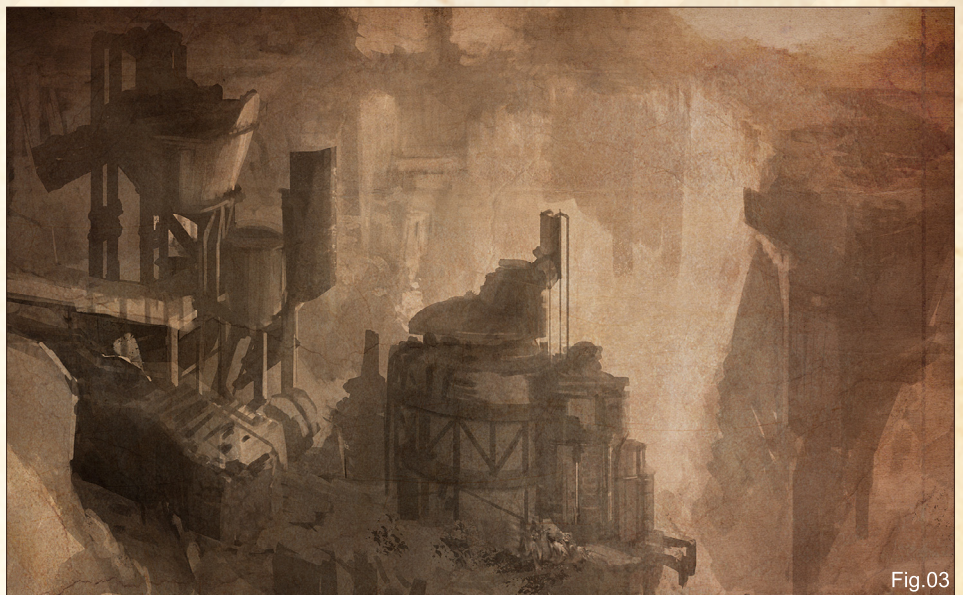
Fig.03
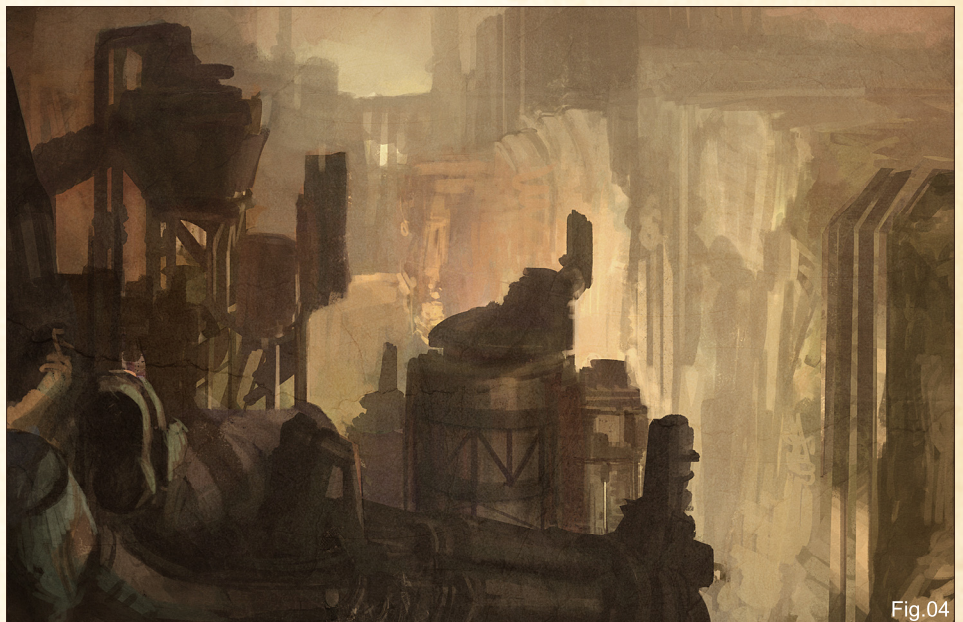
Fig.04

Fig.05
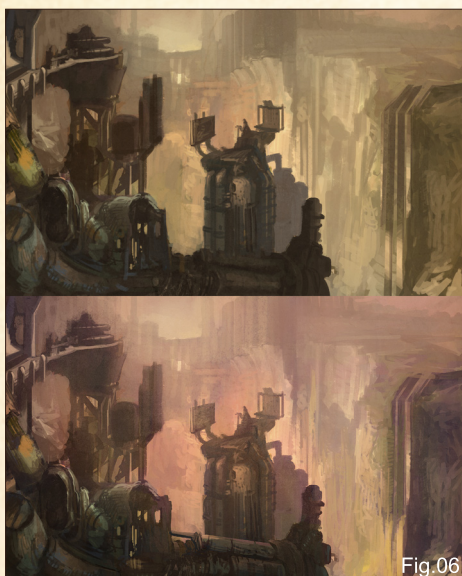
Fig.06

curved shapes and lastly low contrast values (objects in the distance) and higher contrast silhouettes (foreground). This methodology requires the usage of the canvas to provide a monochromic tone from which to build positive and negative shapes.

Shape, Form and Texture

Subsequently, we can start bulking up the sketch with some early introduction of warm tones throughout. This both provides an opportunity to unify various foreground objects with the same core shadows, and provide a textural warmth of a lower contrast and unified background shapes. (**Fig.04**)

The next stage affords one to work rapidly by bulking the main meat of the image with further focal details, whilst still keeping a loose energetic hand. Strokes and brushwork can afford to be confident and assured, reflecting a concious choice of simplifying certain details into a few strokes - denoting both textural quality, specularity and tonal form. (**Fig.05 – 06**)

Reference - Art Direction

To aid with the depiction of such objects, it can be useful to observe various construction scenes such as the reference provided within. Note, the level of regularity, large bold shapes of pipes within the photo (denoted with a yellow

Ref.01

THE LLOYD'S BUILDING, LONDINIUM
Ref.02

circle) - these linear shapes help anchor the main super structure towards the ground plane and thus reflect the need for solid, believable foundations. (**Ref.01**)

In terms of style, it is particularly useful to observe first hand an industrial complex (if possible). Here, we depict the "inside out building" of the Lloyds' building at One Lime Street, London as a suitable primer to depict the strong diesel punk theme of this workshop. Note, the use of parallel shapes, piping and reflectivity of its surface material relative towards the ambient (blue sky) surrounding. The ability to depict such similar shapes in various lighting conditions will greatly aid in the depiction of a dramatic steampunk artworks. (**Ref.02**)

Lastly, a warm pinkish atmosphere is added to the overall scene to capture the lasting rays of twilight and thus soften various midground shapes, and unify the background overall. (**Fig.07**)

Up-lighting

Uplighting can often be used to increase the dramatic effect of a low light scene. This effect is often prominently use within theatrical or museum displays, upon listed historical buildings and deco styled monuments & buildings. (**Fig.08**)

However to denote nightime scenes, one needs to be particularly observant of local lighting.

Fig.07

Ambient   Uplighting   Underwater
Fig.08
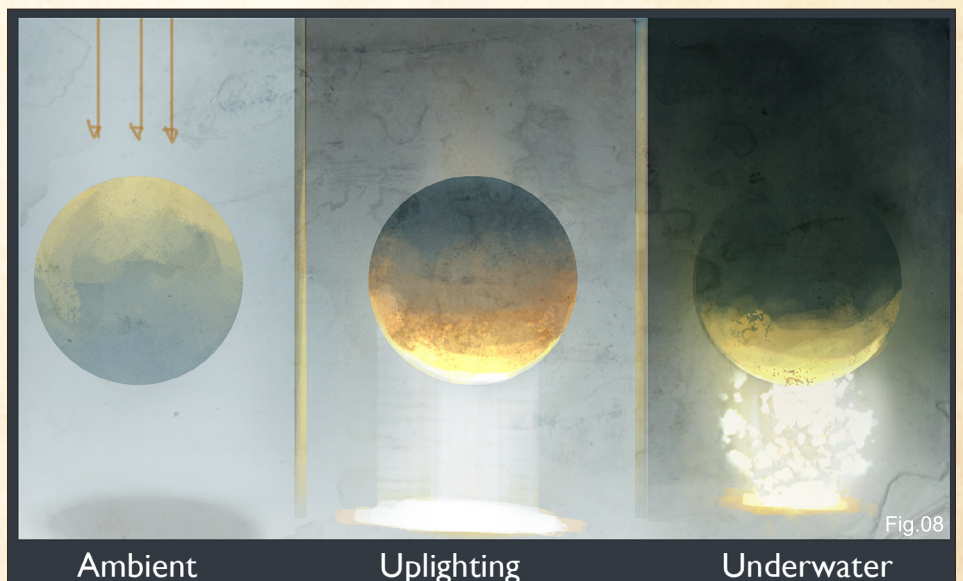
Notice how strongly various forms have a strong edge, with saturated bold tones and forms. In addition, objects in the distance tend to fade rapidly into black which is quite a contrast to phased fall off gradient in daytime. (**Ref.03**)

