



DUNGEONS & DRAGONS[®]

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UNOFFICIAL GAME ACCESSORY

Top Ballista

by Carl Sargent

5TH EDITION PLAYER'S GUIDE

AN UNOFFICIAL FAN CONVERSION

KARL DAVID BROWN

Launch the flying city of the gnomes
into the world's greatest roleplaying game

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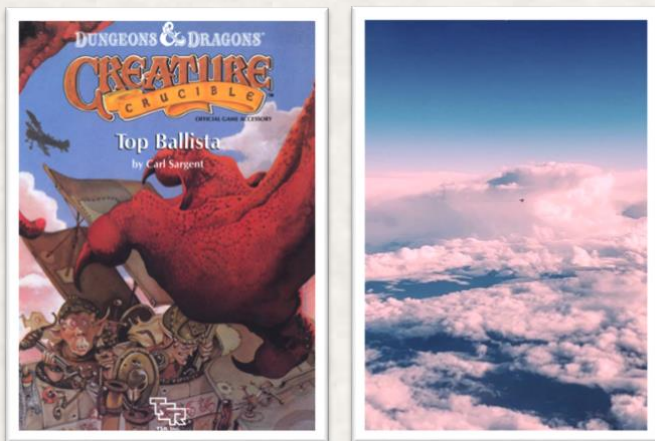
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Playtesters: Karl David Brown, Rakshak - Gnome Gunslinger, Elizabeth A Bowman, Phil Price, Brendan Hack.
New playable species designed using a system that has had multiple playtesters over 7 years.

ON THE COVER



In the original 1989 cover art by John Lakey a red dragon comes out of the Sun at 5 o'clock.

On the back cover by Karl David Brown (2022) in the distance Serraine flies around a thunderhead.

Disclaimer: City regulation 2459, section C, paragraph 4 requires that I be warnin' ye about an irritatin' pest ye might be meetin' here. I'm afraid we do have, about the place, more'n a few gremlins. They be a problem, what with sourin' yer beer, makin' yer trousers drop, causin' the keys on yer keybooooooooooooooooooooooooooooo

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DESIGNING NEW SPECIES AND FEATS

The new species and feats in this booklet were designed with "Race Design for D&D 5th Edition. Creating New PC Species". You do not need that book to use the player options presented here.

TOP BALLISTA?

Top Ballista was a supplement for the Basic Expert Companion Master Immortal (BECMI) edition of D&D. It introduced Serraine a flying city built by gnome inventors. Rules were given so you could play gnomes and other inhabitants of the city, create your own inventions, and take flight in magic-powered biplanes. The city was described, and several adventures were included.

This set of two books converts the rules of Top Ballista to D&D 5e and includes enough description to provide context. For adventures set in Serraine you will still need Top Ballista. Fortunately, a PDF of the 1989 product can be had at a reasonable price from the [DM's Guild](#). You will need a copy of the D&D 5e core rules. To use the nagpa characters described here you will need Mordenkainen's Tome of Foes (MTF). This first book contains all the rules needed to create and play Top Ballista characters including new species of player character (PC), spells, equipment, and feats. There are also rules for gnomish machines and dogfighting in biplanes. The second book is for the Dungeon Master (DM) and includes non-player characters (NPC's), magic items, and advice for running adventures on Serraine.

CREATURE HEROES

Before creating a character of one of these new species ask your DM if they will allow them. The adventures in the Top Ballista Adventures book actually assume the PCs are visitors to the city and not one of the native species. If this is the case then they might still allow the Mystaran Ground Gnomes presented here.



Top Ballista presented rules to play the species inhabiting the flying city as player characters. These were: gnomes, faenare (winged feathered humanoids), gremlins, harpies, nagpa (vulture folk), pegataurs (flying centaurs), sphinx, and tabi (flying monkeys). The versions of these species presented here were designed to capture the spirit of the key features of the BECMI Top Ballista species-classes but translated into the approaches and rules of 5th edition. I have focused on the features gained by the 'Normal Monster' level, when the PC is equivalent to the monster version in BECMI. High level features from the BECMI species-classes are best represented by choosing appropriate class features, feats, or spells for your character. These suggestions are given for some species. These are suggestions for Mystara fans feel free to ignore them.

Despite the slimming down to the common and core traits, some species from Top Ballista remain much more powerful than official 5e player character species. Unlike every other edition of D&D, 5e lacks a method to deal with powerful species. Fortunately, as part of my species-design tool project I used existing D&D 5e math and concepts to build the method that WOTC might have built if they had been so inclined. Essentially, some species have so many features that they are worth one or more class levels. This 'level adjustment' (LA) plus the character's class levels is their total level. This means that these species cannot join until the rest of the party has gained a few levels. A character must have at least one class level before play. Do not use the multiclassing rules when adding your first level to your LA species, you gain all the benefits of the first class. However, LA does affect experience points and proficiency bonus like a class as described in the Player's Handbook (PHB page 163).

You will also see 'Safety Stars' for each. 5 Stars is maximum 'safety'. Only WOTC's canon species are 5 stars. Most new species are 2 to 3 stars. If not canonised by the PHB halflings, gnomes, and half-orcs would be 3 stars. While all species are carefully designed to be balanced (using a system that has had 7 years of playtesting) and not exceed WOTC's limits on things like damage per round, hit points etc., the amounts of evidence for valuing each trait varies greatly. The star rating is how sure I am of the evidence. Since common traits have more evidence the star rating is also a measure of 'oddness'. DM's can set a minimum star rating to easily communicate to players which of these new options they are allowing.

I have included a very short description of each species. For more detail ask your DM to provide the relevant pages of Top Ballista. Role-playing prompts are included but should not be treated as absolutes. Like humans other species have their own instincts and cultures, but they are also individuals!

Note: If you are starting a 5e Top Ballista game ask your DM to consider beginning at 4th level to allow nagpa, pegataur, and faenare PCs.

GNOMES

*Safety Stars ****

Gnomes are presented first, out of alphabetical order for two reasons. Firstly, most of the other species are powerful with an LA while gnomes are on par with official WOTC options. Secondly, the 1500 or so gnomes aboard Serraine make up the bulk of the population.

The two cultures of gnomes in Top Ballista are very like the D&D 5e rock gnomes but with a couple of sky or

earth related abilities. You could just represent them with 5e 'tinkerish' rock gnomes, which is what has been done in every other setting under 5e. Alternately, by getting rid of the sub-species ability score adjustment you make room for some specific traits enabling the design of the two new Mystaran sub-species below. Ask your DM which gnome sub species they are allowing.

The gnomes of Serraine are arranged into clans. The machine building clans of gnomes on Serraine and elsewhere are effectively competing craft guilds and therefore the **Guild Artisan** is a good background for a machine building gnome.

SKY GNOMES

Artificer's Lore: As per the PHB Rock Gnome.

Tinker: As per the PHB Rock Gnome.

Skyborn: you have advantage on saves to avoid damage from wind-based attacks and falling (but not if you deliberately jump from a height).

You also have resistance to damage from wind-based phenomena and magic, but not falling or air-creatures.

Air-based phenomena include, but not limited to: gale-force winds, *gust of wind*, *wind wall*, falling due to *reverse gravity*, and phenomena and magic causing thunder damage.

Languages. Replace Common with the dialect Skycommon.

Improved Darkvision: your darkvision range is increased to 90 feet.

Weather Sense. Advantage on nature checks when above ground to determine altitude, speed, determine if weather is a natural phenomenon, and predict weather.

Class Suggestions. To better mimic the BECMi species class take at least one level of bard, warlock, or wizard or take the magic initiate feat to allow creation of machines with magical components and casting of the spell *unseen servant*, which is most like the BECMi ability to summon an aerial servant. For a more powerful version stay in wizard for 7 or 9 levels to *Conjure Minor Elementals* or *Conjure Elementals*.

GROUND GNOMES

Artificer's Lore. As per the PHB rock gnome.

Tinker. As per the PHB rock gnome.

Stoneborn. You have advantage on saves to avoid damage from earth-based phenomena and magic but not stone creatures.

You also have resistance to damage from earth-based attacks but not falling.

Earth-based phenomena include, but not limited to, landslides, *earthquake*, *wall of stone*, petrification, and bludgeoning damage from rocks.

Improved Darkvision. Your darkvision range is increased to 90 feet.

Earth Sense. Advantage on nature checks when underground to determine depth, distance travelled, if stone and earthen formations are a natural features, and discern if quakes or rockfalls are natural or not.

Class Suggestions. To better mimic the BECMi species class take 9 levels of sorcerer or wizard to allow creation of machines with magical components and casting of the *wall of stone* spell.

FAENARE

Safety Stars **

A faenare has the proportions of an elf, feathers instead of hair, grasping feet like a bird and arms that are also wings. Faenare culture is spiritual and insular. Player character faenare are often those who hear the call of the

windsinger and set forth to find the new song they hear dimly in their minds. Returned windsingers are spiritual leaders. Alternatively, there might be other strong motivations to leave.

FAENARE TRAITS

Level Adjustment. A faenare begins at level 3 with 1 class level. Being a faenare is worth 2 class levels.

Ability score modifier. Add 1 to your dexterity.

Delicate Clumsy Hands. A faenare can only use simple weapons and shortwords, longswords, scimitars, and rapiers. The faenare still requires proficiency to use a weapon properly.

Size. Medium.

Speed. Base land speed 30 feet.

Type. Humanoid.

Flight. Faenare are strong flyers. Flight speed 90 feet.

When flying treat the faenare as one size larger for the purpose of calculating encumbrance. However, they cannot fly while wearing medium or heavy armour, which they find too restrictive for proper movement.

Natural Armour. Unarmoured your armour class (AC) is 13 plus your dexterity modifier. If the character wears armour or gains an AC from another feature calculate each separately and then use the highest only.

Immune to the Charmed condition. *This follows the D&D 5e trend to try to make traits more broadly useful. Change it back to just the harpy's luring song if you want.*

Avian Speech. You can communicate with rocs and beast type birds. You have advantage on charisma-based checks to influence these creatures.

Languages. You can speak read and write SkyCommon, Faenare, Giant Eagle, and Auran.

Immune to Lightning Damage.

Species Hit Dice. Your species grants 2d8 hit dice.

Suggested Classes: To best emulate the Faenare of Top Ballista take the ranger class to gain access to *conjure animals* to enable you to summon giant eagles or cleric to gain Turn Undead and Destroy Undead to mimic Song of the Wake and Song of Life.

Spell casting Faenare in Top Ballista are called wind singers. Spells most like the windsinger songs follow. Wizard is also a good choice which gives access to the highest number of these spells.

WINGSINGER SONG EQUIVALENTS

Song	Spell	Level	Classes
Harmonic Song	<i>Mirror Image</i>	2	Sorcerer, Warlock, Wizard
Song of Will and Iron	<i>Bless</i>	1	Cleric, Paladin
Song of Dispelling	<i>Dispell Magic</i>	3	Bard, Cleric, Druid, Paladin, Sorcerer, Warlock, Wizard
Song of the Snowstorm	<i>Ice Storm</i> or <i>Cone of Cold</i>	5	Druid, Sorcerer, Wizard or Sorcerer Wizard
Song of the Whirlwind	<i>Conjure Elemental</i>	5	Druid, Wizard
Song of the Rainbow	<i>New Spell</i>	4	Cleric, Ranger
Song of Triumph	<i>Bless</i> cast at higher levels	2+	Cleric, Paladin

Song of the Rainbow is described in the Creature Spellcasters section of this conversion.

GREMLIN

Safety Stars ** 1/2

Mystaran gremlins are small and wingless with pasty grey-green skin, large saucer-shaped eyes and pointed ears. They generate a field of bad luck around themselves. Gremlin's are solitary creatures with never more than a few together but they live to bedevil others with tricks and mischief. They care little for possessions or creating much of a culture of their own, happy to survive by scavenging from the victims of their pranks.



Type. Fey. For better and worse you are not affected by effects specifically targeting humanoids but are affected by effects affecting fey.

Ability score adjustments. Add 3 to your dexterity but subtract 3 from your strength, 1 from your constitution, and 2 from Intelligence.

Speed. Your base speed is 30 feet.

Small and Scrawny. Your size is small. Gremlins are not only about 3 feet tall, they are also scrawny and loose jointed. As well as making them weak and fragile, this hinders their use of weapons. Gremlins are limited to simple bludgeoning weapons, daggers, and slings. These weapons must also be scaled to the gremlin's size and mass. See the section on equipment in this book.

Gremlins also find armour cumbersome and restrictive. They suffer disadvantage on dexterity saves while wearing armour.

Hide in Crannies. Being skinny and double-jointed, gremlins can cram themselves into smaller spaces than you would think possible and compress themselves down to hide behind objects. This has three effects. First, they double their proficiency bonus when making dexterity (stealth) checks to hide, even if not proficient in stealth. This effect does not add to expertise in stealth if the gremlin gains that feature from a class or feat. Second, as long as they do not move or take physical actions, they can seek full cover behind tiny objects at least 2 feet across and high.

Thirdly, when using the squeezing rules they can move at full speed, though the other effects of squeezing still apply.

A gremlin cannot hide in crannies while wearing medium or heavy armour.

Chaotic Minds. Being perceptive, wilful, and easily distracted, gremlins have advantage on intelligence and wisdom saves against magic.

Tumbling. The agility of gremlins rivals that of cats and monkeys. At 4th level they gain proficiency in acrobatics. They subtract 1 from fall damage, though they still end up prone after a fall. At 8th level this increases to 2, at 12th to 3, at 16th to 4, and at 20th level to 5 less damage.

Jumping. A gremlin can leap 5 feet straight up or 10 feet horizontally from a standing start.

Chaotic Aura. While weak and fragile, gremlins are still a dangerous nuisance. Why? Because they project a chaotic aura that afflicts those nearby with bad luck and hastens the breakdown and decay of objects. Gremlins think the frustration this causes in others is hilarious! The aura has a radius of 10 feet but increases to 15 feet at 5th level and to 20 feet at 11th level. To use the aura a gremlin consciously focuses on one object or creature within the radius and chooses an effect from the list below. Except foe fumbles, all of these take an action to use. All powers can be used any number of times each day. Where a save is required charisma is used and the difficulty class (DC) is 8 plus your proficiency bonus plus your charisma modifier.

- **Bad Luck.** One creature of your choice that you can see within range must make a charisma saving throw. While you concentrate on this effect, whenever the target that fails this saving throw makes an attack roll or a saving throw for the next minute, the target must roll a d4 and subtract the number rolled from the attack roll or saving throw. Targets under this effect are bit by a horsefly, get dust in their eye, suffer a passing cramp, have an arrow blown by a sudden wind, or are otherwise subject to multiple bits of bad luck until the effect ends. This effect is treated as a concentration spell when applying the rules for concentration.
- **Break Object.** This power damages objects. If the object is held, carried, or worn by a creature, then a save applies and success prevents the effect. Whether it be flaws in the material or crafting, undetected rust, termites, a frayed rope suddenly giving way, or a rodent knocking over a vase, the game effect is the same 2d4 bludgeoning damage to the object. At 5th level this increases to 4d4 and at 11th level to 6d4. The method of determining an object's hit points, if unknown, is in the D&D 5e Dungeon Master's Guide (DMG). Machines affected by this power tend to make worrying noises, blow out black smoke, leaks fluids, or show other symptoms appropriate to the machine.
- **Foe Fumble.** When a creature within the chaotic aura radius targets the gremlin with an attack and misses the gremlin may use a reaction to cause the creature to fumble so badly that they do 1d4 damage to themselves. The damage type is the same as the failed attack or nonmagical bludgeoning, slashing, or piercing (the gremlin's choice). This damage does not increase as the gremlin gains levels. The player should try to describe the creature's fumble. Ideas include: toe stubbed on uneven cobblestones, shoots self in foot, strains a muscle, flubs a line of a vicious mockery and suffers magical embarrassment, drops

warhammer on foot, burns self, pricks finger with own poisoned needle, hiccups in the middle of incanting a spell releasing uncontrolled magical energy, etc. Note that this effect only applies to attacks.

- **Jam Shut.** Humidity, rust, a snapped spring, whatever the coincidence what was once open is now jammed shut. This could be a door, window, gate, chest, or other entryway. It is impassable until it is broken.
- **Machine Malfunction.** An insect jamming a cog, a cable snapping, a bracket bending under the strain, lack of wind in the sails, a jammed valve, a lost oar, the hamster in the wheel deciding to sleep, whatever the reason, a machine within range that you choose stops working. If the machine is held or worn by a creature, then a save applies and success prevents the effect. The machine is paralyzed as if it was a creature. A paralyzed flying machine usually falls unless it is lighter than air, i.e. it has the hover property. If, as a reaction, a DC15 Dexterity (aerial vehicle) check is made immediately after a winged machine is paralyzed it may continue in the same direction, cannot gain altitude and loses 10' of altitude at the end of the pilot's turns. Submersibles drift at the same depth and do not leak. Boats and lighter-than-air craft drift on the currents. Wheeled vehicles either stop dead or roll uncontrolled downhill. Every combat round, including the one the effect was produced in, creatures can attempt to fix, adjust, or restart the machine by making wisdom checks as an action adding any proficiency bonus if they have a relevant tool proficiency and those tools. The DC is the same as your chaotic aura save DC. On a success the paralysis ends on the target machine. The DM may limit the number of creatures that attempt to restart the machine each round due to the machine's size or other factors. Creatures without proficiency in aerial vehicles suffer disadvantage when trying to restart a flying machine that is plummeting toward the ground.
- **Rot Food or Sour Drink.** You target an item of food or a container of drink. Corruption grows and in one hour the target is contaminated. Mould grows on bread, meat goes rancid, milk curdles, beer sours etc. If the object is held, carried, or worn by a creature when the effect is initiated then a save applies, and success prevents the effect.
- **Spring open.** Choose an object that you can see within range. The object can be a door, chest, set of manacles, padlock, or another object that contains a non-magical means that prevents access. A target that is held shut by a lock or that is stuck or barred becomes unlocked, unstuck, or unbarred due to some bit of luck. If the object has multiple locks, only one of them is unlocked. If you choose a target that is held shut with *arcane lock*, spring open has no effect

Languages. You can speak read and write Sylvan and Skycommon.