Ref.03

The Engine Room
1 Preliminary BlockIn

Having traversed towards the edge of the chasm, we espy the hybrid DeepCable express hidden within. Utilizing this mass transport we take the 5 mile deep journey into the heart of the engineering marvel of the Steamworld. Powered by a massive set of diesel powered levers, pistons and flywheels - it is here that sufficient heat and power can be generated to distil the aetheric powersource that provides free lighting, heat and energy for portable and general usage throughout the SteamWorld. (**Fig.09**)

Fig.09

To capture the look and feel of the massive engines herein, let us start by preparing a fresh canvas and block in all the main primairy shapes using large broad strokes via a simple chalk brush. (**Fig.10**)

The next step is to provide immediate focal detail. In this instance, we depict a massive angled elevator used to ferry large tunnel boring machines and supplies into the heart of this realm. Subsequently, we help unify the overall image with elements of lost edges and grain to provide a better overall read of the composition. (**Fig.11**)

2 Detailer

This next step is a more formalized aspect of blocking in forms and designing elements

Fig.10

Fig.11

BASE   FOCAL MID POINT   FOREGROUND OBJECTS
Fig.12

Fig.13

so they fit both perspective, proportions and communicate effectively as a solid set of objects to the viewer (**Fig.12**). In addition, surface materials are provided with the appropriate treatment - eg. such as providing reflective mirror-like surface materials for smooth metallic surfaces. (**Fig.13**)

3 ColourGrade - Detailing

Once the formalized aspect of firming up the details are complete, the next aspect is to provide a color grade for all the objects and scene.

Firstly, the composition is skewed slightly towards a hazy tan yellow feel to provide a colored monochromic base. This is followed up further with the addition of localised reddish
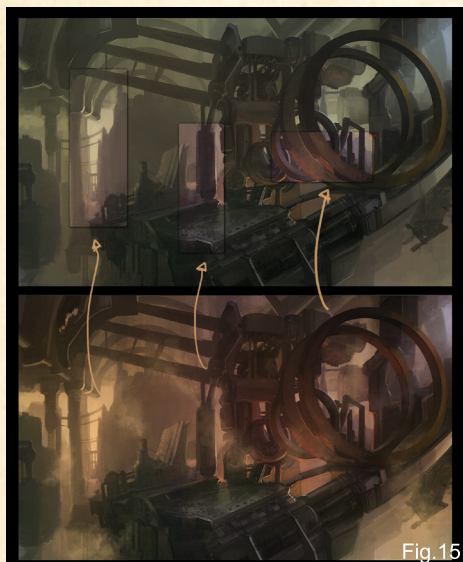
Fig 15
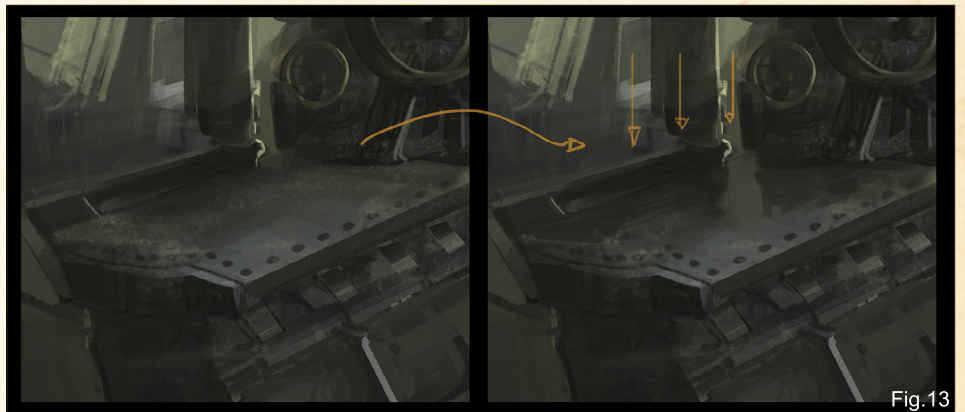
Fig.14

hues and complimentary dark greens (to denote different surface materials). (**Fig.14 – 15**)

Lastly, localised uplighting and reflected surfaces are rendered accordingly with small minor tweaks to represent the hot humid atmosphere of being enclosed within a furnace-like ambience. (**Fig.16**)

The Flood

Lastly, we will depict how to convert an existing image towards a more flooded feel, by literally flooding it. Firstly, let us briefly discuss our mode

of railed transport that would allow for such an undertaking.

In essence, a dual mode hybrid that is a cross between a tram and a submersible would be required. As such, it is simply a straightforward case of designing a plain bulkhead in the initial instance, without any additional distinguishing forms. Central to this, is what I'd liken to a horizontal waistline that denotes a seperation between the lower ballast/cargo of such a transport, and the upper division that would safely encompass our artist explorers.
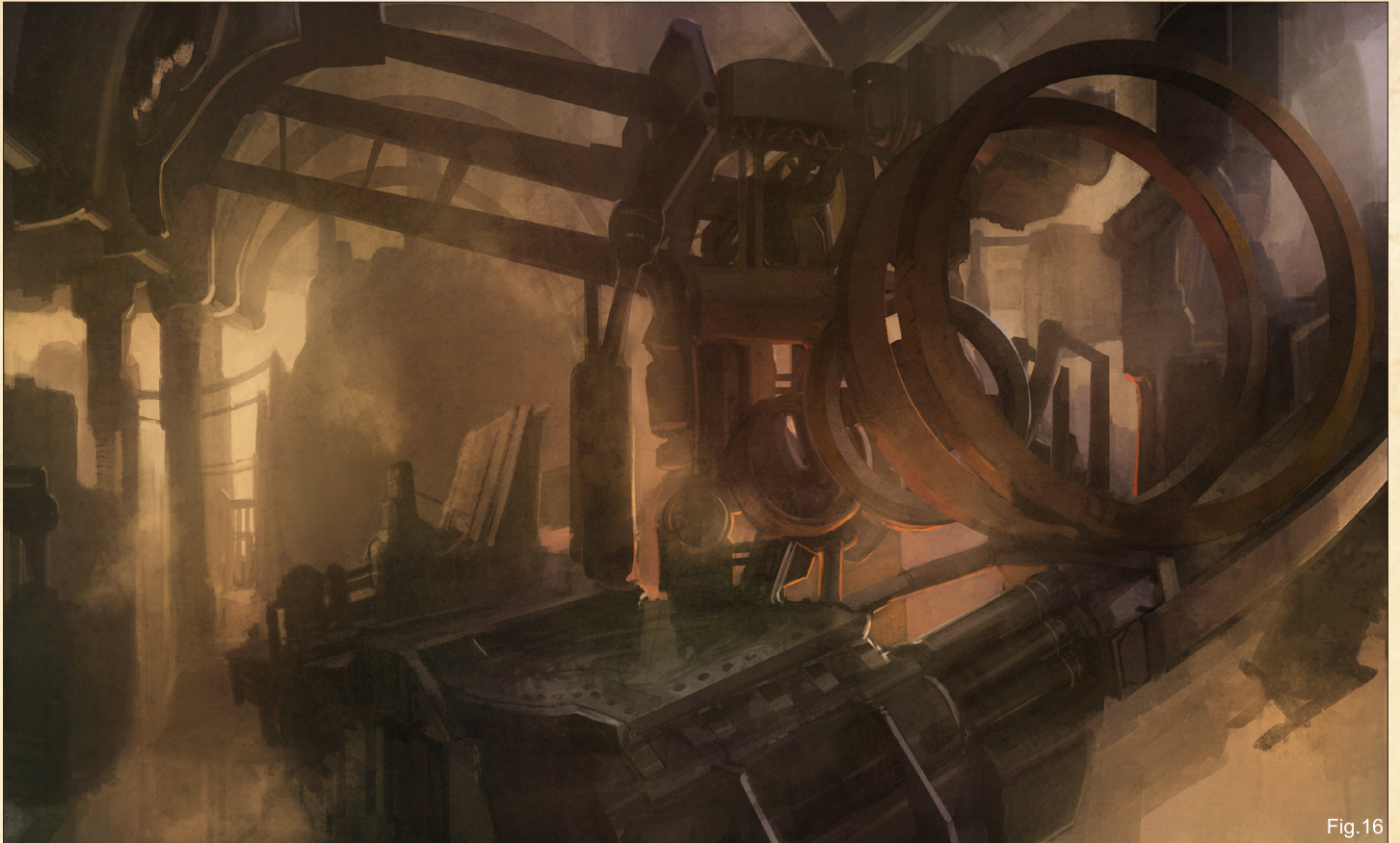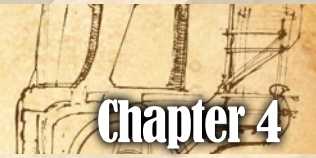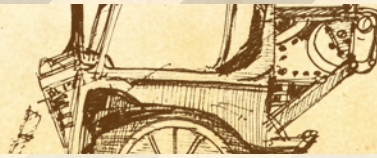
Fig.16

The next step, is to incorporate elements of a mass transport of the DeepCable express.