Notes. The safety stars are typical for a new species despite a rather complex build.

The BECMI version is very free form. The rules environment and player expectations of D&D 5e requires a more encoded approach to the gremlin's chaotic aura. The radius of the chaos aura is rather small, mimicking Top Ballista and this keeps the value of each of the numerous effects down.

The traits that restrict weapons and armour use both mimic the BECMI version and act as a balance against the species' chaos powers.

Gremlins are rubbish at physical combat. Playing one is a bit like multi-classing with wizard in that you should

make frequent use of the species' magical powers to compensate for the character's lack of physical prowess.

HARPY

Safety Stars * 1/2

"A harpy combines the body legs and wings of a vulture with the torso, head, and arms of a human" – Monster Manual (MM).

Harpies are all female. Around themselves they are pragmatically cruel. Among others they are just cruel and think nothing of charming and using others. Those of Serraine's Labour Quarter are careful not to be caught eating people.

Size. Medium.

Type. Monstrosity. For better and worse you are immune to spells and effects that target humanoids but susceptible to those that target monstrosities.

Ability score adjustments. Add 1 to strength, dexterity, constitution, and charisma but subtract 2 from your intelligence.

Speed. Your base speed is 20 feet.

Flight. Your base flying speed is 40 feet. You cannot fly in medium or heavy armour.

Languages. You can speak read and write Skycommon and one other language of your choice.

Claws. Your claws are a natural weapon doing 2d4 slashing damage. You are proficient in this attack. Rules that can be used with unarmed strikes cannot be applied. When adjudicating how natural weapons interact with other rules a natural weapon is a melee weapon but is not a light, heavy, or improvised weapon.

Luring Song. At 5th level you gain luring song with a radius is of 30 feet. At 7th level this radius increases to 60 feet. The Wisdom save DC is 8 plus your proficiency bonus and your charisma modifier.

Most worlds: the effect is as per the monster (MM181).

Mystara: Effects all giants and humanoids in the radius as per *Charm Person* (PHB221) except duration is while the song continues, using a bonus action to sing on subsequent rounds. A target that saves is immune to your luring song for 24 hours.

SEDUCTIVE TOUCH FEAT

Requires: Harpy from Mystara with luring song

Add 1 to Charisma.

If you touch a creature and use Luring Song, that creature has disadvantage on its saving roll, others in the radius save normally.

The effect can occur without sound and if so, it occurs for the touched creature only and does not require a bonus action to sustain, instead it lasts 1 hour.

NAGPA

Safety Stars ** 1/2

Frail vulture headed humanoids with desiccated leathery skin. The nagpa of Mystara have a different origin than those of other worlds (Mordenkainen's Tome of Foes, page 215) but one they keep secret. There are no nagpa children. New nagpa are adult reincarnations of those that die. These mysteriously emerge from the desert of Vulture Peninsula (see Dragon issue 157). PC nagpa are recently reincarnated and have spent their past lives in dull safety. They are typically solitary intellectuals favouring book-learning. They want nothing more than to spend hours reading or in 'kariwa', a state of contemplative day-dreaming where past lives are glimpsed. They prefer to employ, summon, or create others to do all other tasks. The most onerous job for an employee is cooking since nagpa enjoy delicacies such as worm soup and slug pate.



LA3. Young(ish) nagpa can join a party at 4th level with one class level. At this level their natural magical powers have yet to manifest.

Size. Medium.

Type. Humanoid.

Speed. 30 feet.

Ability score adjustments. Nagpa are frail but with mighty intellects and a 'presence'. Reduce strength by 1. Increase intelligence by 4*. Finally, increase both wisdom and charisma* by 3.

*Cannot exceed 20 before 20th level. Can use epic boons (DMG page 230) to raise intelligence to 25 and charisma to 23.

Truesight. At 17th level you have the Truesight ability (MM9) with a range of 120 ft.

Racial Hit Dice. Your species provides 3d8 hit dice.

Peck. You can use your beak to make unarmed strikes. All the usual rules for unarmed strikes apply except you do piercing damage.

Natural Armour. Your dry leathery skin and protective bony skeleton provides an AC of 16 plus your dexterity modifier. Raised to 17 plus dexterity modifier at 5th level. If the character wears armour or gains an AC from another feature calculate each separately and then use the highest only.

Reincarnated. You are proficient in the History skill.

Corruption. At 7th as described in MTF page 215.

Paralysis. At 9th as described in MTF page 215.

Languages. You can speak read and write Skycommon, Nagpa, and two other languages of your choice.

Suggested Class. The official D&D 5e monster nagpa casts spells like a high-level wizard. If we assume players can choose the wizard class to get spellcasting, then what remains is a simple build with few powers but high ability scores. The nagpa

of Mystara favour necromancy or enchantment/charm. Those of other worlds typically learn a mix of spells.

For best emulation of the BECMI version choose the wizard or bard college of lore, and the sage background. Top Ballista says they use undead servants so perhaps wizard-necromancer is a good option. Nagpa of Mystara can take the Artificer feat given in the Gnome Construction Skills section of this book.

SPELL CHOICES THAT MIMIC BECMI NAGPA POWERS

Darkness (Wizard 2)

Firebolt (Wizard Cantrip)

*Material Corruption** (Wizard, Warlock 3)

Produce Flame (Druid Cantrip)

Phantasmal Force (Wizard, Bard 2)

Shatter (Wizard Bard 2)

Disguise Self (Wizard Bard 1)

Animate Dead (Wizard 3)

Find Familiar (Wizard 1)

Resistance (Cleric Cantrip)

Protection from Energy (Wizard 3)

* A new spell, see *Creature Spellcasters* in this book.

NAGPA BITE FEAT

Requires: Must be a nagpa

Add one to Strength.

Gain the ability to bite effectively for 1d8 plus strength modifier piercing damage. This is a natural weapon and you are proficient in it. Rules that can be used with unarmed strikes cannot be applied. When adjudicating how natural weapons interact with other rules a natural weapon is a melee weapon but is not a light, heavy, or improvised weapon.



PEGATAUR

*Safety Stars **

Like a centaur but with the lower body of a winged pegasus. Pegataurs have a clan warrior culture emphasising physical and martial prowess. The young must pass trials of stamina, hunger, and far travel to be accepted as full adults.

LA2. Being a pegataur is worth 2 levels. A pegataur begins play at 3rd level with 1 class level.

Ability Score Increase. A pegataur raises strength by 1.

Hit Dice. A pegataur begins play with an extra 2d10 hit dice.

Hooves. A pegataur's hooves are a natural weapon doing 1d10 plus strength modifier bludgeoning damage. You are proficient in this attack. Rules that can be used with unarmed strikes cannot be applied. When adjudicating how natural weapons interact with other rules a natural weapon is a melee weapon but is not a light, heavy, or improvised weapon.

Martial Culture. You are proficient in the use of maces.

Size. Large Centauroid. A pegataur is large except they use medium scale weapons. Whenever your large size place you in danger or prevents you from doing something critical your DM might award inspiration (PHB page 125). For example, a pegataur might be rewarded inspiration for not being able to enter a kobold tunnel where the rest of the party was losing a fight but not if the mine was merely providing safe shelter from the rain. If your size makes something more difficult but not impossible apply disadvantage.

Type. Fey. For better and worse you are unaffected by spells and effects targeting humanoids. However, you are affected by spells and phenomena affecting fey.

Speed. Base land speed 45 feet. Flight speed 70 feet. A pegataur can fly while wearing armour. Being able to fly before 6th level is exceptionally effective in certain circumstances and exceedingly dangerous in others. Furthermore, the safety star rating is only one star (*) because the speed a pegataur can fly is beyond any WOTC species. As a result, playing a pegataur requires special consideration by your DM who may disallow this choice.

Languages. You can speak read and write Skycommon and Sylvan.

Notes. Where the pegataur shares a trait with centaurs or pegasi, I set the trait a little weaker than those species. This ensures the pegataur does not entirely outshine centaurs (see my [species design book](#) on the DM's Guild).

SPHINX

*Safety Stars * 1/2*

A sphinx has the body of a lion, the wings of a giant eagle and a humanoid head. Sphinxes are prideful solitary predators cursed by their god with an obsession with puzzles and riddles. A side effect of this is that most also become collectors of a specific rare kind of object. What exactly varies from sphinx to sphinx.

The sphinx build here merges the 5e androsphinx and gynosphinx into a single 'species' as is the case in Mystara. The traits however enable players to build the two D&D 5e sphinxes by making appropriate choices. Alternatively, just build the sphinx you want taking advantage of 5e's combinational flexibility by choosing 'Speech of Sand and Wind' for a Mystaran sphinx or Teleport for those of other worlds then ignoring the other suggestions.

MYSTARAN SPHINX

Speech of Sand and Wind. You have the ability to communicate in a limited manner with beasts and plants. They can understand the meaning of your words, though you have no special ability to understand them in return. You have advantage on all charisma checks you make to influence them.

Either sex. At later levels take the Roar feats.

Suggested classes. For closer emulation of the Top Ballista rules. **Male.** Fighter (Eldritch knight) or wizard. **Female.** Cleric.

ANDROSPHINX

Teleport. At 15th level you gain the ability to cast the *teleport* spell once. This spell is restored after a short rest.

Assign a high score to constitution to boost AC but lower score to dexterity.

At later levels take the Roar feats.

Suggested class. For closer emulation of the D&D 5e Monster Manual: Cleric.

GYNOSPHINX

Teleport. At 15th level you gain the ability to cast the *teleport* spell once. This spell is restored after a short rest.

Assign scores to attributes evenly using the point buy method.

Do not take the Roar feats.

Suggested class. For closer emulation of the D&D 5e Monster Manual: Wizard.

ALL SPHINXES

LA7. A sphinx cannot join a party until 8th level and does so with only one class level. Being a sphinx is worth 7 class levels!

Paws. You have paws not hands. Unable to use any weapons, shields, or tools. Cannot don or remove armour without help. Cannot apply the attack roll bonus for dexterity or strength to thrown or missile weapons except objects dropped from above. Cannot open locks,

disable traps, pick pockets, open a doorknob, or write. A wizard must take mage hand as a known spell at first level. Spells requiring specific material components with a gp value require an active mage hand. Can cast spells where a focus can substitute for material components. Cannot use a component pouch without an active mage hand. Somatic components require your whole body to be free to move.



Use disadvantage when the species can do something but with difficulty.

When a species can't do something say 'no' but if this prevents the character from taking an action critical to survival or achieving important goals award inspiration. Inspiration is explained as the character trying harder to prove themselves useful.

A sphinx can only use two of the PHB Fighting Styles, Defense and Archery with dropped objects, because they cannot wield weapons nor use a shield. Of the new fighting styles (Tasha's Caudron of Everything (TCE) pages 41–42, 57) a sphinx can use: Blind Fighting, Superior Technique, Thrown Weapon Fighting with dropped objects, Unarmed Fighting, and Druidic Warrior. A sphinx when granted a fighting style by a class may take the Crusher, Piercer, or Slasher feat instead (TCE79–81).

Size. Large. Whenever large size place you in danger or prevents you from doing something critical your DM might award inspiration (PHB page 125). For example, a sphinx might be rewarded inspiration for not being able to enter a kobold tunnel where the rest of the party was losing a fight but not if the mine was merely providing safe shelter from the rain. If your size makes something more difficult but not impossible apply disadvantage.

Type. Monstrosity. For better and worse you are immune to spells and effects that target humanoids but susceptible to those that target monstrosities.

Natural Armour. Base AC 12. While not wearing armour you may add both dexterity and constitution bonuses to your AC. If the character wears armour or gains an AC from another feature calculate each separately and then use the highest only.

Speed. Your base land speed is 40 feet. You can also fly at speed 60 feet. A sphinx can fly while wearing armour.

Ability Score Adjustments. You add 4 to strength, wisdom and charisma. You also add 3 to constitution and intelligence.

Strength and charisma can be raised above 20 with the following restrictions (next page).

SPHINX ELDRITCH ARMOUR BOND

The Eldritch Knight is a suggested class for Mystaran sphinxes but the Weapon Bond feature of that class is useless to them. Your DM might instead allow a sphinx eldritch knight to bond armour.

Armour Bond: At 3rd level, you learn a ritual that magically bonds one suit of armour to you. This ritual takes 1 hour to perform, which can be done as part of a short rest. The suit of armour must be worn throughout the ritual, at the conclusion of the ritual the bond comes into being.

Once you have bonded with a suit of armour if it is on the same plane of existence, you can summon it as a bonus action on your turn, causing the armour to teleport to you so that you are wearing it.

You can only bond to one suit of armour. If your attempt to bond with a second you must first break the existing bond with the first.

- After 20th level a sphinx can always use epic boons to raise charisma 26 as per the optional rule (DMG page 230).
- Before 20th level if the sphinx's strength would be raised above 20, they instead acquire a split strength. For most tasks 'general strength' is treated as 20. For lifting and carrying as well as the encumbrance rule (PHB page 176) the character's 'carrying strength' over 20 is used. The maximum allowed for this split carrying strength is 24.
- After 20th level the sphinx's general strength (only) increases every time the character gains an epic boon (DMG page 231), in addition to the usual benefit of the boon. When carrying and general strength are equal the two are merged into a single strength score.
- After 20th level the sphinx can always use epic boons to raise general strength and carrying strength at the same time as per the optional rule (DMG page 230) except to a maximum of 24.

Damage immunities. Psychic, and non-magical bludgeoning, piercing, and slashing damage.

Condition immunities. Charmed and frightened.

Truesight. At 13th level you have the Truesight ability (MM9) with a range of 120 ft.

Claws. Your claws do 2d10 plus strength modifier slashing damage and count as magic weapons. You are proficient in this attack. Rules that can be used with unarmed strikes cannot be applied. When adjudicating how natural weapons interact with other rules a natural weapon is a melee weapon but is not a light, heavy, or improvised weapon.

Inscrutable. As per the D&D 5e Monster Manual.

Species hit die: Your species adds 5d10 hit dice. Do not add your constitution modifier to these when determining maximum hit points, but see below.

Hit point maximum bonus. Add your constitution modifier multiplied by 7 to your starting maximum hit points.

Languages: You can speak and read SkyCommon and Sphinx.

ROAR FEATS

The D&D 5e the sphinx's roar has a radius of 500 feet! This is fine for a monster where everything over say 100 feet translates to 'all the PCs'. However, it is overpowered for PC use. The sphinx's roar in BECMI has a more reasonable radius and in Top Ballista gets larger as the sphinx gains levels. The roar's effects in the two editions differ but are thematically similar.

These roar feats have the same effects as in D&D 5e (MM281) except the radius is less, but expands a little as the sphinx gains levels. The radius *cannot* be reduced from that given for your level.

Save DC is 8 plus your proficiency bonus and wisdom modifier.

Mystaran sphinxes can use the roars in any order.

Standard D&D 5e sphinxes must use them in order!

Remember that because being a sphinx adds 7 'levels' a sphinx receives their first feat at 11th level or later. The power of these feats reflects this.

FIRST ROAR

Requires: Sphinx species.

You can use the first roar action of the sphinx in the MM except the radius is only 25 feet. You may do this once. Your ability to voice a first roar is restored by a long rest. At 13th level the radius increases to 30 feet. At 15th level the radius increases to 40 feet. At 17th level the radius increases to 75 feet!

SECOND ROAR

Requires: First Roar.

You can use the second roar action of the sphinx in the Monster Manual except the radius is only 20 feet. You may do this once. Your ability to voice a second roar is restored by a long rest. At 15th level the radius increases to 25 feet. At 17th level the radius increases to 30 feet. At 19th level the radius increases to 40 feet.

THIRD ROAR

Requires: Second Roar.

You can use the third roar action of the sphinx in the Monster Manual except the radius is only 45 feet. You may do this once. Your ability to voice a third roar is restored by a long rest. This roar does not increase in radius as levels are gained.

TABI

*Safety Stars ** 1/2*

A tabi is a cat-sized flying monkey with golden fur and venomous claws. A tabi's wings are an extra pair of bat-like limbs. Curious and confident sums up the tabi mindset. They enjoy learning new things but are soon ready to move on to a new subject resulting in broad knowledge without depth. All this reflects their normal lifestyle living in extended families feasting on the plentiful fruit found by exploring tropical rainforests and easily avoiding predators by flight. Tabi scent mark their territory and few possessions.

Ability Score Adjustments. Add 3 to your dexterity. Add 1 to both intelligence and charisma. However, subtract 1 from your wisdom.

Strength Reduction. Tabi also subtract 7 from strength and just as most characters cannot exceed 20 in an ability score a Tabi's strength may not exceed 8.

Monkey: A Tabi has a climb speed of 30 feet. You are proficient in stealth and acrobatics skills.