Elements that were incorporated include a rear propulsion system, a local ambulatory set of paddles (resembling flippers) and a top mounted overhanging grapple pulley system. Between the trio, this hybrid system would comfortably traverse the depths and above water realms with comparative ease.

Lastly, in terms of color reference we undertook the next best thing to being underwater by gathering reference from similar colour grading expected underwater. The only exception to this is to realise that falloff underwater is fairly rapid. (**Fig.17**)

Reference - Lighting & Colour Underwater

The colors of yellow and red have the shortest falloff, followed subsequently by cyan and blue. Thus, everything underwater will tend to have a cyan/bluish color reflected back towards the

viewers eye. In addition, over a certain distance, everything else fades into a greyish black - and thus objects lose their details fairly rapidly.

Not a terribly exciting prospect for artists surely.

To ameliorate this, we bring in local lighting and spotlights (of epic luminosity). Utilizing

Waistline
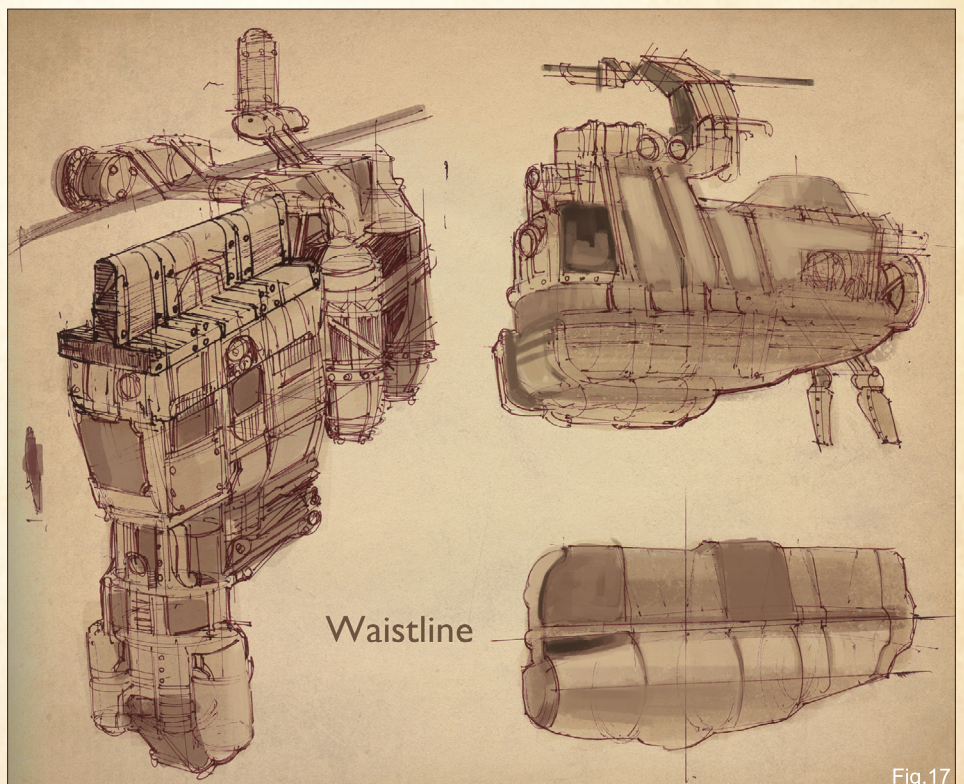
Fig.17

the aspects of uplighting and local lighting, the artist can bring about a creative and dramatic depiction of structures underwater - and thus fire the imagination of the viewing audience. (**Ref.04**)

Underwater Conversion

Taking the above elements in mind, let us undertake the conversion of the existing scene into an underwater one.

First thing to note, is to eliminate a majority of the yellows and reds, and subsequently unify the image with a slightly saturated cyan feel. In doing so, this helps to group various complex shapes into core shapes and objects. This also eliminates various details due to a sharper falloff, (let us say arbitarily) from the midground onwards.

Subsequently, to provide a more underwater feel - we are required to unify the image further akin to peering through a green fog. This further eliminates alot of focal detail, and we will have to bring certain features back to fore, via the judicious usage of local lighting. (**Fig.18**)

By utilizing uplighting, this can help create a more dramatic scene. Sometimes, one can also

Ref.04

Fig.18

Fig.19
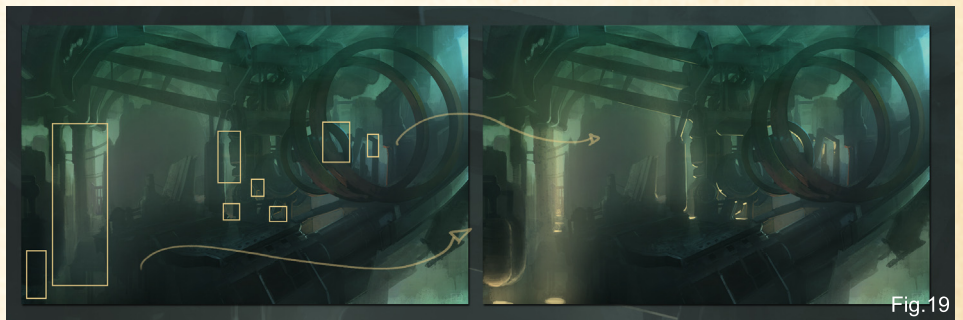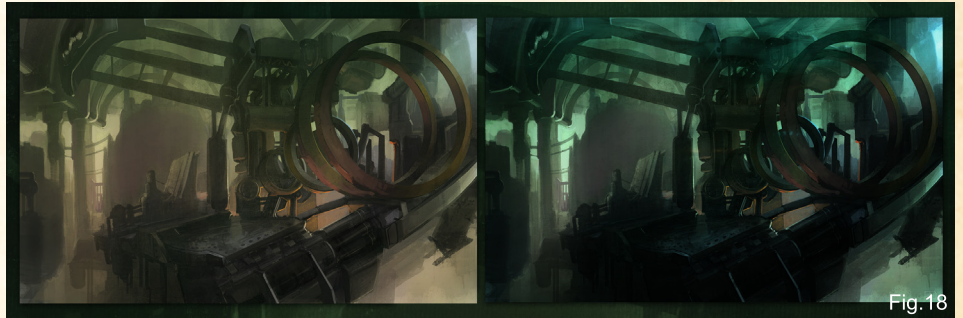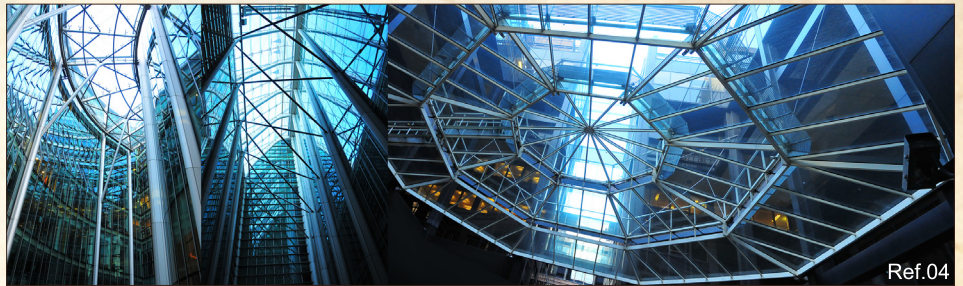
try to paint such a scene upside down. This may help the artist plot various light rays and falloffs with relative ease - however once you are attuned towards painting above water, and utilizing uplighting for night scenes, the brain can develop a dual switch (to a certain extent). (**Fig.19**)

Lastly, to complete the underwater conversion - one can depict the scene utilizing the underwater submersibles and transports depicted in **Fig.20**. A mixture of sharper edges, contrasts between local lights and larger spotlights may either mesh together or provide a conflicting read.