Inquisitive: You are also proficient one of the following: arcana, history, nature, or survival.

Languages: You can speak, read, and write SkyCommon and Tabi. You can also communicate with beast-type monkeys and apes.

Size. Tiny. Whenever your size places you in danger or prevents you from doing something critical your DM might award inspiration (PHB page 125). If your size makes something more difficult but not impossible apply disadvantage. In some instances, a DM might require a tabi to use their climb speed or flight to scale a bench, bookshelf, or similar that a medium character could reach easily.

See the equipment section of this book for rules for tiny scale tabi gear.

Speed. Your base speed is 30 feet.

Monkey Paws. Your monkey paws are not as good as a human's hands. You are only able to wield simple bludgeoning melee weapons such as clubs and maces (PHB page 49). Can use a shield. Can perform fine manipulation such as writing and manipulating lock picks. Able to disarm traps, pick pockets, and open doorknobs. Cannot apply the attack roll bonus for dexterity or strength to thrown or missile weapons except objects dropped from above and hand crossbows. Loading and firing hand crossbows requires fine manipulation at a similar scale to lock-picking etc. Can don and remove armour unaided. Spell casting unaffected. Your hands and feet are equally good at manipulation and you can crudely hold things in your prehensile tail.

Type. You are a Monstrosity. For better and worse you are not affected by effects targeting humanoids but you are affected by effects targeting monstrosities.

Flying Monkey! You have a flying speed of 50 feet. You cannot fly in medium or heavy armour.

Venomous Claws If you do not retract your claws, your unarmed strikes do 1d4 slashing damage and inject the Blue Venom.

Blue Venom. When a creature is hit by tabi claws it must make a constitution saving throw against poison. Creatures immune to poison automatically succeed at this saving throw. The DC for this save is 8 plus your proficiency bonus and constitution modifier. If this save is made, no effect results. Failure does not induce the poisoned condition, instead the creature struck suffers from the delusion that all around are hostile and will attack the nearest creature or character. A deluded character will fight with weapons or if unarmed natural weapons or unarmed strikes, but cannot cast a spell or use a magic item such as a wand, undertake other actions beyond moving, melee, attacks and incoherent screams of rage. The delusion lasts for 2d6 rounds (rolled in secret by the DM).

Disengage as a bonus action. You are going to need this after Blue Venom!

Suggested class. Normal monster level BECMI tabi are without the spellcasting or rotting blight (stench) of the BECMI species class. The bard class emulates BECMI version by providing both spellcasting and more skills. The stench ability is provided as a feat for those that want it.

Notes. A tabi's ability scores adjustments are extreme but the high penalty to strength counterbalances the numerous special abilities, especially flight and extra skills. In combat tabi are useless at dealing damage and their AC is likely to be mediocre, but swooping in, scratching, and using remaining movement to fly away is a sound tactic. The result is the ultimate combat chaos monkey!

ROTTING BLIGHT FEAT

Requires. Tabi species.

As some tabi mature they develop a skunk-like defensive odour.

As an action, you create an invisible stinking miasma 100 feet in radius centred on yourself. The miasma spreads around corners. The gas lingers in the area it was created in for one minute and does not follow you.

Each creature that is completely within this invisible cloud at the start of its turn must make a constitution saving throw against poison. The DC for this save is 8 plus your proficiency bonus and constitution modifier. On a failed save the creature spends its turn retching and reeling unable to take any actions, reactions, bonus actions, movement, or handle objects.

Creatures that don't breathe or are immune to poison automatically succeed at this saving throw.

You and all other tabi are immune to the effects of rotting blight.

A moderate wind (at least 10 miles per hour) disperses the cloud after 4 rounds. A strong wind (at least 20 miles per hour) disperses it after 1 round.

Notes: It's a bit like *stinking cloud* minus the effect of *fog cloud* after both have been adjusted to be range 0, radius 100, and at will. This really adds to the Tabi role of disrupting enemy battle plans.

TABI BRAVADO FEAT

Requires. Tabi species.

You have advantage on saves to avoid the frightened condition.

If an opponent attempts to cause the frightened condition in you and fails, then if you make an attack against that creature during your next turn your first attack has advantage.

Other Serrainers

The population breakdown of Serraine (TB49) reveals other minority species that dwell in Serraine which could be PCs using existing rules elsewhere.

Kobolds and Orcs. Volo's Guide to Monsters.

Ogres. Half Ogre & Ogre PC Races, DMs Guild.

Humans and Elves. Players Handbook.

For context the approximate populations are reproduced here. Gnomes 1500, nagpa 125, tabi 250, sphinxes 0-10, faenare 80, pegataurs 120, harpies 30, gremlins 40, kobolds 50, orcs 20, ogres 6, humans 100, elves 70, and one cloud giant called Stompri. There are also 60-300 tourists aboard at any time.

Roleplaying Serrainers

Serrainers live in a very unusual place so it is little wonder that they have some unusual cultural norms. What follows is typical of Serrainers but not universal.

- Serrainers are not scared of heights.
- A machine malfunctioning dangerously is just an accident and not anyone's fault.
- Gnomes and the working classes speak with a broad dialect. Use 'be' for 'can' or 'are' or 'is', 'me' instead of 'I', 'fer' replaces 'for' and say 'o' instead of 'of'. Use 'ye' to mean 'you' and 'yer' for 'your' but 'ye be' for 'you're'. Drop the 'g' from '-ing'.
- Common expressions: 'a lark day' a day with clear weather, 'have a lark day' a farewell, 'giant's trousers' large fluffy white-gray clouds, 'down with the giant's trousers' uncertain weather with grey clouds below and some clouds above, 'gremlins in your meddling box' may you get confused and mess things up, 'may your sprockets spark' good luck!
- Corpses are just objects that can be bought, sold, and used. You may or may not find animating or eating corpses distasteful but it isn't evil. Just keep the receipt when you buy one from the next of kin!
- Patriotism is high. Locals believe that Serraine is the most impressive and sophisticated city in the world. It is a citizen's duty to defend the city.
- A careful being with a strong will can avoid being charmed. Being charmed is treated as just an embarrassing incident unless the harm done is grievous.
- It's fine to make loud noise any time of the night or day. Serraine is a noisy place and Serrainers sleep through loud noise.
- You are used to sphinxes, pegataurs, nagpa, harpies, gnomes, faenare, tabi, and gremlins walking the streets. Some may have distasteful or annoying habits but you are all Serrainers together.
- Gremlins are not citizens. They are treated more like naughty street-orphans or stray cats. Immigration control tries to stop them coming back into Serraine.
- Evading tax collectors is popularly regarded as a city sport.

CREATURE SPELLCASTERS

In D&D 5e there are no species-classes and every species can be any class. In this conversion spellcasting species-classes are converted to species without spells and classes are recommended for those who want to emulate the BECMI species-class.

However, there are some spells and spell-like powers in Top Ballista that can be best emulated with new spells, which are provided below.

MATERIAL CORRUPTION

3rd Level Necromancy Spell for Wizard and Warlock

Casting Time: 1 action.

Range: 10 feet.

Components: V, S

Duration: Instant.

A spell invented by the Nagpa of Mystara and still favoured among them.

The spell infects an object with necrotic energy causing it to rot, rust, or otherwise decay. If the object is held, carried, or worn by a creature, then a charisma save applies and success prevents the effect. For objects other than food, whether it be rust, rot, mould, unravelling or wear, the game effect is the same, 4d4 necrotic damage to the object. The method of determining an object's hit points if unknown is in the D&D 5e DMG. Machines affected by this power tend to make worrying noises, blow out black smoke, leaks fluids, or show other symptoms appropriate to the machine.

If you target an item of food or a container of drink. Corruption instantly grows and the target is contaminated. Mould grows on bread, meat goes rancid, milk curdles, beer sours etc.

At higher levels. Each level of spell slot above 3rd used adds 1d4 to the damage done or one additional item of food or container of drink.

SONG OF THE RAINBOW

4th level Evocation Spell for Clerics and Rangers

Casting Time: 1 action.

Range: 10 feet.

Components: V, S

Duration: 3 rounds.

A favourite of Faenare clerics, this spell calls into being a beautiful, shimmering rainbow. The caster and up to six other creatures can step on to the rainbow and walk along it, traveling at a rate of up to two miles per round up to a maximum distance of five miles. The rainbow is 35 feet wide. The caster and their party can step off the rainbow and on to solid ground at any point up to the maximum range of the rainbow (assuming solid ground is present!). There is no danger of falling off the rainbow (unless someone actually wants to). If you want

to jump be aware the rainbow ascends steeply at a 1:1 ratio to the mid point then descends at the same rate. Above the rainbow room temperature breathable air is maintained to a height of 20 feet above the rainbow surface. Enemies of the caster, or creatures NOT accompanying the caster, simply cannot see the created rainbow, nor can they step on to it. The rainbow persists for three rounds, although the caster can wish it out of existence when he has travelled as far as they want. The rainbow disappears if all the colours are plucked from it (see below).

Bands of colour may be plucked from the rainbow by the caster as an action. These bands can either affect the caster, or someone to whom they hand the band. When plucked, the colour band completely disappears from the rainbow, reducing the width by 5 feet. Creatures on the plucked band are automatically moved to one of the adjacent bands (random even chance of either if two). If the space on the adjacent band is occupied the displaced creature is moved to behind that creature. The effects are:

- Red- As potion of fire resistance.
- Orange- Cure wounds.
- Yellow- As a haste spell (on only one creature).
- Green- Neutralize poison.
- Blue- Gain resistance to cold damage until the spell ends.
- Indigo- Removes paralyzed condition.
- Violet- Advantage on wisdom checks and saves until the next sunrise.

At higher levels. Add five miles to the distance that can be travelled and one round duration for every level of spell slot above 4th.



SKILLS

5e has a more streamlined list of skills than BECMI. The new BECMI skills from Top Ballista are mapped to 5e equivalents.

BECMI SKILLS TO D&D 5E

BECMI Skill	D&D 5e
Direction Sense	Part of survival skill
Water Divining	Part of survival skill
Piloting	Aerial vehicles tool proficiency
Fantasy Physics	Gnomes and nagpa only* Artificer's Lore trait.
Machine Building	Gnomes only* Tinker trait.
Skyhooks	Gnomes only*. A new artisan's tools proficiency.

*These species restrictions are to emulate the situation in the flying city of Serraine. Adjust as you see fit for other settings. Artificer's Lore assumed to include use of meddling boxes.

SKYHOOKS TOOL PROFICIENCY

A collection of tools useful for the assembling of machines. Treated as a type of artisan's tools proficiency here. For cultural reasons only gnomes have access to these at the start of the campaign. Through roleplaying a character of another species might be able to arrange to learn to use these tools during play. Also see the Equipment section of this book.

FEAT ARTIFICER

Requires: Nagpa of Mystara (in other settings other technological cultures might be allowed).

Add 1 to Intelligence.

You gain the Artificer's Lore trait like a gnome. You also have advantage when making charisma (persuasion) checks when dealing with others who have the Artificer's Lore trait.

FEAT TINKER

Requires: Technologically innovative culture. This is not for use in Top Ballista. DM approval required in all settings. You gain the gnome Tinker trait.

BECOMING A MASTER MACHINE BUILDER

The invention and machine building rules ensure numerous tool proficiencies are needed to build a machine. This can foster cooperation between players. Alternatively, if to become a better machine builder consider taking the Skilled feat (PHB page 170) or using training (Xanathar's Guide to Everything, XGE page 134) to gain further tool proficiencies.

LANGUAGES

D&D 5e has fewer languages than previous editions. Harpies don't have their own language. There are no alignment languages. All giants share one language etc.

Skycommon is a dialect of Common. Those speaking Common and Skycommon can understand each other (PHB page 123). If using the species presented here in other worlds or regions of Mystara beyond Serraine you could change Skycommon to Common in the languages spoken.

GNOME CONSTRUCTION SKILLS

This section covers the design, building, and use of gnome contraptions. I have created this system in a way that

should be adaptable to many D&D worlds regardless of the kind of technology available. D&D 5e concepts have been adapted to each of the 9 stages given in Top Ballista to produce a workable hybrid system.

STAGE 1. WHAT IS THE MACHINE FOR?

"Decide exactly what the machine is to do. It may have more than one function, but it's best to stick to machines with relatively simple purposes." -Top Ballista page 34.

Your design will have one or more components. The term 'components' here is rather abstract but generally refers to largish chunks of the machine. For example, for a basic biplane there is the landing gear, wings and propellers, and the cockpit. Three components.

Every magic item incorporated in the design is a component if it has not been counted already. Often a power source is magical and should be counted even if it powers other components. Mundane power sources on the other hand are not counted separately. Therefore, a Serraine built basic biplane with a magical engine has 4 components. The example biplanes have more components than this.

Each broad function requires a component. Examples include but are not limited to:

- Armoured
- Attacks (each type of attack is a component).
- Hold cargo
- Hold passengers/crew/livestock
- Move on land
- Move on water (surface and underwater are two separate components)
- Move in the air
- Prepare a specific food item for cooking
- Reinforced. The machine is very sturdily built.

The technology available can only build so big and so complex. Furthermore, there are only so many tool proficiencies described in D&D for use in later steps. Machines have a maximum number of components by size: tiny 21, small 20, medium 19, large 18, huge 17, and gargantuan 16.

STAGE 2. PLANNING THE DESIGN

It's worth taking time now to discuss what your machine might look like. This varies across worlds. Mystaran gnomes use late medieval technology, but not gunpowder, and magic to create contraptions that look like machines available before 1930 on Earth. If you're not sure, look up what year something was invented, if it's 1930 or earlier, you're gold. The Top Ballista biplanes are a good example. The flying city is an exception and should be treated as a one-off technological marvel built on the hulk of an ancient gigantic crashed super-science vehicle. The Serrainers also have experimental steam engines something like 1812 Britain. The fire salamander steam train in the Science Park resembles the *Salamanca*.

Why 1930? This is based on the canon magical technology of the skygnomes. The gnomes have build basic rockets but failed to reach space. On Earth the first rocket to reach space was in 1942 so gnome technology is pre-1940's. First passenger plane with an enclosed cabin was built in Russia in 1913 but it did not look much like a Cloud Clipper. The modified planes of the Air Transport and Travel, Ltd. of 1919 are a little closer. The Argosy Mk I of Imperial Airways in 1926 is a pretty good match to a cloud clipper but held twice as many passengers.

On other worlds other aesthetics might apply. A gritty fantasy world might ask you to look to the inventions of Leonardo Di Vinci or the engineering of Ancient Rome and Greece. The Tinker gnomes of Krynn use very exaggerated and excessively complex medieval technology to

sometimes achieve technically impossible results.

Related to how it looks is the basic principle of how it works. The biplanes of Serraine work like their real-world counterparts except medieval technology does not have internal combustion engines so a magical power source is used. While many designs use a power source this might not be required for simple designs. Magical power sources count as a component, mundane ones do not. See Top Ballista (page 35) for example power sources. The gnomes don't really understand non-magical electricity so gnome versions of electrical appliances will function by magical means.

STAGE 3. DETERMINING WHETHER IT WORKS

At this stage it's time to check with the DM that the concept is one that fits in the game world. Does the basic function and how it is achieved make some kind of sense? A non-magical windmill powered time machine built with medieval technology does not make any sense. On Mystara the prior to 1930 rule also nixes a time machine. Gnomish biplanes that work like real planes but with magic driving the propellers sound like something that makes sense, at least in that D&D world.

CAPABILITIES

Size. With the DM discuss how big the contraption should be. A machine with cargo and passengers needs to be big enough to hold these, at least one size bigger. At 4, 8, 16, 32, and 64 passengers/crew raise machine size again. If the machine is ridden on like a bicycle or worn like a suit of armour reduce Size by 1. As with creatures, maximum size is gargantuan and minimum size is tiny. If the machine will house a variety of sizes work this out for each separately then use the largest result. Looking at the other canon inventions in Mystara. As a general cap on power the maximum size of an invention is a gargantuan machine capable of enclosing 4 huge creatures. This is about the size of a big renaissance sailing ship.

Power. The next step is to determine the 'rarity' of the contraption as if it was a magic item. In this instance the invention may be unique, and 'rarity' is really a measure of power. We call it 'Power' on the example machine descriptions. Use the guide in the DMG (page 285) or compare to at least three magic items in the DMG that perform a similar function to guide your rating in consultation with the DM. Alternatively, for non-magical machines where a price exists for a typical version, eg. a sailing ship, compare that to the rarity table in the DMG (page 135) to get a power.

If you feel a magic item with the invention's proposed effects would require attunement, instead the mechanism 'requires daily maintenance' (see Repairing and Maintaining below). From the example of The Apparatus of Kwalish in the DMG we can see that vehicles will not require attunement/maintenance. Suits always have this requirement.

Looking at spells and magic items to determine rarity also allows the DM to compare and suggest reasonable numbers for traits like speed, bonus to damage, modifier to checks etc. Don't try to put numbers on everything, just the bare minimum traits the device is likely to need in game play. Some advice follows.

Damage immunities: Unless they incorporate magical or living creatures most contraptions are immune to poison and psychic damage. The same cannot be said for

pilots and operators. Unlike true magic items machines do not have resistance to all damage (Dungeon Master's Guide page 141) even though any magic items used as components do.



AC. Items larger than tiny or likely to be damaged in combat can be give hit points and armour class. Machines are more delicate than solid objects. Find the material the machine is mostly made of at DMG page 246 and subtract 2 from that AC, use this number or 15 whichever is *lower*. The exception is machines with the 'armoured' component' these do not subtract 2 and *may* even raise AC by 1. These can exceed AC15. Furthermore, especially mobile machines might have a dexterity adjustment that can raise this base (see next). Note that machine-suits are more cumbersome than regular clothes or armour. A leather or padded cloth machine-suit has a base AC of 11-2=9! Additionally, dexterity adjustment does not apply, but see below. Adding the armoured component to a suit can raise AC as described above.

Dexterity. Most D&D machines are slow and not especially manoeuvrable. However, there are exceptions such as biplane fighters. Such machines have dexterity assigned to one or more modes of movement (land, air, water, climbing). Each mode of movement can be assigned it's own dexterity, or not. The only effect of these dexterities is to modify AC but only when the machine is moving in that mode. Adding dexterity makes the design and build more difficult. Since agile designs are lighter subtract the dexterity score (not modifier) from the maximum hit points when they are rolled. This subtraction will never lower hit points to lower than the number of hit dice.

For worn suits this dexterity adjustment does not apply for every wearer. Instead, this is the maximum the wearer's own dexterity can adjust AC by.

Hit points: See hit points for object in the DMG (page 247). For Huge machines fragile is 1d12 and resilient is 6d12. For Gargantuan machines fragile is 1d20 and resilient is 7d20. Unless the machine is mostly made of cloth or glass it's probably resilient. The reinforced component doubles hit dice or if applied as two components, quadruples hit die. When the first version of the machine is built roll for hit points. All subsequent machines built from the design have the same hit points.

For suits the wearer can choose for damage to affect them or the suit. This is often a good way to avoid poison damage from venomous fangs, poisoned blades etc. However, psychic damage always affects the wearer never the suit.

Attacks. If the machine has attacks, each type of attack is a component. For a machine to make an attack a crew member usually must take an action. If the machine can make an attack by itself, perhaps because it is possessed by a spirit, then each consciousness can make one attack. Two weapons of the same type can be synchronised creating a multiattack for an action. Weapons must be at least one size smaller than the machine. Weapons could include those in the PHB, the siege weapons from the DMG, and magic items such as a wand of fireballs. Each weapon must be assigned to a specific crew station, for example aeroplanes have a pilot and a gunner. Pilots cannot fire the gunner's weapons and visa versa. The number of attacks allowed is limited by the machines size: Tiny or Small 1, Medium 2, Large 8, Huge 32, Gargantuan 136. Whether handheld or not, non-magical weapon inventions have a maximum damage by the weapon's size Tiny d8, small d10 (and has Heavy tag if hand held), medium 2d10, large 3d10, huge 4d10, gargantuan 8d10.

Ramming. Even without the attacks component, a vehicle or similar could ram. Unless an attacks component is selected to represent a ram, use this default. To hit is at -2 and damage is 1d8 bludgeoning per size (or 1d4 if the machine is fragile). Both the target and the machine receive this damage!

Targets who are hit and of smaller Size are knocked prone. A suit 'ram' is a body slam and 'suited body slam' is its own exotic melee weapon proficiency and therefore is usually a non-proficient attack.

Little Details. If the machine incorporates magical items, particularly ones scavenged or stolen then repurposed as components, you may want to give those components Special Features (DMG page 141).

STAGE 4. HOW DIFFICULT IS THIS GOING TO BE?

Once the designer is happy with the concept, the character will need 50 gp per component for pen, ink, sheets of parchment or paper, library fees etc. You may wish to skip ahead to step 5 and determine the DC before committing.

DESIGN DIFFICULTY

Number of Components	Time Required to Draw Plans
1	1d4 days
2	1d4+2 days
3	3d6 days
4	5d6 days
5 or more	30 + 7d10days

Every 5 weeks the work continues roll a d10; on a 1 a complication occurs. Complications are prompts for the DM. These are geared to Serraine but easily altered for other locales.

DESIGN COMPLICATIONS

1d6	Complications to Drawing Plans
1	Someone tries to steal your unfinished design.
2	You accidentally damage a rare reference book in the Great Library.
3	A librarian demands an extravagant bribe to grant you access to a rare tome.
4	A city councillor becomes interested in your work demanding frequent updates.
5	A gnome takes interest in your work and insists on an unworkable modification.
6	You discover a ruthless nagma is working on an almost identical idea.

STAGE 5. DOES IT WORK?

Designing the machine will require the secret a single wisdom (history) check **rolled by the DM and the result kept secret**. Alternatively, hold off, note the DC, and roll this check when needed in stage 8 or 9. Artificer's Lore applies to this roll. If magic is required, then the designer must be a spellcaster as well.

- The base DC to design a machine is 8
- +2 per component.
- Designer does not have Tinker trait +2.
- No meddling box or have one but no Artificer's lore to use it +2.
- Distractions* +1 to +4.
- Per +1 of dexterity modifier in each movement mode (ignore for improved models unless this is the improvement. If so the full new dexterity modifier applies).

*"Distractions are things that keep the gnome from either continuous work on his design or that keep him from concentrating. Adventuring is an example of an interruption. Developing a design in a rowdy tavern or in

a home where squalling gnomelings take a gnome's mind off the task at hand are examples of concentration distractions. The exact penalty is up to the DM." Top Ballista (page 37). Furthermore, unforeseen distractions may raise the DC before the design is finished!

"Importantly, the gnome always thinks that his design is sound. Only the DM knows, at this stage, whether it is actually is sound or not. Sound or not, don't tell the player!" Top Ballista (page 37).

STAGE 6. BUILDING THE CONTRAPTION

To build the thing you need skilled workers with appropriate tool proficiencies and, if there are magical components, a spellcaster. Leading the effort is the 'chief builder' who may or may not be the same person as the designer.

Add size and number of components to determine the number of proficiencies needed where tiny = 0, small = 1, medium = 2, large = 3, huge = 4, gargantuan = 5.

With the DM, choose a selection of proficiencies from the list below. These proficiencies will also be the list for maintenance except if spellcaster is used to build the machine it is not listed as a maintenance proficiency.

Skyhooks can be used for any machine.

Tinker's Tools can be used for any machine.

Spellcaster: counts as a 'proficiency' and is required if the contraption uses magic. Therefore, even a tiny one component magical contraption needs both Tinker and Spellcasting. Use the arcana skill for any checks, even if the spellcaster is not proficient in this skill. Note that in 5e there is no minimum level needed to craft a magic item.

Alchemist's Supplies. Flammable or coloured liquids, hydrogen, explosives, inks, glue.

Brewer's supplies. Alcohol as a fuel, preservative, or produced as a beverage.

Calligrapher's Supplies. Parchments used in golems and other magical applications. Checklists and manuals.

Carpenter's Tools. Wooden structures of all kinds: barrels, wheels, frameworks, boats, etc.

Cobbler's tools. Pedals with straps, specialised footwear such as flippers.

Cooks Utensils. Where the contraption delivers or produces food.

Glassblower's tools. Any glass item such as windows, lenses, bulbs, rods, and tanks.

Herbalism Kit. Production of custom rubber components. Sheets of rubber can be bought in Serraine but odd shapes have to be cast. Also inks.

Jeweller's Tools. Any use of fine metals or gems. Many magic items require specific lavish decoration with expensive materials. Clockwork devices often have parts that require these tools.

Leatherworker's tools. Leather items including covers, joints, upholstery, and gaskets.

Mason's Tools. Anything made of stone such as counterweights, arches, fancy privy's etc. Also, the bodies of stone golems.

Navigator's tools. To calibrate any contraption that is to perform navigation or calculate trajectories of hurled items.

Painter's Supplies. Symbols on mechanical control panels or displays. Water- or fire- proof coatings (with the help of an herbalist or alchemist)

Potter's Tools. Any ceramic components such as shattering pots for various bombs, fuel tanks, and boilers.

Poisoner's kit. If the contraption uses poisons.

Smith's Tool. For larger metal components not using precious metals. Sheet metal, rods, chain, screws, nails etc can be bought but shaping sheet metal or casting custom components requires this skill. Also, the bodies of iron golems.

Weaver's tools. Fashioning bulk cloth into balloons, upholstery, canopies, sails, slings, suits, nets etc.

Woodcarver's tools. Shaped wood components including rings, figureheads, masks, propellers, etc.

As can be seen many skills are needed to build a machine of any complexity. Fortunately, multiple skilled gnomes can work on a project (see stage 7). In Serraine and perhaps other large cities with a substantial gnome population you can hire skilled gnomes for 14gp a week. Non-gnomes, including other PC's, can get involved and provide tool proficiencies; as long as at least one gnome (or similar knowledgeable character suitable to the world) is helping with the build this does not create a penalty.

The proficiencies required can also give us hints about what the finished machine might look like. For example, without leatherworker's or weaver's tools any seats will be hard without upholstery. Woodcarving tools might indicate a vehicle has a figurehead on the bow.

With the work crew assembled construction can begin. You should probably skip ahead to stage 8 soon and figure out the cost and from that how long each component takes to build.

Back? Great. The chief builder must make an intelligence check for each component at the intervals described in stage 8. Each check should use a different proficiency. The DC for the check is 10 modified as below:

- +6 if designer not part of the work crew. For example, if the plans are from the clan archive or were stolen. This only applies the first time a chief builder works from a new design. Even if this first machine fails enough is learned to negate this issue.
- +6 if the chief builder doesn't have the Tinker* trait.
- +2 if the chief builder didn't design the machine.
- +1 if the designer cannot build the machine on his own with no required assistance.
- +4 if the builders do not have a set of skyhooks# to work with and at least one worker proficient in their use.
- +1 per component.
- + 3 if no gnome labor with the Tinker* trait is available to build the machine.
- + 3 if this is a Rush Job being completed faster than it reasonably should be.
- Per +1 of dexterity modifier in each movement mode.
- -3 if this is a Careful Job being completed slowly are carefully.

Or a specialist facility such as a shipyard when building a ship.

* Or equivalent very technological culture or appropriate expertise on other worlds.

If a check fails, see Stage 9.

STAGE 7. HOW MUCH IS THIS GONNA COST?

Now you have your workforce you need materials for them to build the contraption. There's a formula for the cost of raw mundane materials:

Size x Components x 5 cp

Where tiny = 1, small = 8, medium = 64, large = 512, huge = 4096, gargantuan = 32768.

5 cp is 0.05 gp for those with a calculator.

For any device *without any magical components* that is not part of larger machine, if the cost of materials is less than the following minimums by machine size, raise to the given amount: tiny 15 gp, small 30 gp, medium 60 gp, large 120 gp, Huge 240 gp, gargantuan 1638gp.

If your contraption *has magical components* these must be either found or created. Sometimes an existing magical item can be found and repurposed as a component. Otherwise, a bespoke item will have to be created.

Magic items have a rarity rating, if the item is new assign a rarity based on how powerful it is when *not* part of the contraption. Some items that are all but unknown elsewhere because they are useless except for fantasy engineering are common in Serraine. Magic is not engineering, your fantasy physics won't help you here, you need a 'recipe' which might require research in the Great Library of Serraine (research rules Xanathar's Guide to Everything, page 137), or might need to be obtained from a powerful wizard, be found inscribed on the walls of an ancient ruin etc. Inevitably, to create a magic component an exotic hard to obtain ingredient is required such as dragon blood or clay from the Elemental Plane of Earth or the last breath of a dying king. Confusingly, there are multiple differing recipes for most magic items. What this boils down to is adventure! The DM should concoct an adventure where for every magical component there is a challenge to be overcome. This might be a trap, monster, hostile environment, or social encounter.

When building this adventure use the below guide to set the difficulty of each encounter. While a monster challenge rating is given the encounter need not be a monster only a typical challenge for a party of that level and put something at risk of loss be it hit points, gold, a friendly NPC, social standing etc. As well as this there is a gold piece cost as well.

COST FOR BUILDING MAGIC COMPONENTS

Rarity	Challenge	Cost (gp)*
Common	1-3	50
Uncommon	4-8	200
Rare	9-12	2000
Very Rare	13-18	20 000
Legendary	19+	100 000

*Halve the gp cost if the magic item is a consumable.

Light can be provided by *continual flame* spells for 200 gp for throughout the entire machine.

Golem power always costs 20000 gp regardless of the use the golem is put to. Golems have the advantages of being tireless and you can order them to fight for you.

The finished item, if functional, is worth twice as much as the material resources used to craft it. Furthermore, once a design has been successfully used to produce one machine you can skip stages 1 to 5 when building future identical machines.

STAGE 8. HOW LONG DOES THIS ALL TAKE?

Divide the cost of the material resources in gp for *non-magical components* (stage 7) by 25 to get the number of gnome-weeks of work required. However, if less than 1 consider multiplying by 7 to give a number of days. If still less than 1 try multiplying again this time by 12

work-hours to get a number of hours of work. Whether you use weeks, days, or hours, round up. Skilled gnomish workers expect to be paid for at least one day of their time (2gp) and never by the hour. The work can be divided among multiple gnomes, but the number of workers is limited by its complexity as follows: per size 1 worker, per component +1 worker. Each worker should contribute a relevant tool proficiency or if the contraption has magical elements be a spellcaster. Divide this time evenly by the number of non-magical components to find the time to craft and fit each.

There is additional time for any magical components based on rarity. Creating and fitting a magic item into the machine uses the *arcana* skill for the check.

TIME TO BUILD MAGIC COMPONENTS

Rarity	Work weeks
Common	1
Uncommon	2
Rare	10
Very Rare	25
Legendary	50

Every 5 weeks (not gnome work weeks, the actual duration) roll to check for a complication as described below.

Doing a **Rushed Job** can reduce this time to $\frac{3}{4}$ of the above (round up) but in no way reduces costs. Even hired gnomes insist on the same pay as taking the regular amount of time.

However, if a **Careful Job** is done the time is multiplied by $1\frac{1}{2}$ (round up) and you still have to pay workers for the whole time.

MACHINE BUILDING COMPLICATIONS

1d6 Complication to Building a Machine

- 1 Rumours circulate that your work is explosive and dangerous.
- 2 All the skyhooks in your workshop are stolen and you must buy new ones or find the thieves.
- 3 A trio of gremlins covertly interferes with your work. Until you realise this and somehow get them to leave you alone, no useful work can be completed.
- 4 The city council insists on buying your first machine and won't take no for an answer.
- 5 A competing gnome spreads a rumour that your work is suspect and the machine will be subject to dangerous malfunctions.
- 6 A merchant providing one of your raw materials raises the price. Why?

When the first machine from a design is built don't forget to roll for hit points subtracting any dexterity. All subsequent machines built from the design have the same hit points.

Assuming all the checks are successful the DM now reveals if the design was flawed or not.

STAGE 9. WHY DIDN'T IT WORK?

When a check to build and fit a component (stage 6) fails, the designer should make a DC14 wisdom (history) check and the chief builder should make an intelligence (tinker's tools) DC12 check. Artificer's Lore can be applied to the designer's check.

- If both succeed and the design is flawed (stage 4.) this is revealed now, and the project must be abandoned.
- If both succeed and the design is not flawed, then the work can continue and the check to build the component rolled a second time. This takes no extra time. If this check fails the project must be abandoned.
- If all the build checks succeed but the secret design, check failed then a deep flaw in the design is revealed as the contraption nears completion and the whole project must be abandoned. (no change to time taken as the machine must be broken down for parts).

An **abandoned project** uses up half of the *non-magical* material costs. If the machine was a new design, the design is flawed and a new design is needed before the project can be retried.

IMPROVED MODELS

If you only change one component, want to re-roll hit points, or improve the dexterity modifier by 1, then you need only go through the design process for the one new component (stages 1-5, treat a hit point re-roll as one component). However, the build process must be repeated in its entirety (stages 6-9) except the build DC is modified by -2. If the rerolled hit points are equal to or lower than the preceding model then hit points are equal to preceding model hit points +10% round up or the maximum that could be rolled with the hit die, whichever is lower. Names of improved versions are traditionally labelled with 'Mark' and a Roman numeral.

If you want to improve more than one component at once, then a whole new design is required using the full number of components.

REPAIRING AND MAINTAINING

Machines don't heal but can be repaired as part of a long rest at by spending one hit die per maintaining character (at least one must have the Tinker trait) up to the maximum hit dice of the machine. A machine can also be repaired during a short rest by someone with the Tinker trait but only one hit die may be spent regardless of the number of people working. Each member of the repair team must have the *mending* cantrip OR one of the listed maintenance proficiencies (with appropriate tools).

Hit dice are restored by maintaining the machine as part of a long rest but without rolling any hit die and spending 1% of the machine's purchase price on spare parts per hit die. The number of hit dice restored by a long rest cannot exceed the number of people in the maintenance crew. These workers need a relevant tool proficiency and at least one needs to have the Tinker trait. In some instances, the DM may rule that spare parts can be scavenged, eg. wood for a beached ship on a jungle island. On long expeditions spare parts might be brought along. Each lot of spare parts is two sizes smaller than the machine they repair (minimum tiny) and weighs as much as twice their gp value.

If a machine ever reaches zero hit points it is destroyed and cannot be repaired, though half of its mundane materials can be salvaged as scrap as a downtime activity (25gp worth per day per worker no proficiencies required).

Some advanced machines are tagged 'Requires Daily Maintenance' and these require someone proficient in one of the maintenance tool proficiencies listed for the machine and who has the Tinker trait to maintain the machine as part of that person's long rest. A person can only maintain one such item at a time. Failure to maintain makes the contraption stop working until it is

maintained again. This maintenance cannot occur during a long rest when repairs are being made. Suits always have this maintenance requirement.