Thus, ensure the placement of foreground objects and lighting can compliment one another for a more harmonious involved feeling.

End of D'Inginis Tour

Welcome back to our central hub of the Steamworld where our tour comes towards its penultimate end.

Fig.20
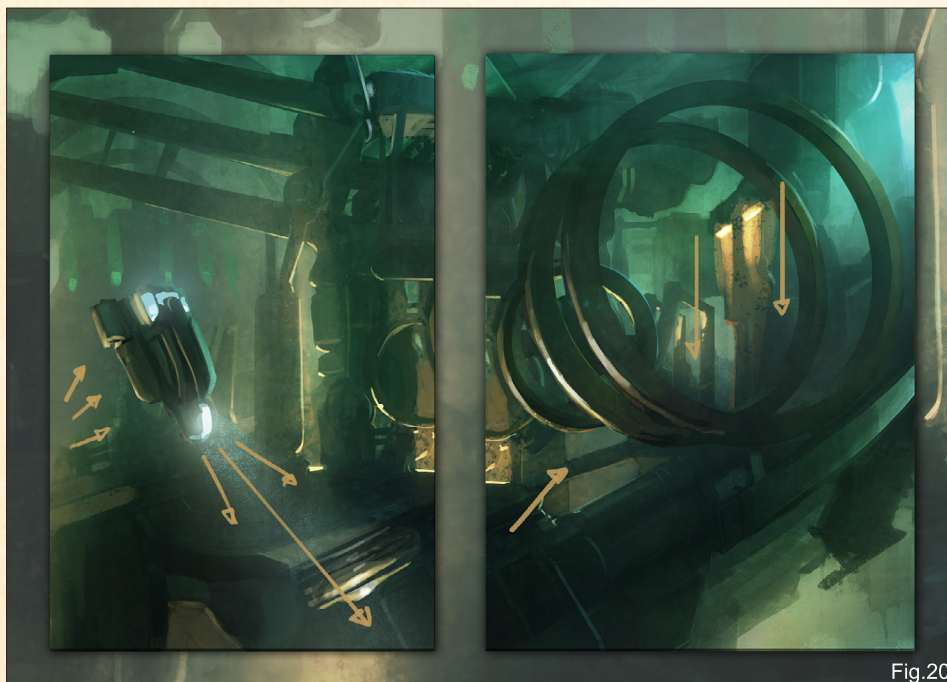
Within this tour, we took a more naturalistic approach towards depicting an everyday scene - by setting down tones and strokes rapidly using a mixture of softer broad strokes and firmer (detailer) strokes for areas of focal detail. The setting of a diesel powered realm run by engines and ducting afforded for the introduction of theatrical uplighting. In addition, we also delved into the underwater elements to see how this can work brilliantly to good effect.

For our final aspect of the five tours we will return towards the administrative centre of D'Machinis whereby we can afford to review all the machines, engines and objects that help provide an inherently unique look and feel that defines that which is steampunk. (**Fig.21**)

If you would like further information, advice or additional reading, please feel free to contact us at **workshops@opusartz.com**

Chee Ming Wong

For more from this artist visit:
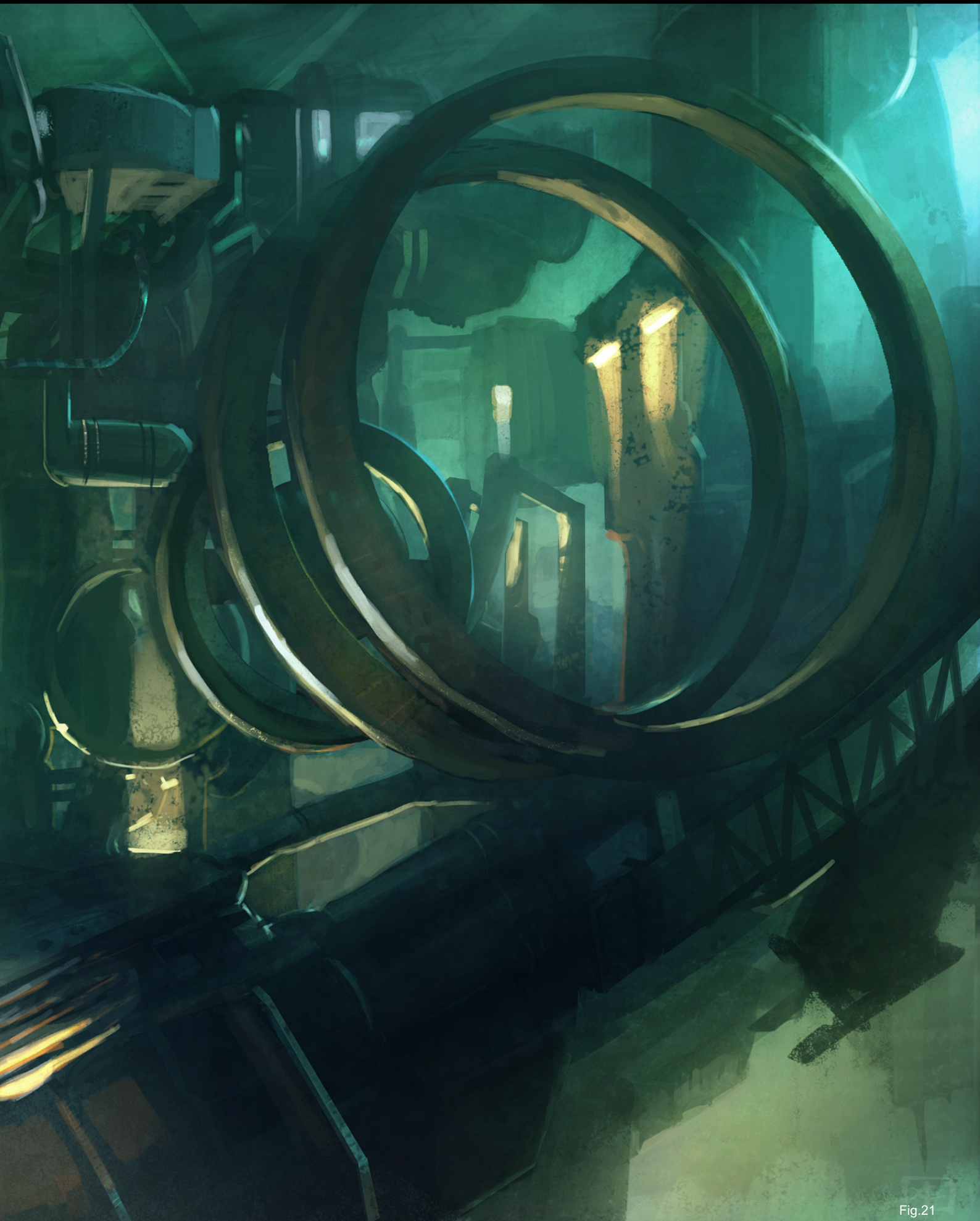
http://www.opusartz.com

or contact them at:

chee@opusartz.com

Fig.21

D'MACHINIS

Painting Steampunk Environments: Chapter 5 - D'Machinis

Software Used: Photoshop

Realm of the Diesel Punk Engineers

Welcome to this series of workshops, encompassing the Five Ages of Steampunk within the alternate Realm of "Steam PanGloria Globus the 3rd" (SteamWorld for short).

We have now reached the final part of our tour of the InterRealms, which has encompassed different eras and themes within the five interconnected districts of **SteamWorld** (D'Automobilis, D'Vinci, D'Metronomus, Diesel & D'Inginis).

The first leg of the tour started within the **Victorian Era of D'Automobilis**, where we had the opportunity to briefly discover how transport became the mainstream thrust of the Brittanic Victorians, starting with the steam engine. We also looked into designing and developing a steampunk transport and environment using a themed period as a starting basis.

The second part of the tour involved travel within the **Medieval Era of D'Vinci**; an era of high renaissance architecture, places of worship and towering edifices of rock amidst a skeletal frame.

Within the **clockwork fantasy** of the third realm **D'Metronomus**, our intrepid explorers undertook a historic tour within the oldest heart of the inter-realms while an appreciation of the moss-covered texturing of various elements was shared.