Where the rules above call for the Tinker trait the DM may rule that other specialist knowledge may be used instead. For example, a character known to be a master shipwright could lead the repairs on a sailing ship.

EXAMPLE: HOVERCRAFT

"Example: A player decides that his gnome player creature is going to attempt to design a form of hovercraft, capable of carrying up to six normal-sized creatures. This player has always wanted a magical flying carpet, has never found one, and feels he now has the chance to make a workable substitute." Top Ballista (page 35).

Stage 1. It travels over land and water and carries passengers. It also uses magic. That's 4 components.

Stage 2. A 'hovercraft' seems like a rather modern idea and a preliminary search gives an invention date of 1955, which would nix the idea. However, an 'aircushion boat' shaped something like an aircraft wing was invented in 1915 (the Luftkissengleitboot). This is loosely 'a form of hovercraft' so the DM allows this concept.

Stage 3. The DM agrees to the hovercraft idea after being shown the historical record and the idea of combined air/fire elemental power.

The designer wants to accommodate larger party members. For 6 medium passengers the Hovercraft needs to be huge. Also, there are two large elementals in the 'engine' this also produces a result of huge.

Magic items containing elementals are rated rare, so the player and DM set the device to rare and use that to assign other details as needed. Looking at magic items wings of flying have a speed of 60 feet for an hour. Both player and DM feel the hovercraft can stay afloat indefinitely, as long as the pilot can stay awake, so to balance things it is probably slower than the wings of flying. Boots of speed are also rare and provide most folks with speed 60 feet for 10 minutes. Winged boots are only uncommon, last 4 hours, and for most folks are speed 30 feet, so the hovercraft is probably faster than that. The hovercraft also does not truly fly. They settle on speed 45 feet. The hovercraft is immune to poison but the elementals might still take psychic damage. The machine is likely to carry adventurers into combat, so we determine AC and hit points. The historical inspiration was mostly metal and wood and so is our 'hovercraft' A wooden machine is AC13 a metal unarmoured one is 15. We give the hovercraft AC14 and note it is open topped providing little protection for pilot and passengers. As a huge resilient machine it has 6d12HD, we roll for hit points and get 42hp. The hovercraft has no attacks. It can use the default ram but probably shouldn't.

Stage 4. To design a hovercraft is a 4-component attempt costing 200 gp and 5d6 days. The player rolls 15 days. By way of comparison, the same DM rules that a second design this gnome has submitted — for a steam-powered combined Turkey Plucker, Gutter, and Stuffer is a one component design it has one function, prepare a turkey, and uses no magic. This costs 50gp to design and takes 1d4 days to draw up the plans. Components and complexity might bend real-world common sense.

Stage 5. The referee secretly rolls to see if the design is sound.

Stage 6. 4 components and huge so 8 proficiencies are needed. The player suggests skyhooks, tinker's tools, spellcaster, carpenter's tools, herbalism kit (for rubber), navigator's tools, painter's supplies and smith's tools. The DM agrees. The designer is also the chief Builder and

has all these proficiencies except carpenter's tool's. Fortunately, a human in the party is a carpenter and willing to help. Note that without any skill in upholstery the seats will hard.

Now to determine DC for the 4 checks. The pair have skyhooks and are not rushing. The DC will be 12.

Stage 7: A Huge, 4 component design costs 819gp 2sp for the mundane materials. However, the hovercraft has a magical component, a chamber where air and fire elementals create blasts of heated air. This costs a further 2000gp and the DM rules the PC must go on an adventure to confront the pair of elements which the party encounters at the same time in an ancient wizard's tower! (two elementals adjusted is 5000xp worth of danger right in the Challenge range required (DMG82)). So, the total cost is 2819gp 2sp and the cooperation of two belligerent elementals. After this adventure the build begins.

Stage 8: 819/32 round up is 33 weeks plus 10 weeks for the magical engine is 43 weeks. Two gnomes are working so 21.5. There are 4 components taking 5.375 weeks each. The designer builder succeeds all the build rolls. At weeks 5, 10, 15, and 20 a d10 is rolled to check for complications, there are none. The DM reveals that the design was successful, and the two friends take the hovercraft out for a spin.



EXAMPLE SAILING SHIP

"Sailing ship 10,000gp 2 mph" PHB (page 157).

Why a sailing ship? To test whether the system produces reasonable prices compared to machines in canon. You might also want to use this system to make a PC's attempt to build their own ship more significant than the standard crafting rules inspire. The builder here will be less lucky than the previous example to show what this might look like. Perhaps you would like more details about your ship than the PHB provides. Maybe a scholar in a serious medieval game wants to invent a slightly faster ship.

Stage 1. The ship holds cargo and people and moves on water. 3 components. This is happening on a low-magic setting very like pre-gunpowder Europe in the Middle Ages.

Stage 2. This is a standard wind powered medieval ship and the DM readily approves it.

Stage 3. Yes, this works. In fact, if building a standard sailing ship you may be able to buy or steal existing plans and skip stages 3 to 5. The PHB does not give details of a sailing ship but the DM plans for nautical adventure so the two sit down to work out a few things. Size: a 13th century caravel was 40-60ft long so that's

Gargantuan. According to the PHB, a typical sailing ship is worth 10,000gp making its power very rare. Speed can be calculated from the mph (0.0033 miles per round, is 17.6 feet, rounded to speed 20 feet). An improved non-magical version might be faster say 3 mph that's Speed 30 feet. The ship is mostly wood, so AC is 13. Immune to psychic and poison damage. Hit Dice 7d20.

Stage 4. Drawing the plans costs 150 gp and 3d6 days. The player rolls 8 days. Not enough time to have to check for complications.

Stage 5. Base DC is 8. The designer here is a human wizard-scholar, so the absence of the Tinker trait adds +2 to the DC. This serious world does not have meddling boxes so +2. There are 3 components +6 to DC. Fortunately, the wizard has a quiet studio in which to work +0. The base DC to design a machine is 8. So, the total is DC18. The DM rolls adding the wizard's history proficiency. Since there is no Artificer's Lore the roll does not have advantage. The roll is a success, but the DM does not tell the player.

Stage 6. A 3-component gargantuan machine requires 8 proficiencies. Working together the DM and player come up with this list: alchemist's supplies (for tar, varnishes, waterproofing, etc.), carpenter's tools, leatherworker's tools, painter's supplies, smith's tools, weaver's tools, woodcarver's tools, and tinker's tools. Being a bookish type, the designer has none of these skills. Therefore, the party's fighter, an ex-naval carpenter, takes on the job of master builder. He hires 7 other artisans to cover the rest of the skills. This will cost 98 gp per working week. The DM writes in finding these artisans as social encounters in the next session.

Hoping he has hired reliable and skilled artisans the chief builder begins construction. The chief builder is not a Tinker +6 and he didn't draw up the plans +1. Since the designer can't build this by themselves +1. For the number of components +3. The referee rules that since construction will occur in an established ship-builder's yard of a sophisticated maritime nation this is equivalent to skilled gnomes doing the job with skyhooks. The total DC is 20. Looking at this DC the player describes their fighter checking everyone's work and micro-managing. With a smile the DM declares this a Careful Job lowering the DC to 17 but taking longer and draining the party's treasury.

Stage 7. The cost of the materials is 4915 gp and 2 sp. Very close to the 5000 gp that would be charged using the rules from the DMG or XGE. Fortunately, like many high-level D&D adventurers the party has more loot than it knows what to do with, so this is not a problem. There are no magical components. This cost does not include labour.

Stage 8 & 9. The effort needed is 197 worker-weeks. There are 8 workers so the ship will take 24.625 weeks to build. However, this is a Careful Job raising the time to 37 weeks. Nearly 9 months. In real life a Medieval ship took 3 months to a year, so this is about right. Each of the three components will take 12.3125 weeks to complete.

Let's go through the build step by step.

Week zero. The party pay half of the wages bill. $37 \times 14\text{gp} \times 7 \times \frac{1}{2} = 1813\text{gp}$

Week 5. Roll 1d10 for complication. None.

Week 10. Roll 1d10 for complication. None.

Week 12. DC17 Building roll. The fighter decides to use his carpenter's tools. He is 10th level (+4 for tool proficiency) with Intelligence 14 (+2). He rolls a 2 for a total of 8. Nowhere near enough. He sits down with the

wizard designer to see if they can figure it out. The wizard needs to beat a wisdom (history) DC14 check. The wizard is also 10th level and has wisdom 14 (+2). He rolls an 8 for a 14 total and just passes. The fighter needs to beat an intelligence (carpenter's tools) DC14 check. He rolls a 10 for a total of 16, a pass. After reviewing the plans, they are able to put things to rights. The fighter-carpenter rolls again and gets a 18 for a total of 24! Work continues smoothly for now.

Week 15 Roll 1d10 for complication. None.

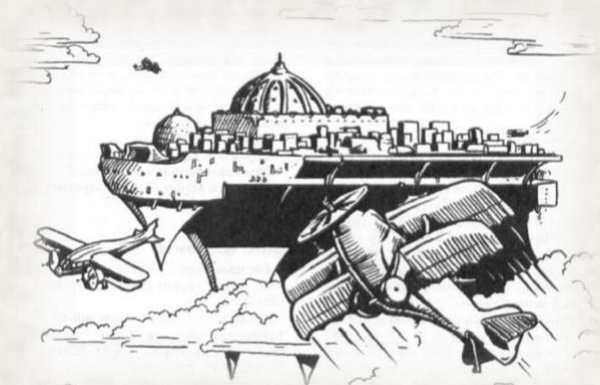
Week 25 Roll 1d10 for complication. None. Time for the next build roll. The fighter cannot use his carpenter's tools again. He decides to call on the smith who is making all the fixtures and nails. The smith has a good reputation and interviewed well, so the fighter is happy with his choice. The DM reveals the smith has Intelligence 14 (+2) a proficiency bonus of +2 and Expertise raising this bonus to +4 with Smith's tools. The Smith rolls an 18 for a total of 24. A success.

Week 30. Roll 1d10 for complication. 1 a complication. The DM rolls a 4 "The city council insists on buying your first machine and won't take no for an answer." The DM changes this to the prince of the port to suit her setting and writes an encounter where the PC's sneak into a fancy banquet and get the prince drunk enough to sign a decree giving the PC's back ownership of their own commandeered vessel.

Week 35. Roll 1d10 for complication. None.

Week 37. The party pays the rest of the wages another 1813 gp. The final build roll. The players choose weaver's tools. The fighter goes to check on the witty sailmaker-roper. The DM reveals that the charming sailmaker was high on charisma but of mediocre intellect (10, +0) and skill (+2 proficiency bonus). The players hold their breath as the d20 for the sail-maker clatters across the table. A 19! A total of 21. Success. In a brief ceremony a bottle of sparkling wine is broken over the bow and the ship slides down the dry-dock into the sea. The DM reveals that the design was not flawed. The player rolls the hit dice and gets 74 hit points. The ship floats and is soon plying the trade routes and encountering sea-monsters and pirates. The PCs decide never to chance returning to that particular port in case the prince bears a grudge.

Does the economics work out? The ship is worth about 9830 gp if they decide to sell it. Since the total cost including plans and wages was 8691 gp 2 sp, a sale should give a profit of about 1138 gp 8 sp. That's about 80 weeks' wages for a skilled artisan (PHB page 159) so 40 weeks' wages each for our pair of PCs earned in just over 38 weeks. So yes, and an experienced shipbuilder with skilled workers who didn't do a Careful Job would make a fine living especially if they insisted on the 10 000 gp listed in the Player's Handbook.



AEROPLANE DESIGN

Player character inventors may want to create their own aeroplane models. This uses the same process as described for other inventions. Notes on details particular to aeroplane design follow.

Stage 1. Most Serraine aeroplanes are military and have the following components: attacks (several types), hold crew (pilot and maybe a gunner), move on land, move in the air, a magical fuel tank, and reinforced. Military planes have two components worth of reinforced. For reasons explained later the light but strong wooden frame of aeroplanes counts as the reinforced component. The cloud clipper is a civilian model that carries more people and cargo but is not armed.

Stage 2. If the proposed model is something like aeroplanes of prior to 1930 it should be approved. If it is powered by the standard gnome magical 'fuel tank' the working principle should be approved. If other power sources are used they must provide a lot of power and be approved by the DM in step 3.

Stage 3. As described in step 2 a new aeroplane design is likely to be approved by the DM. Next the capabilities of the craft need to be determined.

Size. Typical gnome designs accommodate small or medium sized crew members, a pilot and perhaps a gunner. Therefore, the machine is Large. The Cloud Clipper is a bigger passenger craft seating 11 medium size creatures making it huge, around 24 feet or more long or wingspan. The real Argosy airliner of 1926 was 65 feet long and held 20 passengers, more than the Cloud Clipper's 10. Therefore, a length of say 30 feet sounds about right. Due to the size of the standard magic fuel tanks the theoretical minimum size of an aeroplane is medium using a Model A fuel tank. Small or tiny aeroplane designs require unconventional power sources.

Power. Three similar magic items are: carpet of flying (very rare), Apparatus of Kwalish (legendary) and, for armed models, a wand of fireballs (rare). On balance we judge aeroplanes to be very rare. The magic fuel tanks are rather useless except as a machine component so we judge it to be one rank less than the whole plane, rare. There are two models of magic fuel tank (see Range below), both cost the same amount.

Damage Immunities. If using the standard magic fuel tank, aeroplanes have immunity to poison and psychic damage.

Armour Class. Gnomish aeroplanes are mostly a wooden frame covered in treated canvas. AC13. However, they are agile flyers and AC is modified for a dexterity.

Dexterity. Aeroplanes usually have no dexterity for ground movement but do have a dexterity score for aerial movement. For example, a polecat fighter has dexterity 18 (+4) and an AC of 17 when airborne with movement above zero. A Cloud Clipper is less agile with dexterity 14 (+2) and AC15 when flying. Dexterity is limited by the magic fuel tank, check the notes on range below.

Speed. Aeroplanes have a land speed of 50 but only on flat level ground. Air speed varies by model. Multiply speed given on the Top Ballista map by 1/4 and round down to nearest 5 ft.

Range I calculated the flight time in hours for the TB aeroplanes as follows: BECMI range / BECMI speed x 10 seconds / 3600 seconds in an hour (round to nearest hour).

Pflanger-Skyratchet 3 hours

Polecat 1 hour

Tomcat 1 hour

Sky Clipper 3 hours

Therefore, in 5e there are two sizes of magic fuel tank. The Model A is small and generally used in single seat fighters that are smaller than fighter-bombers, though both types of aeroplane are Large. This engine is good for 1 hour and does not limit flight dexterity. The Model B is medium and designed for endurance with a 3-hour duration but with less power limiting Dexterity to 14 (+2).

Hit Points. All standard aeroplane designs and any sane new design has the reinforced component. Not because the light wooden frames are supported by steel or other tough heavy materials but because frame is specifically designed to absorb the forces of likely types of collisions or crashes and the volume of the aeroplane is mostly air that crossbow bolts and the like tend to pass through harmlessly. Unlike Earth biplanes the doping of the cloth is fire retardant, these planes were designed with dragon breath in mind not bullets! Aeroplanes therefore have double or quadruple the hit dice usual for an object of their size.

Attacks. As already noted, aeroplane weapons must be assigned to either the pilot or gunner if the aeroplane has one. You could design an aeroplane with more crew positions to allow the aeroplane more attacks in a round. However, you still need to keep within the limited number of weapons allowed by the machine's size. For aeroplanes the weapons are also limited by placement. Each gunner's station can have two weapons. Every aeroplane can have one bomb bay which is also assigned to a gunner's station. The pilot can control one propeller-tube weapon (a caltrop cannon or spike gun) per propellor, and mounted on the wings 1 ballista or 1 or 2 mounted weapons per wing-pair after the first. The first wing *never* has weapons. A plane can have up to four sets of wings (there were a few real world quadplanes). The maximum number of propellers allowed varies by size: tiny to large 1, huge 2, gargantuan 4. Two weapons of the same type controlled by the same person can be synchronised to allow a multiattack. See the flying rules later in this book for typical aeroplane weapons.

Wands can be made into aeroplane weapons. The resulting weapon is much heavier (30 to 100 pounds) and permanently mounted on a vehicle or structure. It has a heavy combination magical-mechanical firing mechanism added that enables even non-spellcasters to use it without attunement. The draw on the wand's magical energy to power these changes reduces the wand's charges by 1 permanently. At the controls a person can use the wand normally. The recharge rate and any risk of destruction on expanding the last charge remain unchanged.

Hand-held portable versions of these are impossible if the wand used requires attunement.

Looking carefully at the aeroplane illustrations on the map it is possible to identify some of these weapons and see what they look like.

Little Details. The magical components of an aeroplane typically are created by gnomes to defend Serraine or bring trade to the flying city but never for sale. Planes are created by one of the machine builder

clans and usually include the clan name in the model name. Clan members are often proud of the designs produced by their clan. The magical components do not have the minor properties or quirks sometimes seen in other magic items.

Stages 4 and 5. No additional notes.

Stage 6. The proficiencies required to build an aeroplane should be selected from this list in the order presented: spellcaster, skyhooks, tinker's tools, smith's tools (magic fuels tank and fixtures), carpenter's tools (the frame), weaver's tools (the canvas covering, upholstery), woodcarver's tools (the propeller), alchemist's supplies (the 'dope' treatment of the canvas cover), painter's supplies (markings), leather worker's tools (gaskets, upholstery, safety harnesses), navigator's tools (navigation aids), glassblower's tools (dial faces, spirit levels, windows), jeweller's tools (small metal components such as autoloaders, arcane decorations magical components), calligrapher's supplies (checklists and manuals), cobbler's tools (pedals, foot straps, lever grips), potter's tools (ceramic widgets, crockery for passengers), cook's utensils (crew and passenger meals), brewer's supplies (crew and passenger beverages), mason's tools (counter-weights), herbalism kit (rubber, first aid kits), poisoner's kit (last because I can't see how it would be useful when building an aeroplane).

This order may be changed based on the aeroplane's function if the DM agrees. For example, a long distance passenger aeroplane might have cook's utensils.

One of the reasons why gnomish machine builder clans have a monopoly on advanced magical-technology and aeroplanes in particular is their ability to foster cooperation across so many different trades.

Stage 7. The magic fuel tank and standard magical weapons are available to machine builder clan members in exchange for a favour for the clan (an adventure). For everyone else magic fuel tanks must be stolen from a gnome clan (an adventure) and the wands that are altered to produce magical weapons must be obtained using the usual magic item creation rules (which require an adventure) or obtained through adventure.

Alternately, a gnome clan might buy a promising new design from a clan member for 110% of design cost and then fund the building of the aeroplane which the clan will then own and most likely sell to the city council. The gnome clan expects exclusive manufacturing rights for any design it buys, and the designer is not even allowed to keep a copy of their design.

Stage 8-9. The City Council of Serraine and the gnome clans forbid the sale of aeroplanes and aeroplane designs to outsiders. Such sales are considered high treason punishable by death. Stolen, crashed, or otherwise lost aeroplanes are *always* retrieved by the Top Ballista squadron working with government agents *no matter what the cost*. For privately owned aircraft the owner and their extended family for two generations is liable for these costs. At the start of the campaign the only privately owned aircraft are those newly manufactured by the clans for the short period before sale to the City Council.

EXAMPLE: PFLANGER-SKYRACHET Mk VII FIGHTER-BOMBER

Stage 1. 5 Attack types (crossbows, snooze gun, lightning gun, caltrop cannon, bomb bay), hold crew (pilot and gunner), move on land, move in the air, a magical fuel tank, and double reinforced. Total components: 11.

Stage 2. A typical Serraine aircraft readily approved by the DM

Stage 3. Size large. Power very rare. Immune to poison and psychic damage. AC13+dexterity. Dexterity 14 (+2). Final AC15. Hit dice 20d10. Since this is an improved design and we are not seeking to improve hit points we already know the plane will have 110 hit points. Land Speed 50 feet, air speed 90 feet. The Model B magic fuel tank provides 3 hours of flight.

Pilot attacks: two light crossbows as a multiattack, caltrop cannon.

Gunner attacks: snooze gun, lightning gun, bomb bay (6 bombs).

Ramming: 4d4 bludgeoning and receives equal damage itself. The propellor in the nose adds 4d4 slashing damage to the target only. A target medium size or bigger reduces the aeroplane's flight speed to zero and it falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero, then the fuel tank explodes as described in 'Crash and Burn'.

Little details. The Mk VII fighter-bomber was created by a longstanding alliance of the Pflanger and Skyrachet clans under contract to the City Council for the defence of Serraine. Clan members are often proud of this design. The magical components do not have the minor properties or quirks sometimes seen in other magic items.

Stage 4. This is the 7th iteration of the venerable fighter-bomber design. One component was different, the addition of the snooze gun. Therefore, the plans took 3 days to complete and cost 50 gp. It is by such incremental improvements that high technology is developed.

Stage 5. The DC to add the new gun to the existing design when the conditions are good is DC10. The DM rolls in secret and the designer passes easily.

Stage 6. The new component requires numerous small changes to the existing Mk VI design. The building of the first Mk VII proceeds as if it was a new design. 14 proficiencies are required to build the machine: skyhooks, tinker's tools, smith's tools (magic fuels tank and fixtures), carpenter's tools (the frame), weaver's tools (the canvas covering, upholstery), woodcarver's tools (the propeller), alchemist's supplies (the 'dope' treatment of the canvas cover), painter's supplies (markings), leather worker's tools (gaskets, upholstery), navigator's tools (navigation aids), glassblower's tools (dial faces, windows), jeweller's tools (small metal components), calligrapher's supplies (Check lists, charts, and manuals) and cobbler's tools (foot straps and leather grips). The clan buys the design from the designer and hires the designer as the chief builder. He cannot complete the work alone and hires a master-artisan of each of the required trades. The team of 15 gnomes starts work in the clan workshop with full sets of skyhooks. This being a new version of a complex design they work carefully. Even working carefully the DC is 21 reduced to 19 since this is an improved model of an existing design.

Stage 7. The gnome clan is providing the gold and standard magical components for this build and will own

the aeroplane once built. The cost to the clan for the mundane components is 282 gp, the fuel tank 2000 gp, the wand to make the snooze gun 200 gp, and the wand to make the lightning gun 2000 gp. The total materials cost is 4482 gp. They will sell the aeroplane to the City Council for 8964 gp. It is illegal to sell the aeroplane to non-citizens.

Stage 8. Dividing the cost of the mundane components by 25 gives 11 gnome/weeks of work. From the rarity of the magic items required we can determine another 22 gnome/weeks are required. The total time is 33 gnome/weeks but this is a careful job raising the time to 50 gnome/weeks. There are 15 gnomes so it will take 4 weeks. The wages cost will be 120 gp, half now, half on completion. The gnome master artisans all pass their checks and the DM reveals the design was not flawed. The clan will make a cool 4362 gp profit.

GNOME MACHINES

Example descriptions of known gnome machines follow.

HOVERCRAFT

This vehicle looks like an oddly shaped open-topped boat made of steel and wood with hard wooden seats for six including the pilot. The profile of the boat is a similar shape to that of an aeroplane wing and is painted bright blue. At the back of the vehicle is embedded a large brass sphere that is hot to the touch (it contains fire and air elementals!). When in use heated air exits from vents below the boat raising it a few feet off the ground. The boat can travel over land and water but cannot truly fly. Despite this the pilot uses the Aerial Vehicles proficiency to control it. Rubber gaskets help protect the working parts so that the craft can float on water when not in use. The controls include a compass and other marine navigation instruments.

Only one hovercraft is known to exist, built by the legendary machine builder Ibadullah Cogtweaker (TB35).

Size. Huge.

Speed. 45 feet, can travel on land and the surface of water and other liquids.

AC. 14.

Hit Dice. 6d12.

Hit Points. 42.

Immune to poison damage.

Maintenance Proficiencies. Skyhooks, tinker's tools, carpenter's tools, herbalism kit (for rubber gaskets), navigator's tools, painter's supplies and smith's tools.

Purchase Price. 5639 gp, if you can convince Cogtweaker to part with it.

Power. Rare

SAILING SHIP

A stout merchant caravel about 50 feet long of a type found on many medieval worlds. The ship carries both cargo and passengers. She is a fine vessel with three tall masts and iron and bronze fixtures. The officer's cabins have varnished wood interiors with leather upholstery. On her bow is a painted figurehead of the new owner's choosing.

Size. Gargantuan.

Speed. 20 feet (2mph). If the players have gone to the trouble of creating a new design, you might raise this to 25 feet (2.5mph) or even 30 feet (3mph).

AC. 13.

Hit Dice. 7d20.

Hit Points 77. If the players have created a new design, they should roll hit points.

Immune to psychic and poison damage.

Maintenance Proficiencies. Alchemist's supplies (for tar, varnishes, waterproofing, etc.), Carpenter's Tools, Leatherworker's Tools, Painter's Supplies, Smith's Tools, Weaver's Tools, Woodcarver's Tools, and Tinker's Tools.

Purchase Price. 9830 gp.

Power. Very Rare.

PFLANGER-SKYRACHET MK VII FIGHTER-BOMBER

The latest iteration of the venerable Pflanger-Skyratchet design, which in turn was derived from the Tomcat fighter, adds a snooze gun to the two-seater biplane's

already impressive armament. Like all gnomish biplanes it has a wooden frame covered in treated canvas painted with squadron colours and the pilot, gunner, and aeroplane's nicknames and logos. The aeroplane is powered by a magic fuel tank delivering power to a wooden propeller and features a lightning gun, leather safety harnesses, and intricate clockwork loading devices for the crossbows built into the wing. The instrument panel includes a compass, fuel gauge, ammunition remaining gauges, airspeed gauge, spirit level, plumb bob, and checklists. Beneath the dashboard is a compartment for the manual.

The Mk VII fighter-bomber was created by a longstanding alliance of the Pflanger and Skyratchet clans under contract to the City Council for the defence of Serraine. Clan members are often proud of this design.

Size. Large

Speed. 50 feet. (5 mph) on flat level ground. Flight speed 90 feet (9 mph).

Range. 3 hours flight time.

AC. 15 when flying (dexterity 14). If not flying AC 13.

Hit Dice. 20d10.

Hit Points. 110.

Immune to psychic and poison damage.

Attacks.

Pilot attacks. Two light crossbows as a multiattack, caltrop cannon.

Gunner attacks. Snooze gun, lightning gun, and bomb bay (6 bombs).

Ramming. Modify attack roll by -2. 4d4 bludgeoning and receives equal damage itself. The propellor in the nose adds 4d4 slashing damage to the target only. A target medium size or bigger reduces the aeroplane's flight speed reduced to zero and it falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero then the fuel tank explodes as described in 'Crash and Burn'.

Maintenance Proficiencies. Skyhooks, Tinker's tools, smith's tools, carpenter's tools, weaver's tools, woodcarver's tools, alchemist's supplies, painter's supplies, leather worker's tools, navigator's tools, glassblower's tools, jeweller's tools, calligrapher's supplies, and cobbler's tools.

Purchase Price. 8964 gp but never for sale.

Power. Very Rare.



MK VI POLECAT

The 6th iteration of the Polecat design. This single seat triplane fighter has impressive agility and speed. Like all gnomish aeroplanes it has a wooden frame covered in treated canvas painted with squadron colours and the pilot and aeroplane's nicknames and logos. The aeroplane is powered by a magic fuel tank delivering power to a wooden propeller and features a fireball gun, leather safety harnesses, and intricate clockwork loading

devices for the crossbows built into the wing. The instrument panel includes a compass, fuel gauge, ammunition remaining gauges, airspeed gauge, spirit level, and plumb bob.

The Polecat fighter was created under contract to the City Council for the defence of Serraine and has fought off many threats to the city. The Polecat is therefore unsurprisingly a favourite of squadron fans among the citizens of Serraine and polecat pilots enjoy celebrity status.

Size. Large.

Speed. 50 feet (5mph) on flat level ground. Flight speed 120 feet (12 mph).

Range. 1 hour flight time.

AC. 17 when flying (Dexterity 18). If not flying AC 13.

Hit Dice. 20d10.

Hit Points. 85.

Immune to psychic and poison damage.

Attacks.

Pilot attacks. Fireball gun, two light crossbows as a multiattack, and caltrop cannon.

Ramming. Modify attack roll by -2. 4d4 bludgeoning and receives equal damage itself. The propellor in the nose adds 4d4 slashing damage to the target only. A target medium size or bigger reduces the aeroplane's flight speed reduced to zero and it falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero then the fuel tank explodes as described in 'Crash and Burn'.

Maintenance Proficiencies. Skyhooks, Tinker's tools, smith's tools, carpenter's tools, weaver's tools, woodcarver's tools, alchemist's supplies, painter's supplies, leather worker's tools, navigator's tools, glassblower's tools, and jeweller's tools.

Purchase Price. 8461 gp but never for sale.

Power. Very Rare.



MARK IIA TOMCAT

The design ancestor of the Pflanger-Skyratchet Fighter-bomber. The Tomcat has proved to be a solid design and there has been little need for improvement over the years. Like the fighter-bomber this is a two-seater noted for its impressive weaponry. Like all gnomish biplanes it has a wooden frame covered in treated canvas painted with squadron colours and the pilot, gunner, and aeroplane's nicknames and logos. The aeroplane is powered by a magic fuel tank delivering power to a wooden propeller. While it can't outfly the newer Polecat, the Tomcat has more powerful weapons. These are a lightning gun, ballista, heavy crossbow, and spike gun. Intricate clockwork loading devices feed the ballista, spike gun, and crossbow. Other features include leather safety harnesses, and instrument panels that include a compass, fuel gauge, airspeed gauge, spirit level, checklists, and plumb bob for the pilot and

ammunition remaining gauges for the gunner. There is a compartment for the manual under the gunner's instrument panel.

The Mk IIA fighter was created by a longstanding alliance of the Pflanger and Skyratchet clans under contract to the city council for the defence of Serraine. Clan members are often proud of this design's long history of defending the city.

Size. Large.

Speed. 50 feet (5mph) on flat level ground. Flight speed 110 feet (11 mph).

Range. 1 hour flight time

AC. 16 when flying (Dexterity 16). If not flying AC 13.

Hit Dice. 20d10.

Hit Points. 105.

Immune to psychic and poison damage

Attacks.

Pilot attacks. Ballista, spike gun.

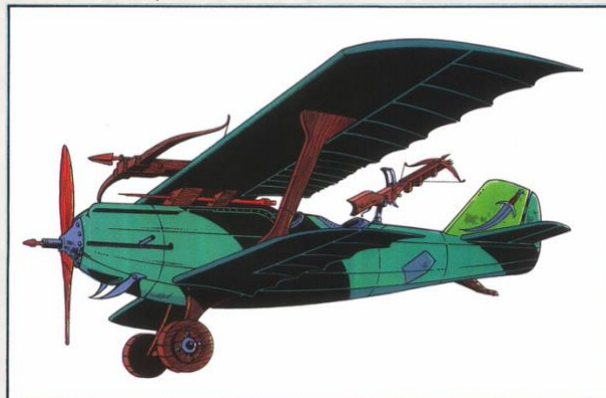
Gunner attacks. Lightning gun, heavy crossbow.

Ramming. Modify attack roll by -2. 4d4 bludgeoning and receives equal damage itself. The propellor in the nose adds 4d4 slashing damage to the target only. A target medium size or bigger reduces the aeroplane's flight speed reduced to zero and it falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero then the fuel tank explodes as described in 'Crash and Burn'.

Maintenance Proficiencies. Skyhooks, Tinker's tools, smith's tools, carpenter's tools, weaver's tools, woodcarver's tools, alchemist's supplies, painter's supplies, leather worker's tools, navigator's tools, glassblower's tools, jeweller's tools, and calligrapher's supplies.

Purchase Price. 8512 gp but never for sale.

Power. Very Rare.



SMURFI-LODESTAR F3F CLOUD-CLIPPER

A recent addition to Serraine's fleet, the Cloud-Clipper is the first passenger plane. Despite its civilian use the Cloud-Clipper was designed for the defence of the flying city, landing the city to receive visitors was the vulnerable time for Serraine. The Cloud-Clippers remove the need for the city to ever land. This eleven seater aircraft typically holds the pilot and ten passengers. Alternatively, 8 VIP passengers can be carried with a tour guide and steward serving prepared food and drink. Unlike military planes the Cloud-Clipper is simply painted bright red for visibility. Unlike all other aeroplane models the cabin is enclosed to ensure passenger comfort. The aeroplane is powered by a magic fuel tank delivering power to a pair of wooden propellers. Other features include leather safety harnesses on hard wearing leather upholstered seats.

The instrument panel includes a compass, fuel gauge, airspeed gauge, spirit level, and plumb bob for the pilot.

Cloud-Clippers were created by newcomers to aeroplane manufacture the Smurfri and Lodestar clans under contract to the city council. Clan members are often proud of the innovations this new kind of aeroplane introduced.

Size. Huge (30 feet long).

Speed 50 feet (5mph) on flat level ground. Flight speed 100 feet (10 mph) with 5 or less people aboard, 90 feet (9 mph) with 6 or more people aboard.

Range 3 hours flight time

AC 15 when flying (Dexterity 14). If not flying AC 13.

Hit Dice 24d12

Hit Points 135.

Immune to psychic and poison damage

Attacks.

Pilot attacks. Two synchronised spike guns granting a multiattack.

Passengers. A locked cabinet stores 16 hand held light crossbows each with a case of bolts that passengers can shoot out of the windows in the event of an attack.

Ramming. Modify attack roll by -2. 6d4 bludgeoning and receives equal damage itself. A target huge size or bigger reduces the aeroplane's flight speed reduced to zero and it falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero then the fuel tank explodes as described in 'Crash and Burn'.

Maintenance Proficiencies. Skyhooks, Tinker's tools, smith's tools, carpenter's tools, weaver's tools, woodcarver's tools, alchemist's supplies, painter's supplies, leather worker's tools, navigator's tools, and glassblower's tools.

Purchase Price. 6458 gp but never for sale.

Power. Very Rare.

Tinker Toys

Gnomes sell toys to children and visitors. These are the clockwork toys, firestarters, and music boxes described under the Tinker trait (PHB 37) except the best made ones from reputable dealers do not need daily repair by someone with the Tinker trait (a gnome). Gnome parents *deliberately* buy thier children poorly made toys so the gnomlings learn how to repair machines!

Size. Tiny

AC 5

Hit Points 1

Maintenance Proficiencies. Tinker's Tools.

Purchase Price. 15-30gp (average 18gp) from a shonky dealer selling toys that need daily maintenance using the Tinker Trait. 25-35gp (average 30 gp) from a reputable toymaker for a toy that does not need daily maintenance.