And in the fourth Realm, we travelled to the deep underwater machine world of **D'Inginis Diesalis**, which represented the tireless powerhouse that generated steam and aether for all.
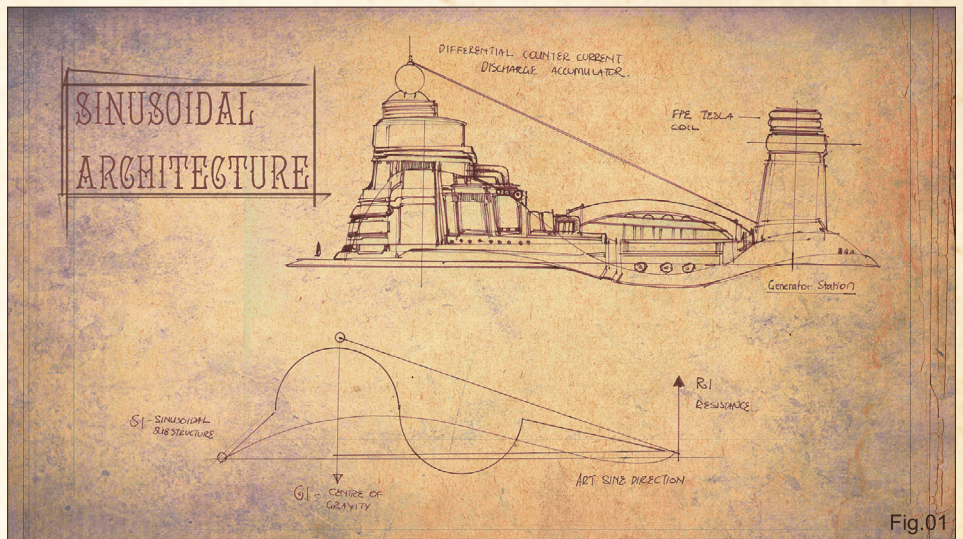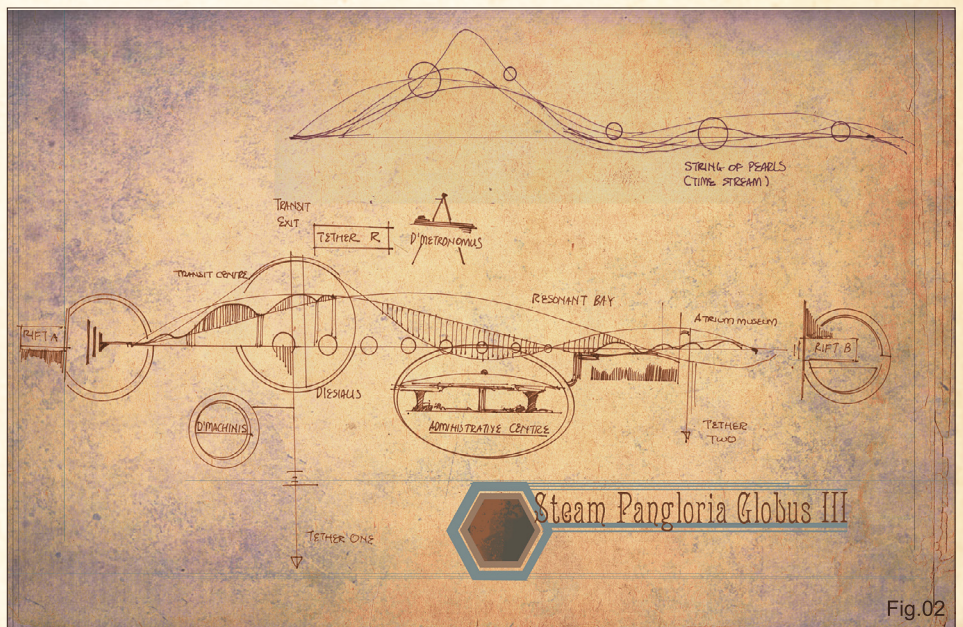

Fig.01

Fig.02

The Guild of D'Machinis

Now that we have travelled the five elements and time zones of the SteamWorld, perhaps it is best if we sit back and appreciate the wonders of the telegraphic modern hubris of the D'Machinis metropolis. For underneath a massive timebridge supporting all five interlocking cities and realms, there lies the D'Machinis administrative centre - providing new extensions to new Steampunk exhibits and allowing sub-genres to grow. This timebridge spans various cracks in space-time, which are barely noticeable within perceived realities.

Unfettered by the various aetheric limitations of the various Realms, denizens of D'Machinis employ transports of advanced steam-powered engineering allowing for vertical and horizontal movement through air, water and space-time. Large or small, there is freedom to move about but at a cost. The spill-off of aetheric usage generates toxic gases, and as such clean manufactured atmosphere is encased within a atmospheric bubble whilst areas surrounding it are toxic to any living inhabitant.

And thus, we come to our final assignment: The development of a key art illustration for use in production. This entails developing an environment that will provide a lighting, mood, color and textural feel that can also serve as art direction to any artist at a glance (**Fig.01**).
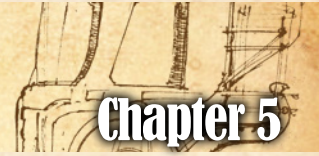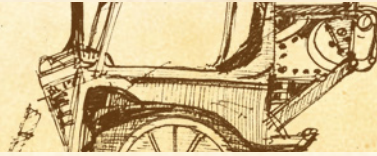
The Guild City

The early forefathers decided the Guild City of D'Machinis, would be a hub of telecommunications in celebration of the telegraphic aether transmitter. As such, all forms would adopt the sinusoid as their main inspiration.

Establishing a key feature such as this allows for main and sub forms to reinforce one another from the shape of roofs, elevation of a park, construction of walls, curvature of streets (any excuse to add a curve as opposed to a straight line; this gives the observer a larger than life/ what is around the corner feeling towards the) and placement of public and local lights (how strong the light is).

In **Fig.01** we utilize the sinusoid to consist of a differential potential gradient. A height difference will allow for a counter current of energy potential/vs aetheric potential to be generated analogous to the movement of electrons within an electric current.

In addition, there is the design of the main housing unit vs a transmission/power generating unit on the other (**Fig.02**).

Fig.03

Taking this one step further we have the schematics of the timebridge, a bridge that spans the various cracks in time. Using a multiple of various sinusoids, these can accommodate for variations in a time phase shift (akin to a earthquake tremor) allowing for people travelling between different realms to remain wholly intact in mid tremor (without dissipating into a multitude of parts).

The Key Art - Sketch

No prior preliminary sketch has been produced in this instance (**Fig.03**). Instead, we will start

the composition as if we were painting en plein aire, on site at the scene. So let's start by utilizing a simple two point perspective (2PP) - with one visible vanishing point (VP) at the lower 1/3rd of the canvas and a second invisible VP.

The initial composition (**Fig.03**) can consist of a few large shapes upon the canvas. Some artists choose to utilize the main color of the canvas as a backdrop, but in this case we're going to use a faint grey-blue wash to provide a monochromic cool feel. Having established this, we can move on to adding some secondary elements (sub forms) to reinforce the main shapes. Ensure that you do not go into too much detail as this stage (**Fig.04**).

Design is fairly flexible and, by utilizing the sinusoidal art direction (see Fig.01), try to establish a good shot of one of the sinusoid structures. A faint suggestion of warmth, perhaps from a local light, can be added to accentuate the aspect of the near structure vs the backdrop. In addition, try and work in the faint suggestion of a generator tower (far right) whilst up above, the underside of the Timebridge can be hinted at.

I imagine the underside to consist of floating land pieces, unified by a variety of pipes, struts,


Fig.04

landings, gardens and vertical shafts that allow communication between each Realm and the administrative centre of D'Machinis.

The Key Art - Workup

Having developed the establishing shot, expand the canvas slightly to adopt a more generic landscape view. The offset of this is that we lose the intimate gesture and feeling of this establishing shot. So make a mental note that we may come back to this at a later stage and work more on this establishing shot, or perhaps crop the final image (**Fig.05**).

It's important not to be too fixed on any particular idea, although trying to change a worked up image later can involve a bit of time and painstaking repainting. The option to re-crop is akin to being a image taker with a photo facsimile device. If it looks and feels good, then its good to go in that direction.