Power. Common

TURKEY PLUCKER, GUTTER, & STUFFER

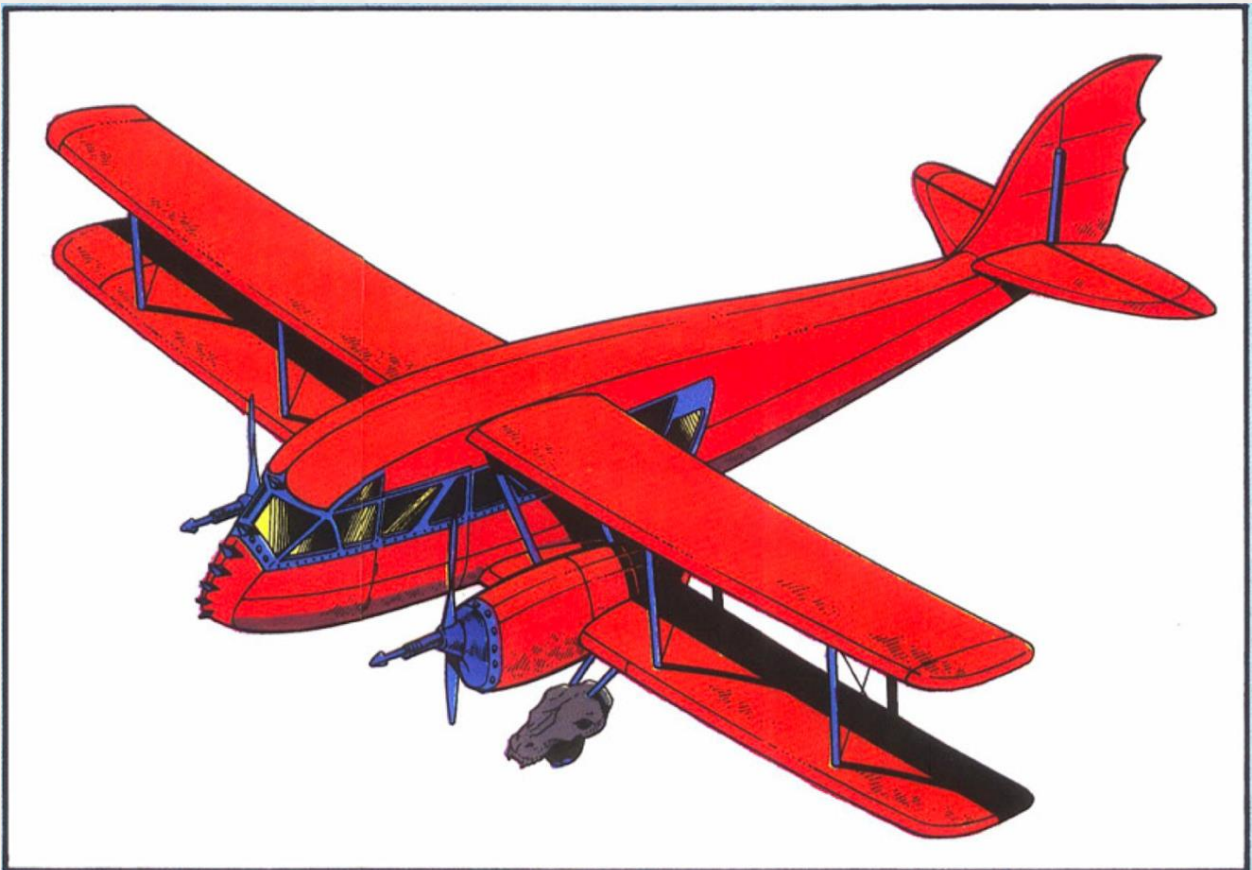
To use this contraption place a turkey carcass in the central cavity and close the hatch. Within the carcass is rapidly rotated and subjected to special-shaped hooks that rip out the feathers, then a rubber flanged auger clears out the body cavity, before it is filled with stuffing from a hopper. The device is powered by a experimental steam engine.

Size. Medium

Maintenance Proficiencies. Skyhooks, Tinker's Tools, Cooks Utensils.

Purchase Price. 120gp. Demand is low since few people other than turkey farmers eat turkey often enough to need a big noisy machine that fills a room with steam.

Power. Common



EQUIPMENT

A collection of gear found among varied natives of Serraine. This chapter also includes rules for adjusting equipment for the large pegataurs and sphinxes, scrawny gremlins, and tiny tabi.

FLIGHT JACKET

A leather jacket with small metal plates discretely sewn into the lining. Designed to protect Top Ballista Squadron pilots, the jackets are also worn by fans and admirers. Light armour. AC11+Dexterity, 12gp, 8 lbs.

GREMLIN WEAPONS & ARMOUR

I recommend players pay Medium Scale coin prices for first level equipment at the time of character creation. After that the modifiers to price below apply.

Weapons cost $\times \frac{1}{2}$, weight $\times \frac{1}{8}$, for damage halve the number of sides of the dice (round down) (for example a 2d6 becomes 2d3, 1d8 becomes 1d4 etc.).

If a gremlin does decide to wear armour, special small armour must be made this is modified as follows: AC no change, cost $\times \frac{1}{4}$, weight $\times \frac{1}{2}$.

MEDDLING BOX

A box of widgets that acts as an aid to concentration and machine design. See Top Ballista page 39. 50gp, 5 lbs.

PEGATAUR & SPHINX BARDING

In D&D 5e simply use the price and weight of regular barding. I recommend players pay medium scale coin prices for first level equipment at the time of character creation. After that the modifiers to price below apply.

PEGATAUR & SPHINX EQUIPMENT

"Pegataurs often use weapons which are substantially larger than ones used by humans, but which are treated as the same for purposes of cost, availability, and combat values." Top Ballista page 39. If you like you can assume pegataur weapons are 20% heavier but they can use regular weapons too.

Sphinxes have no hands and don't use weapons at all.

I recommend players pay medium scale coin prices for first level equipment at the time of character creation. After that the modifiers to price below apply. For worn equipment as well as containers, vehicles and dwellings cost is $\times 4$ and weight is $\times 2$.

For food and drink multiply cost and mass by 4. Living Expenses (PHB page 157) are also multiplied by 4. For other non-worn gear, including torches and lanterns, cost is $\times 2$ and mass $\times 8$. The exceptions are items with value based on their materials, such as gold jewellery, and items that by their nature cannot be enlarged or reduced. Potions also come in doses of a set volume. Capacity of scaled containers is $\times 8$ (PHB page 153).

PEGATAUR SHIELDS

20gp. +3AC. 36 lbs

Very large heavy shields usable by large *Centauroids* and medium creatures that take up the same space on

the grid as a Large creature (4 squares). Smaller creatures cannot use these shields. Most large creatures find these a bit too small, the straps are too small and the balance is off. +1 AC when used by non-centauroid large creatures.

SKYHOOK SET

See Top Ballista page 39. 200gp, 10 lbs

I like to think that among the assorted tools are three actual 'skyhooks' which look something like gaff hooks but when placed levitate in the the air until purposefully moved by a creature or the hook's weight limit is exceeded. The weight limit is 10 lbs per hook. The skyhooks are common magic items worth 50gp each.

TABI EQUIPMENT

I recommend tiny tabi characters pay medium scale coin prices for equipment at the time of character creation. After that the modifiers to price below apply.

Tiny armour weighs $\frac{1}{4}$ of the usual mass. After character generation armour for tiny characters costs $\frac{1}{16}$ th of the usual price. These rules could be used for any worn equipment, containers such as packs or barrels, and vehicles. If armour normally requires Str 13 or Str 15 to avoid a reduction in speed then at tiny these kinds of armour require Str 4 or Str 5 respectively to avoid the Speed penalty.

Weapons and most other held items weigh $\frac{1}{64}$ th the usual amount and, after character generation, cost only $\frac{1}{4}$ of the usual price. The exceptions are items with value based on their materials, such as gold jewellery, and items that cannot be made any smaller, such as potions and spell component pouches.

Capacity of scaled containers (PHB153) is $\times \frac{1}{64}$. Tiny vehicles have half the usual speed.

Food and drink costs and weighs $\times \frac{1}{4}$ the usual amounts. Living expenses also cost $\times \frac{1}{4}$ the usual amount.

Tiny weapons do 0 damage to most foes and 1 damage to Tiny foes if the medium version does 1d4. If the medium version does 1d6, 1d8 or 1d10 then the tiny version does 1 damage. If the medium weapon does 1d12 or 2d6 then the tiny version does 1d2 damage. In all cases Tiny PCs using tiny weapons or unarmed strikes do not modify damage or attack rolls for strength ever, regardless of whether strength modifier is positive or negative the modifier is treated as +0 when using these weapons. Unlike MM versions, tiny PCs do add DEX to damage when using missile or finesse weapons. Tiny ranged weapons have half the usual range (round up to next multiple of 5 ft). Tiny Reach weapons add +0 feet to the character's reach for combat purposes. A Tiny version of a heavy weapon loses that property.

In some settings Tiny weapons might be hard to find. Tiny characters using two hands may use medium sized hand crossbows and light finesse weapons. When used by tiny characters larger size weapons no longer benefit from the light, finesse, or thrown tags (i.e. all wrong-sized melee weapons are STR based when used by Tiny PCs). Tiny PCs using wrong size weapons do apply their strength modifier to attack rolls and damage, this is often a negative. Tiny PCs never add a positive dexterity to damage when using larger size weapon (a hand crossbow does 1d6+0) but do add dexterity to attack rolls with larger size missile weapons.

TOP BALLISTA

"The Top Ballista squadrons are the city's first line of defense, and its most renowned heroes." - Top Ballista page 57.

SQUADRONS

The two squadrons fly the city's military aeroplanes which have already been described. The life of a pilot or gunner is exciting but often short.

The Top Ballista squadrons are treated something like a single D&D 5e faction. To join the applicant must either be a native of Serraine or have been in residence long enough to convince recruiters that they consider the city home and are respectable. How long is subjective and some characters will find convincing recruiters harder than others! An adventure in the service of Serraine is a great way to sway recruiters. After that a battery of tests checks the character's reflexes and coordination. The character must have dexterity 13 or higher. At this point the character is put on the wait list. There are fewer places available than there are applicants. When one does come up the squadron leaders and their 2IC's select a candidate off the wait list. Currying favour with one of these selectors somehow is a good idea.

"PCs who manage to join a squadron will have to serve with it all the time unless exceptional circumstances arise. A clever DM will make sure that his adventures accommodate the need for air cover and authorized air transport. Otherwise, the DM will be continually making excuses for the airman to get away." - Top Ballista page 59.

"The rear gunners on biplanes have levels and ranks too. Their ranks are the same, except that the term 'Gunnery' is used as a prefix (though it usually comes out "Gunn'y" — so, there are Gunn'y Corporals. Gunn'y Flight-Lieutenants, etc.). The exceptions are Pilot and Senior Pilot, which are replaced by the terms Gunner and Senior Gunner. Master Gunner replaces Top Ballista". - Top Ballista page 57.

The rank special combat abilities have been converted into feats. PCs need not take the feat associated with the rank if they don't want to. Advancing ranks requires only the skill (represented by level) and kills. All ranks can order those of lower rank around. Every rank Striper or above adds a strip of rank to the character's dress jacket.

SQUADRON FEATS

Note that you need not take the previous ranks' feats to qualify for a feat. The feats refer to aeroplane weapons. These are: ballista, bombs (all), caltrop cannon, fireball gun, heavy crossbow*, light crossbow*, mounted heavy crossbow, mounted light crossbow, snooze gun, spike gun. Any newly invented vehicle weapon based on a wand is also an aeroplane weapon.

*Note that regular un-mounted heavy crossbows and light crossbows are aeroplane weapons *and* martial or simple ranged weapons respectively. Therefore, in some instances these feats will provide benefits when not in an aircraft.

TOP BALLISTA RANKS

Rank	Title (Pilot)	Title (Gunner)	Level	Kills	Benefits
1st	Squirt	Gunnery Squirt	1	0	Cadet Dormitories, dress jacket, leather flight jacket AC11. One artisan's tool proficiency of your choice. A 'cover' (hat) embroidered with your nickname, uniform.
2nd	Striper	Gunnery Striper	1	1	Aerial Vehicle proficiency gained if not already if held. If held one artisan's tool proficiency of your choice
3rd	Corporal	Gunnery Corporal	2	4	Access to Corporal feat OR Gunn'y Corporal feat#.
4th	Lance-Corporal	Gunnery Lance-Corporal	2	8	Access to Lance-Corporal feat OR Gunn'y Lance-Corporal feat#.
5th	Lieutenant	Gunnery Lieutenant	3	12	Officer's Quarters, Officer's Mess.
6th	Flight-Lieutenant	Druid Circle feature	4	16	Access to Flight-Lieutenant feat OR Gunn'y Flight-Lieutenant feat#.
7th	Pilot	Gunner	5	25	Access to Pilot feat OR Gunner feat#.
8th	Senior Pilot	Senior Gunner	7	40	Individual Squadron Leader's Study.
9th	Top Ballista*	Master Gunner*	9	60	The Top Ballista hat. No hat for the Master Gunner.

* There is only ever one Top Ballista and one Master Gunner. Either exceeding the incumbent's kills or the death of the incumbent and 60 kills is required to advance to these ranks.

Rank only provides access to the feat. It does not grant the feat which must be taken in lieu of an ability score increase from class as usual.

CORPORAL FEAT

Requires: corporal rank.

Raise Dexterity by 1.

You gain proficiency in two aeroplane weapons. You have advantage on aerial vehicle rolls while piloting an aeroplane.

LANCE-CORPORAL FEAT

Requires: lance-corporal rank.

Raise Dexterity by 1.

Damage you inflict with aeroplane weapons ignores resistance. Double your proficiency bonus for piloting any aerial vehicle.

FLIGHT-LIEUTENANT FEAT

Requires: flight-lieutenant rank.

Raise Dexterity by 1.

When you are piloting an aerial vehicle of any kind and the vehicle makes a Dexterity save and still receives half damage the vehicle receives no damage instead. Once per turn a foe damaged by you with an aeroplane weapon has disadvantage on all attacks until the start of your next turn.

PILOT FEAT

Requires: pilot rank.

You gain proficiency in three more aeroplane weapons. While piloting an aeroplane you can disengage or hide as a bonus action. Hiding includes diving into clouds, flying behind a mountain, climbing toward the Sun etc.

GUNN'Y CORPORAL FEAT

Requires: gunnery corporal rank.

Raise Dexterity by 1.

You gain proficiency in two aeroplane weapons. Damage you inflict with aeroplane weapons ignores resistance.

GUNN'Y LANCE-CORPORAL FEAT

Requires: gunnery lance-corporal rank.

Raise Dexterity by 1.

Your attacks with aeroplane weapons do not have disadvantage for attacking targets at long range. You gain proficiency in four aeroplane weapons.

GUNN'Y FLIGHT-LIEUTENANT FEAT

Requires: gunnery flight-lieutenant rank.

Raise Dexterity by 1.

Once per round you may take a -5 penalty on your to hit roll with an aeroplane weapon to gain +10 to damage if you hit.

GUNNER FEAT

Requires: gunner rank.

You gain proficiency in one aeroplane weapon. You may ignore the load property when using hand held crossbows. You may use a reaction to make an attack of opportunity against foes who enter the short range of an aeroplane weapon you are operating.

CADET BACKGROUND

If the DM wants to run a campaign about the squadrons, then some PCs can take this background. Others might take Guild Artisan and become members of the ground crew and others might take soldier to represent other military personnel at the base.

Skill Proficiencies: Athletics, Intimidation.

Tool Proficiencies. Aerial vehicles and one type of artisan's tools of your choice.

Equipment. Dress jacket, 'cover' (cap with nickname embroidered on it), a set of artisan's tools you are proficient in, a uniform (common clothes), and a pouch with 1gp.

Speciality.

1d4

1 Gunner*.

2 Pilot*.

3 Ground crew.

4 Anti-air defence.

*Requires 13 dexterity. Assigned to ground crew if instead if you have dexterity 12 or less.

Feature Cadet.

You begin play with rank 1 (Squirt) in the squadrons gaining all the benefits of that rank including free accommodation in the dormitories. If not a pilot or gunner you can apply for retesting and transfer to those glamorous specialities if/when your dexterity reaches 13. The equipment granted by this rank is already included in this background.

Suggested Characteristics

As Soldier (PHB page 140).

FLYING RULES

5th edition D&D has much more streamlined aerial combat rules compared to those given in Top Ballista. This

conversion seeks to retain the feel of the 5th edition and therefore the rules that follow add the bare minimum needed to integrate gnomish aeroplanes.

Character's without aerial vehicles proficiency cannot even start up an aeroplane let alone fly one.

MAGIC FUEL TANKS

These vessels not only hold magical energy they turn a shaft that protrudes from one end. This shaft is then attached to belts and gears to power the aeroplane. If they are fuel tanks what is the fuel? When turned off the tanks absorb potent fire magic before the magical fire manifests. They cannot absorb this energy while running and require the spellcaster to be touching the engine. Any spell of spell level 3 or above that normally does fire damage can be used. Each point of damage restores 2 minutes of flight time, therefore 30 points will fill an empty Model A tank and 90 points will fill an empty Model B tank. Roll the damage do not use an average. If a tank is overfilled the remaining damage explodes in a ball of fire with a 20 foot radius centred on the front of the aeroplane. The excess damage is inflicted to the aeroplane and to all within that radius. Creatures can make a DC15 dexterity save to receive half this amount of fire damage.