Next up, we're going to look at the expanded canvas from grayscale towards a color wash. This is sliced into various segments to show the development from an establishing shot towards

Fig.05

Fig.06

Fig.07

Fig.08
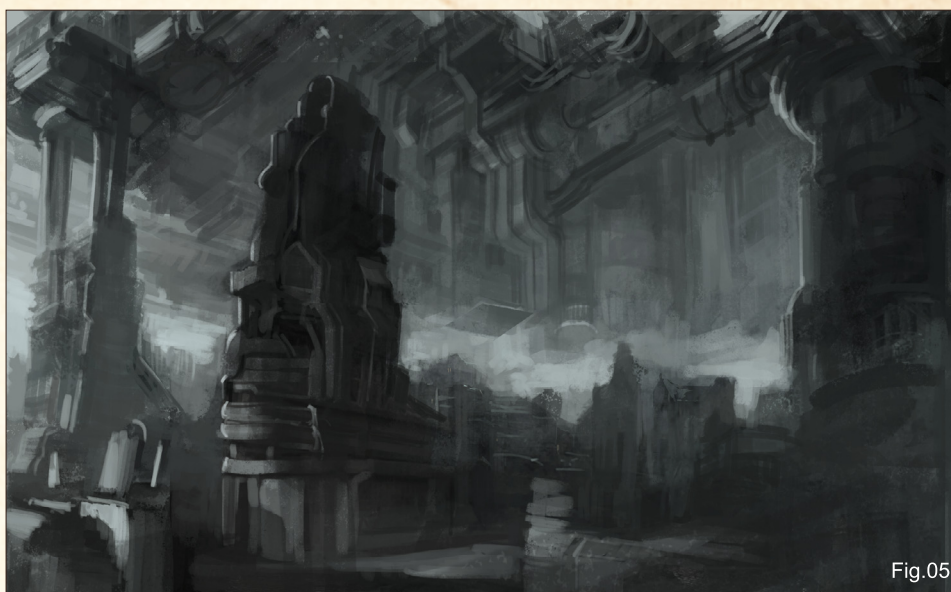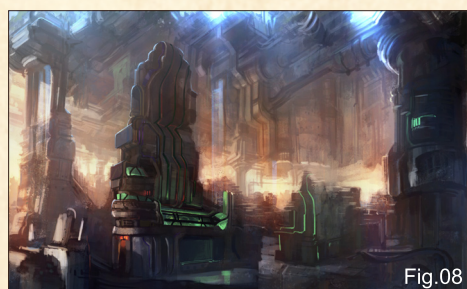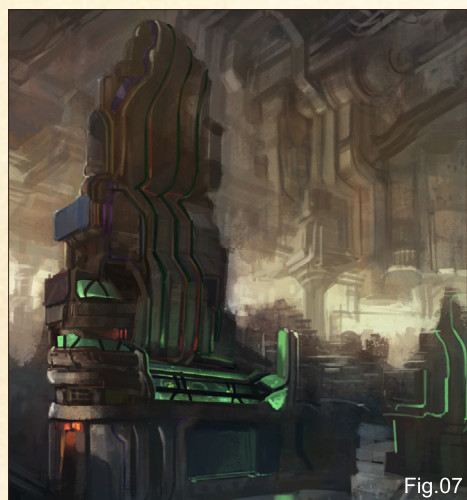
a coloured grayscale (**Fig.06**). In developing a grayscale image to a color image, the main challenge is to proceed in a methodical step-wise fashion utilizing thin washes of color that eventually build up towards a whole.

The Key Art - Lighting & Color

Working the illustration from large to smaller shapes, the next aspect to consider is that of local lighting.

Utilizing knowledge and the foundation established from the previous workshops, we can produce a dramatic shape by uplighting the buildings (**Fig.07**). This method is used in existing hotels and key buildings across

various cities. In this instance, this steampunk metropolis is powered by aetheric gasses that take on a neon glow like appeal of a wide gamut of colors.

We can take this methodology further and expand various local lighting conditions across the landscape (**Fig.08**). Keep in mind the image is undergoing a lot of WIP reconstruction and as such will invariably look like a bombsite sometimes.

The Key Art - Foreground objects

We are now two-thirds through this illustration, and need to consider object interest, VFX,
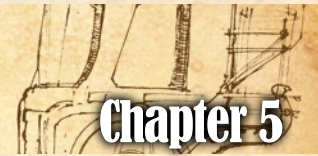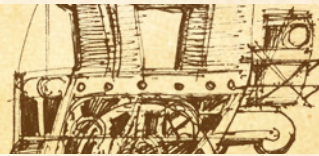
atmosphere and global illumination/grading. Thus, let us tackle this in a step-wise fashion. Building upon the various steamtrams and transports of the previous Realms, there is not much more to go into the final design of the steam hover objects in this Realm. The designs are more of a exercise in plausible shapes and so are best blocked in as dark silhouettes (**Fig.09**).

The key to designing without much forethought is to have a good understanding of shapes and relationships. Thus in this regard, the use of repeating pipes, and cylindrical drums attached towards a bus/tram like shape are established.

Once the various shapes are developed, be mindful that you can color grade these objects in relation to the foreground, midground or background.

The Key Art - VFX & Final Grade

The next aspect that we can look at is the time of day.

Determining what the time of day is in a painting, can affect greatly the final finish. In our image, we render three different color modes: day, night and twilight (**Fig.10**).

- **Daylight** affords a fairly monochromic, reddish-orange feel.
- **Night** affords saturated strong colors due to the various neon lights employed
- **Twilight** affords the best of both worlds - it is fairly light, yet still with elements of strong, saturated neon local lights.

As we're going with a feeling of twilight, one we need to cover the illustration with painstaking local lights that fit the relative perspective and spatial relationship. For this, it is sometimes useful to paint upside down and flip the view horizontally so that the brain can analyze the image from different views (**Fig.11**).
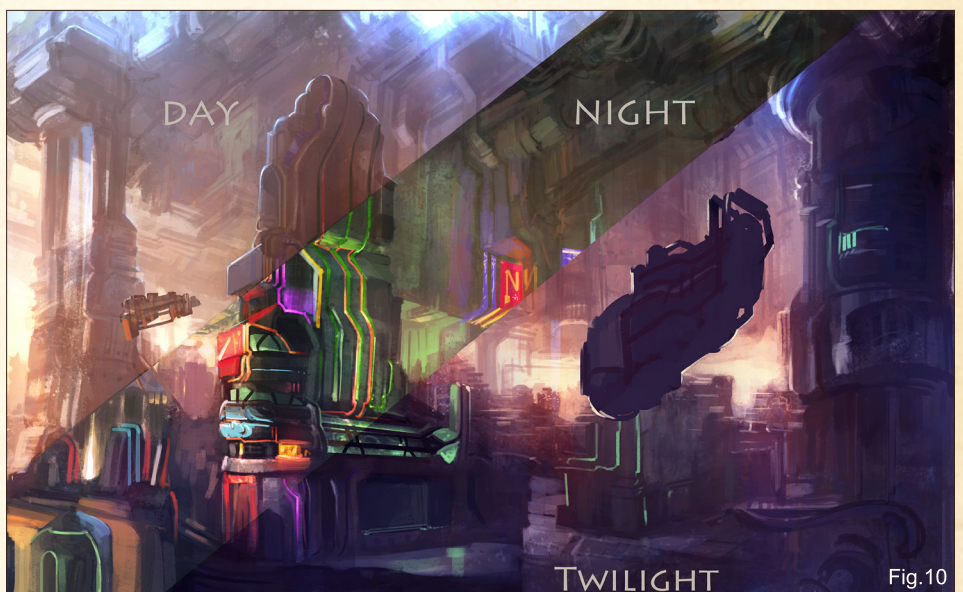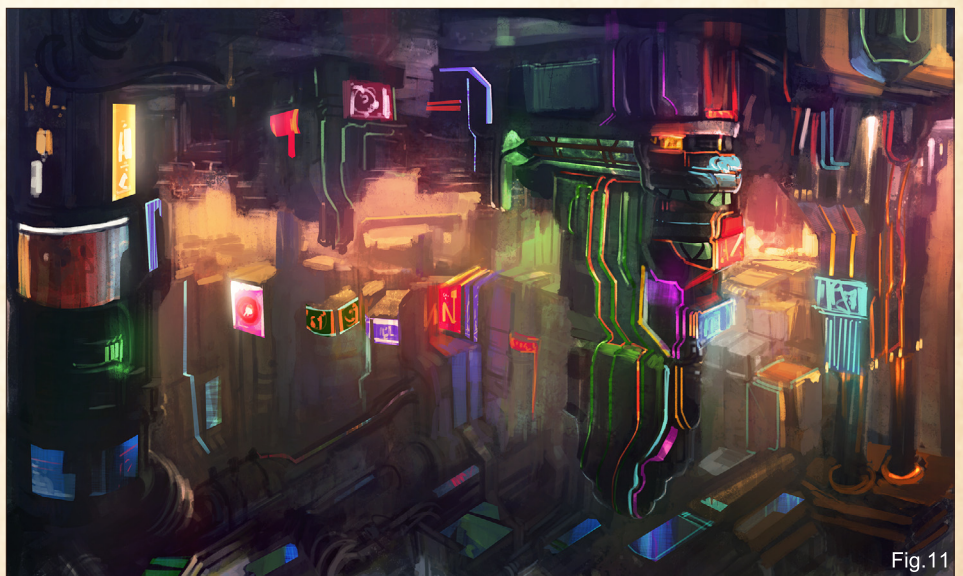

Fig.09

DAY   NIGHT
TWILIGHT

Fig.10

Fig.11

At this point the overall illustration is becoming quite overwhelmed with color and all the subtle shapes and readability from the establishing value has been lost or nearly obliterated (**Fig.12**). In addition, the more details added, the less improvement there is in perceived overall finish/value. Keeping to the established hierarchy of values is quite important to ensure readability at all stages, so perhaps it might be easier to abandon this image and restart again from the establishing shot.

This is what I would do in a normal circumstance, on the reasoning that a second or a third attempt would develop a better piece.
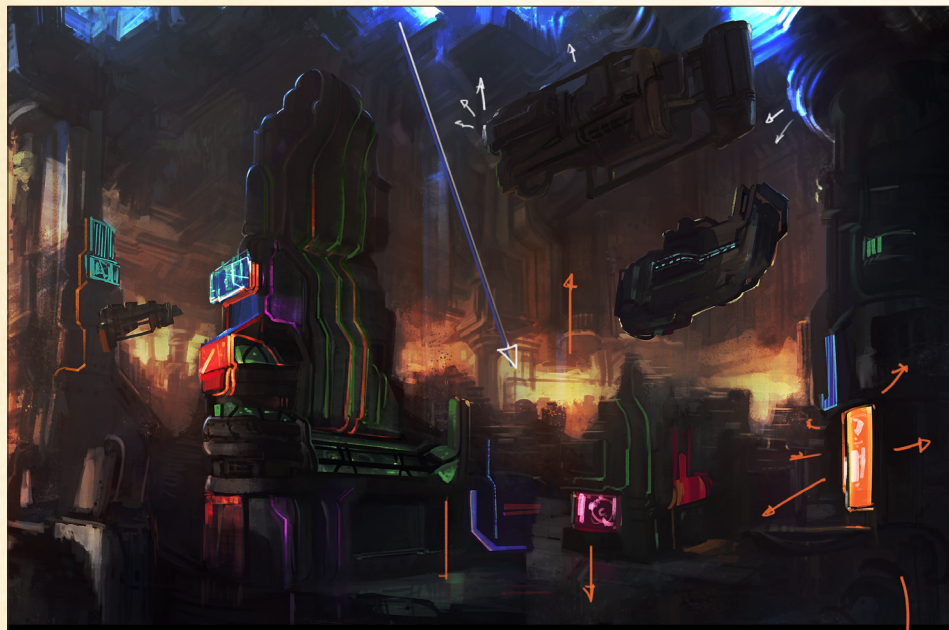

Fig.12

Fig.13

However sometimes this just isn't possible because of lack of time/deadlines - either you have to move onto another painting, your transport is here and you have to go elsewhere (home/work), or the printer says that your painting has to go to print now. Time's up!

Faced with such a situation, do you:

1. Give up and throw a sickie? (Your dog spilled a fluorescent drink onto the canvas)
2. Be a pro and remedy the situation
3. Ask for a miracle
4. Utilize more manpower (sometimes employ 2-5 studios to help out to ensure quality - more cooks equals more bandwidth)
5. Take a few moments. Take a walk. Come back with fresher eyes.

In this instance, the image is too well lit and overpowered by a range of colors, and requires a contrast of motion vs static structures. By donning the AD's (Art Director's) hat and providing a brutal analysis of the image, we can formulate an exit strategy (**Fig.13**):
1. Darken the overall image
2. Allow for more focal lighting (horizon and only employ some local lights to be prominent)
3. Punch up the saturation locally, and repaint the far distant atmospheric skylight
4. Apply some motion blur to the steam vehicles (remember to apply these only towards the
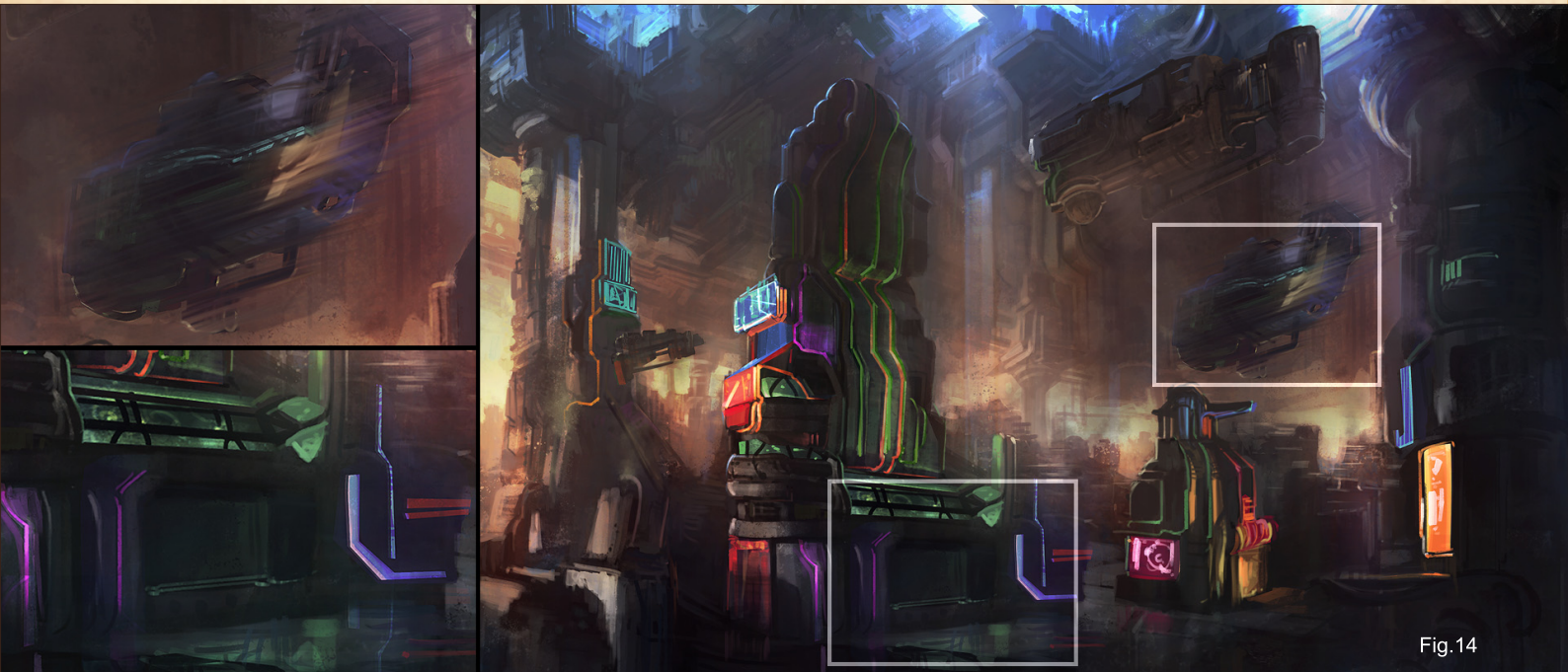
Fig.14

edges of some vehicles, or all that lovely design is obliterated)

5. Apply reflected lighting (from the local lights)

Having applied all these measures, there is that last 1% to tidy up, in terms of some focal details and some slight textural suggestions of various lit planes to suggest different surface materials. Lastly, take a few moments to apply some subtle color grades and faint suggestions of smoke, pollution and steam to allow for overlying elements and add depth to the overall image (**Fig.14**).

When there is no further changes that you feel are required to sell this image convincingly, it is best to stop and keep some element of energy, mood and atmosphere. It's time to call this done!

Sky-Blue, Sun-Red, & Deep-Blue

Global illumination and color lighting is a fascinating subject, and as a final summary let us discuss this slightly obscure subject matter (**Fig.15**).

In general, one finds that in a blue-green atmospheric planet irradiated by a blue-yellow star, the following would be generally true: that the sky is blue-violet and the daybreak/evening is golden red within the human visible spectrum of light. Cats, owls and E.T. might perceive a shorter or longer spectrum of visible light, and if they could describe to you what they saw, perhaps in their world the sky would be silver green and the oceans cerulean tinged with red...

Thus, light wavelengths are a bit more complicated and are only thus due to perceived visible light by the human eye. Blue (475nm) is
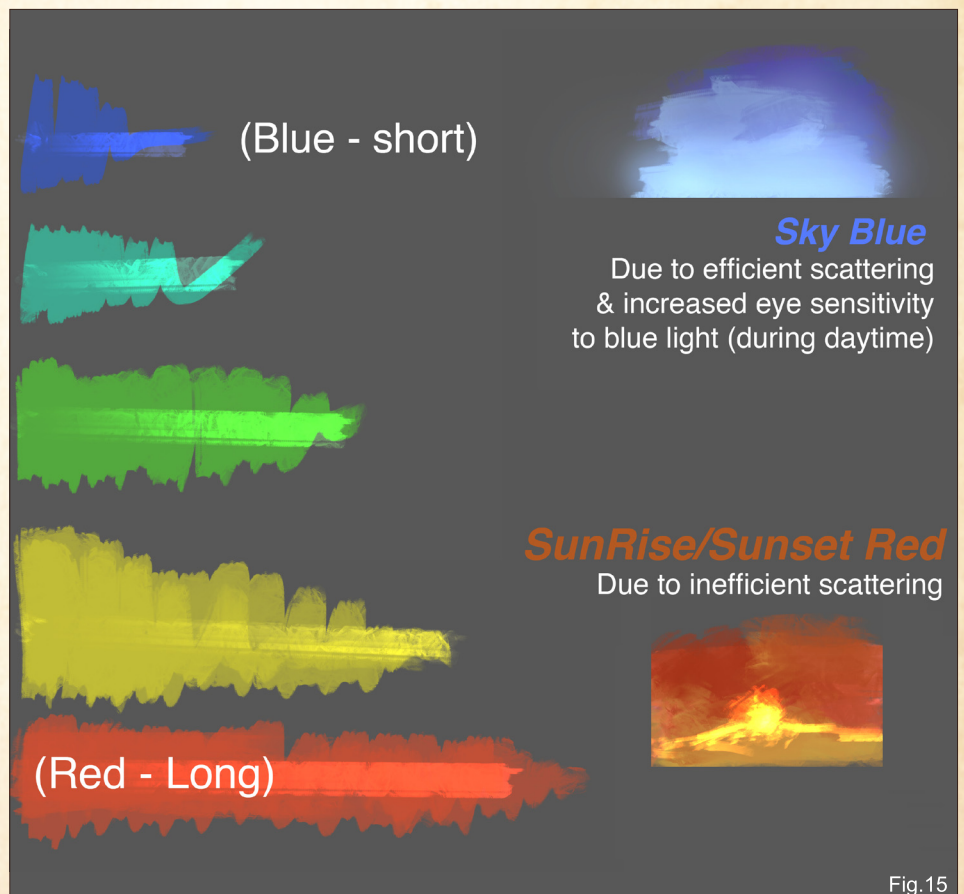

(Blue - short)

Sky Blue
Due to efficient scattering
& increased eye sensitivity
to blue light (during daytime)

SunRise/Sunset Red
Due to inefficient scattering

(Red - Long)

Fig.15

a shorter wavelength than red (longest 650nm) and violet is the shortest (450nm)

Thus, for global illumination it works as follows (but can be slightly confusing): During Daytime, the sky is blue primarily due to efficient scattering. In addition, our eyes are more sensitive to blue light, and the sun pumps out more blue light than violet. Whereas during sunrise/sunset, the red wavelength (longest) is less efficiently scattered. The longer wavelengths of red and orange effectively eliminate any blue/violet from the sky and result in a blood red-orange evening/sunrise.

Thus, if red light is longer, how is it that red is the first color to be lost underwater?

This can be explained by the amount of visible light absorbed underwater. Longer wavelengths are greatly absorbed underwater, and thus red and yellow wavelengths are lost initially whilst the shorter wavelengths of blue and violet are least readily absorbed. This also explains why whitish/pale objects underwater appear blue.

Lastly, at 10m depth about 1/4th of sunlight is available and almost non-existent at 100m depth or more. This can affect how one depicts an underwater image accordingly and requires local lighting to depict any colours below 100m depth.

End of D'Machinis Tour

Thus, we come to the end of our whirlwind tour of the various aspects of the Steampunk sub-genre; of which there are often new and evolving sub-categories that encompass the elements of Punk/Steampunk in their various incarnations in popular media.

Lastly, as with all things, there isn't any hard and fast rule to producing your own unique take on Steampunk. As long as it looks plausible (70:30 rule - 70% based in reality, 30% imagined), and certain aspects can be reasoned to have some function, you are onto a winning ticket.

So have fun! Steampunk your favourite vampire or retro fit your DeLorean of choice and perhaps be as bold as to retro fit your computer and everyday garments with subtle elements of

steam as part of the Neo-Victorian culture. The world is your oyster; you can Steampunk that too.

I leave you with an observation: Everyone has within them the power of dreams and imagination. Therefore, I believe anyone can paint and draw, how well is entirely a different matter altogether. Nevertheless, draw to be the best, the best artist living in a generation; draw because it provides therapy and hours of fun; draw because it is a way of life, a lifestyle, and draw because perhaps the secret of the universe lies in those who can dream and bring worlds of imagining to life.
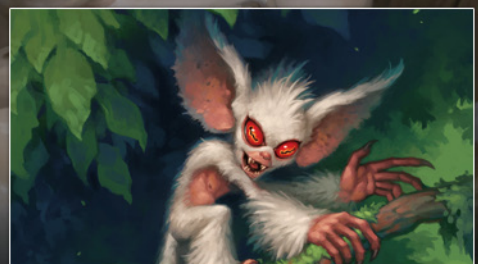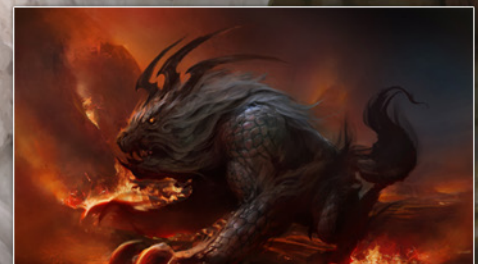
Chee Ming Wong

For more from this artist visit:

http://www.opusartz.com

Or contact them at:

**chee@opusartz.com**

Final

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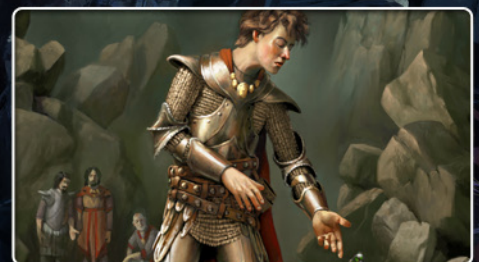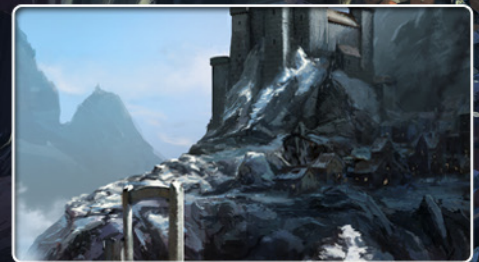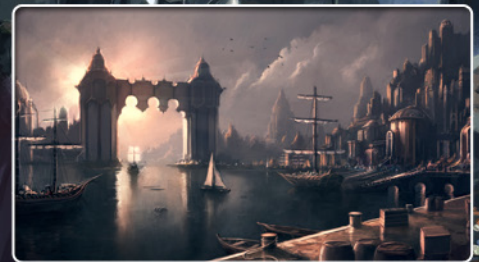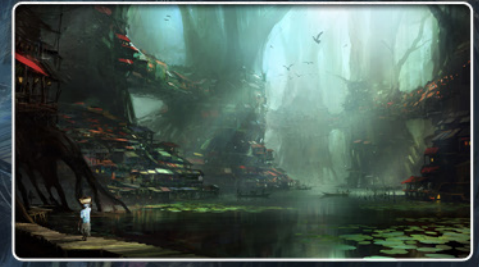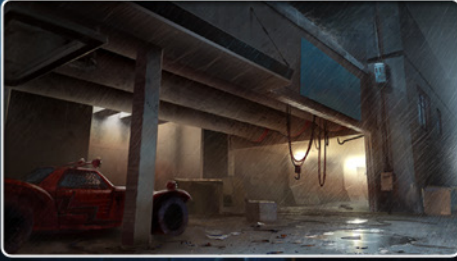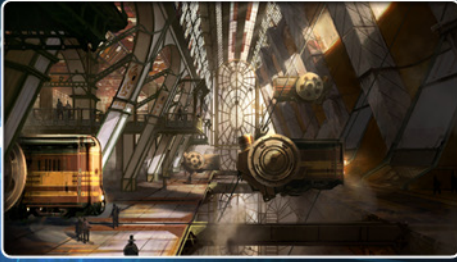
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Tutorial by: C M Wong | Platform: Photoshop | Format: DOWNLOAD ONLY PDF | Pages: 161

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