AERIAL MOVEMENT AND SCALE

Use the standard 1 inch is 5 feet grid used for 5e D&D combat. Aeroplanes are fast and therefore require a lot of table space. Where table-space is limited you may wish to switch to counters on 5mm graph paper. A number of d10's can be used to track altitude which should be in 5ft increments. For example, 4d10 set in order at 3, 4, 7, 5 indicates the aeroplane is 3475 ft. above the ground. All aircraft have a magical fuel tank with limited flying time in hours. Since combat rarely lasts longer than a minute (10 rounds) there is no need to track fuel during combat. However, magic fuel tanks can sometimes explode. Therefore, the DM should ensure everyone knows how many minutes are in the tank at the start of combat.

Where range needs to be determined for missile, spells etc. use the highest of vertical and horizontal distances. No-one wants to do trigo-gnometry.

FLYING SPEED AND NO MANOEUVRING FACTOR

In 5th edition there is nothing like the 'manoeuvring factor' of BECM. Planes and flying creatures can climb, dive, and turn without restriction but not exceed their flying speed unless in free-fall. Diving does not increase speed. However, after changing direction once during a turn the pilot must make a dexterity (aerial vehicles) check for all subsequent changes in direction. The DC for the second change of direction is 10. Each additional change of direction after the second raises the DC by 5. Piloting checks are part of movement and do not use up actions.

Landing and take-off both require 1800 feet of flat level ground. Less than that and a crash occurs. Treat this as 'Crashing Damage' below at half of the aeroplane's airspeed if the runway is less than 900 ft or at the vehicle's land speed (usually 50) if the runway is more than 900 ft. As with all crashes if the impact reduces hit points to zero then see 'Crash and Burn'.

Take-off usually does not require a piloting check but if the conditions are bad such as high winds or a red dragon swooping the runway, then the DM may call for as check and set a difficulty. If the pilot is injured before take-off the DC is at least 5.

Landing is treated as a 'change of direction'. A failed check at this point is a crash.

Just like characters, aeroplanes are unhindered by damage until hit points reach zero. At that point the vehicle plummets in free fall to the ground. See 'Crash and Burn'.

If an aeroplane is knocked 'prone', it has its speed reduced to 0, or is otherwise deprived of the ability to move, the aeroplane immediately falls 500 feet and continues falling until it recovers from the prone position (a piloting check DC20) but only if flight speed is not zero. The falling rules in Xanathar's Guide to Everything might be of use.

LOSING & REGAINING CONTROL

What happens when a piloting check fails?

The pilot suffers a loss of control. Roll 1d10 and add the amount the roll was failed by. If a loss of altitude reduces altitude to zero see 'Crash and Burn'.

2-3 5 feet of movement lost until end of pilot's next turn.

4-5 5 feet of altitude lost.

6-7 **Engine sputter** movement rate halved until end of pilot's next turn.

8-9 **Minor control loss.** Unable to change direction until start of next turn. Plane moves the rest of its movement in the current direction.

10-11 **Minor Stall.** Loses altitude equal remaining movement for the turn. Aeroplane then loses altitude equal to half movement every turn. At the end of each turn the pilot may make a DC10 control roll to break the stall and make a direction change.

12-13 **Stall.** Loses altitude equal remaining movement for the turn. Aeroplane loses altitude equal to movement every turn. At the end of each turn the pilot may make a DC15 control roll to break the stall and make a direction change.

14-15 **Crash dive.** The aeroplane dives into free-fall. The aeroplane immediately falls 500 feet. If the aeroplane has not crashed the pilot can make a control roll DC20 to change direction at the end of every turn. At the end of each subsequent turn of free-fall a further 500 feet of altitude is lost.

16+ **Flat spin!** The aircraft whirls round and round horizontally, utterly out of control, falling 150-400 (100 + 1d6x50) feet per round, roll each round. The ghastly thing about this is twofold. First, control can only be regained if a DC25 piloting skill check is made at the end of each turn. Second, the bizarre "G" effects created mean that the crew can only bail out if they make a successful dexterity (acrobatics) check at DC10 each round as an action.

ARMOUR CLASS AT SPEED ZERO

When an aeroplane's flight movement is reduced to zero, or it is not flying, it loses its aerial dexterity bonus to armour class. For typical aircraft this means AC drops to 13.

CRASHING DAMAGE

Free-fall crashes use the usual rules for falling.

Other crashes use the aircraft's movement that round as the distance 'fell'. If two flyers collide add the movement of the two together.

However, the damage from the fall is not the only danger of crashing...

CRASH & BURN!

If a crash or collision reduces an aircraft to zero hit points, then the forces involved rupture the magical engine. For every 2 minutes of fuel left in the tank (round up) 1 point fire damage is done to all within a 20 ft. radius sphere on a failed save and half as much damage on a successful one. The dexterity save DC is 15.

COLLISIONS & RAMMING

Ramming an aeroplane into a target is ill-advised. Being light the aeroplane does only 1d4 bludgeoning per size and receives equal damage itself. If the propellor is in the nose add 1d4 slashing damage per size to the target only. An aeroplane that rams a target one size smaller or bigger immediately has its flight speed reduced to zero and falls. Flight speed stays zero until all damage to the aeroplane is repaired. If the ram reduces the aeroplane's hit points to zero, then the fuel tank explodes as described in 'Crash and Burn'.

AEROPLANE WEAPONS

Aeroplanes have weapons mounted on the fuselage or wings and gunners and passengers, not pilots, might shoot regular crossbows. Together these are called aeroplane weapons. Only mounted aeroplane weapons are components when designing aeroplanes and all non-magical weapons of the same type are considered a single component. Weapons of the same type can be linked in pairs to provide multiattacks. All mundane weapons except bomb bays have ammunition hoppers hidden in the wings or fuselage and ingenious reloading mechanisms. Reloaders in the fuselage draw power from the magic fuel tank's shaft through complex gearing. Those in the wings are spring-driven clockwork.

Pilot controlled weapons can only hit targets in a cone (as per a spell effect area) in front of the plane (the direction of travel). Gunner weapons are exempt. Character options that negate the load property cannot be used with mounted weapons. Ammunition hoppers can only be reloaded and rewound by technicians on the ground proficient in tinker's tools. A process that takes a short rest per hopper.

Non-magical aeroplane weapons and magical aeroplane weapons that require an attack rolls are missile attacks using dexterity. Ramming uses dexterity (aerial vehicles) for the attack roll. If the plane is not designed to ram,

no current designs are, modify the roll by -2.

Eventually, a gnome with the name of Arney Swivelzanhammer or similar is going to use the machine building rules to alter a mounted aeroplane weapon into something someone can carry around. When this is done without the supportive and protective framework of the aeroplane the weapon will require daily maintenance by someone proficient in one of the maintenance tool proficiencies listed for the machine as part of that person's long rest. A person can only maintain one such item at a time. Failure to maintain makes the weapon stop working until it is maintained again. Furthermore, these weapons are bulky. Weight for the weapon is given. Weapon size determines the minimum size of the user. A user two sizes larger can wield the weapon with one hand. A creature one size larger requires two hands.

BALLISTA

This weapon is a smaller variation on the one described in the DMG. Only one may be installed per craft. Can be located either in the middle of the upper wing or as a rear-mounted weapon in a two-seater aeroplane. Fire rate 1 bolt/round; damage 2d10 piercing; Reload is automatic after 1 round, the weapon has the load property. A ballista's ammunition hopper holds 10 bolts. Size Small. A loaded autoloading ballista weighs 70 lbs. Bolts are 5 lbs each. Range 120/480.

A large non-centauroid creature could wield this ballista with two hands, it is essentially a large scale heavy crossbow with a heavy auto loader mechanism.

BOMB BAY

The number of bombs that can be carried is limited by weight and varies with the aeroplane's size. Tiny cannot have a bomb bay. Small 1 bomb. Medium 2 bombs. Large 6 bombs. Huge 36 bombs. Gargantuan 1296 bombs. If there are multiple bomb bays, then these all draw on a single store of bombs. Bomb bays are manually loaded and released. A portable bomb bay is just a backpack full of bombs.

All bombs have the same range 180/580. Missed bombs including those dropped at higher than 580 ft still land somewhere and explode roll 1d6 for direction of scatter from intended target (faces and corners of the square) and 1d6 per 100 feet of altitude (round up) separating attacker from target for distance of scatter.

If lobbed over the side by hand or dropped by a flying creature, they are one handed aeroplane missile weapons. Dropped bombs can be treated as a one-handed simple missile weapon, or without proficiency, however if proficiency in aeroplane weapon weapons is not held then a roll of natural 1 on the 1d20 of a to hit roll indicates the bomb explodes in the users grasp! Even a handleless sphinx can drop a bomb.

Throwing a bomb, as opposed to just dropping it from a height, requires a large creature to throw it and has a range of 20/60.

BOMB TYPES

Acid. On a hit the target takes 4d6 acid damage. Size tiny. 5 lbs. 110 gp

Alchemist's Fire. The unspoken threat of these raining down encourages most towns and cities to maintain friendship with Serraine. The attack can target a creature or object or a location. Size tiny. Weight 5 lbs. 210 gp

If targeting a location the attack DC is 10. On impact all objects and creatures in a 10 ft square are subject to 1d4 fire damage. Flammable objects might start secondary

fires. At the start of each round thereafter creatures in the affected area receive 1d4 fire damage. The alchemical fires burn until put out. A DC10 dexterity (survival) check will extinguish the flames in a 5 ft square.

If targeting a creature or object only that target is affect if hit. On a miss roll for scatter and treat as a hit to a location. On a hit, the target takes 4d4 fire damage at the start of each of its turns. A creature can end this damage by using its action to make a DC 15 dexterity check to extinguish the flames.

Black Pudding Bomb. A dangerous process of application of lightning to black puddings then capturing the resulting smaller oozes produces this expensive but terrifying weapon. Target a location (DC10), object, or creature and on impact the bomb shatters and releases an small angry black pudding that begins acting on the next round. This type of bomb is too awkward to throw or drop over the side. Size small. Weight 15 lbs (counts as 3 bombs in a bay's capacity). 250 gp

SMALL BLACK PUDDING

Small ooze, unaligned

Armor Class 7

Hit Points 20 (3d6+9)

Speed 20 ft. Climb 20 ft.

STR	DEX	CON	INT	WIS	CHA
16 (+3)	5 (-3)	16 (+3)	1 (-5)	6 (-2)	1 (-5)

Damage Immunities acid, cold, lightning, slashing

Condition Immunities blinded, charmed, deafened, exhaustion, frightened, prone.

Senses Blindsight 60 ft. (Blind beyond this range). Passive perception 8.

Languages -

Challenge 2 (450 XP)

Amorphous. The pudding can move through a space as narrow as 1 inch wide without squeezing.

Corrosive Form. A creature that touches the pudding or hits it with a melee attack while within 5 feet of it takes 4 (1d8) acid damage. Any nonmagical weapon made of metal or wood that hits the pudding corrodes. After dealing damage, the weapon takes a permanent cumulative -1 penalty to damage rolls. If its penalty drops to -5, the weapon is destroyed. Non magical ammunition made of metal or wood that hits the pudding is destroyed after dealing damage. The pudding can eat through 2-inch-thick, non magical wood or metal in 1 round.

Spider Climb. The pudding can climb difficult surfaces, including upside down on ceilings, without needing to make an ability check.

ACTIONS

Pseudopod. *Melee Weapon Attack:* +5 to hit, reach 5 ft., one target. *Hit:* 6 (1d6 + 3) bludgeoning damage plus 18 (4d8) acid damage. In addition, non magical armour worn by the target is partly dissolved and takes a permanent and cumulative -1 penalty to the AC it offers. The armour is destroyed if the penalty reduces its AC to 10.

Note. Small black pudding lack the ability to split into even smaller ones.

Grey Ooze Bomb. Herding a grey ooze into a ceramic pipe and slicing off portions to be packed into bombs produces this deadly munition. Target a location (DC10), object, or creature and on impact the bomb shatters and releases an small angry grey ooze that begins acting on the next round. This type of bomb is too awkward to throw or drop over the side. Size small. Weight 20 lbs (counts as 4 bombs in a bay's capacity). 240 gp

SMALL GREY OOZE

Small ooze, unaligned

Armor Class 8

Hit Points 13 (2d6+6)

Speed 10 ft. Climb 10 ft.

STR	DEX	CON	INT	WIS	CHA
12 (+1)	6 (-2)	16 (+3)	1 (-5)	6 (-2)	2 (-4)

Damage Immunities acid, cold, fire.

Condition Immunities blinded, charmed, deafened, exhaustion, frightened, prone.

Senses Blindsight 60 ft. (Blind beyond this range). Passive perception 8.

Languages -

Challenge 1/4 (50 XP)

Amorphous. The ooze can move through a space as narrow as 1 inch wide without squeezing.

Corrode Metal. Any non magical weapon made of metal that hits the ooze corrodes. After dealing damage, the weapon takes a permanent and cumulative -1 penalty to damage rolls. If its penalty drops to -5, the weapon is destroyed. Non magical ammunition made of metal that hits the ooze is destroyed after dealing damage. The ooze can eat through 2-inch-thick, non magical metal in 1 round.

False Appearance. While the ooze remains motionless, it is indistinguishable from an oily pool or wet rock.

ACTIONS

Pseudopod. *Melee Weapon Attack:* +3 to hit, reach 5 ft., one target. *Hit:* 4 (1d6 + 1) bludgeoning damage plus 7 (2d6) acid damage, and if the target is wearing non magical metal armour, its armour is partly corroded and takes a permanent and cumulative -1 penalty to the AC it offers. The armour is destroyed if the penalty reduces its AC to 10.

CALTROP CANNON

These can be mounted in the propeller tube, on wing mounts, or on the main body for use by the gunner. Synchronised double caltrop cannons can also be created as wing mounts. Missile weapon attack for 1d6 slashing damage. 'Caltrap' is something of a misnomer as the ammunition is spinning razor sharp disks. The hopper holds 20 shots and a mechanism rapidly loads the next caltrap into the barrel. The weapon does not have the load property. Size Tiny. Weight 12 lbs, 8lbs of which is the hopper filled with ammunition. Range 145/580. 20 disks of ammunition costs 1gp.

CROSSBOW

The standard designs mount light crossbows unless the specifically called out as a heavy crossbow. Crossbows are often mounted as a synchronised pair on the wings giving the pilot a multiattack. Mounted crossbows lose the load property due to the rapid reloading mechanisms that feed in bolts from a hopper of 20.

Mounted light crossbows are size tiny weigh 10 lbs of which 4 lbs is the hopper of bolts. These do 1d8 piercing damage. Range 80/320.

Mounted heavy crossbows are size small weigh 24 lbs of which 4lbs is the hopper of bolts. These do 1d10 piercing damage. Range 100/400.

FIREBALL GUN

Rare.

Created by altering a wand of fireballs so that it is permanently mounted within a cold iron tube on a vehicle or structure and has a heavy combination magical-mechanical firing mechanism added that enables even non-spellcasters to use it without attunement. The draw on the wand's magical energy to power these changes reduces the wand to 6 charges. While at the controls, you can use an action to expend 1 or more of its charges to cast the *fireball* spell (save DC 15) from it. For 1 charge, you cast the 3rd-level version of the spell. You can increase the spell slot level by one for each additional charge you expend. The gun regains 1d6 + 1 expended charges daily at dawn. If you expend the gun's last charge, roll a d20. On a 1, the wand within crumbles into ashes and is destroyed rendering the weapon useless.

Attempts to create a handheld portable version of the Fireball Gun have all failed and sages believe such a device is theoretically impossible. Size Small. Weight 50 pounds. Range 150 ft.

LIGHTNING GUN

Rare.

This magic weapon is created by encasing a wand of lightning bolts in a 7 ft long metal rod and permanently mounting it on a vehicle or structure then connecting this with copper wire to a combination magical-mechanical firing mechanism that enables even non-spellcasters to use it without attunement. The draw on the wand's magical energy to power these changes reduces the wand to 6 charges. While at the controls, you can use an action to expend 1 or more of its charges to cast the *lightning bolt* spell (save DC 15) from it. Even if controlled by a gunner it has an conical arc of fire like a pilot controlled weapon (page 29 this book). For 1 charge, you cast the 3rd-level version of the spell. You can increase the spell slot level by one for each additional charge you expend. The gun regains 1d6 + 1 expended charges daily at dawn. If you expend the gun's last charge, roll a d20. On a 1, the wand within crumbles into ashes and is destroyed rendering the weapon useless.

Like the Fireball Gun, it is not possible to create a handheld version. Size Small. Weight 40 pounds. Range nil, but the bolt is 100 ft long and 5 ft wide.

SNOOZE GUN

This magic weapon is created by encasing a snooze wand in a slender steel pipe and permanently mounting it on a vehicle or structure then connecting to a combination magical-mechanical firing mechanism. In gunner versions of the weapon the steel pipe is a fixed to what looks like a crossbow stock on a swivel. The alterations encase the magical energy of the *sleep* spell in a small green globe. The spell is only triggered if an aeroplane weapon attack roll is successful and the globe hits a solid target which can be an object or creature. Then the *sleep* spell occurs centred on the target. You can, for instance,

shoot an aeroplane to cast sleep on the occupants. The usual range of the spell is replaced by a weapon range of 100/300 ft. If the globe reaches 300 ft from the barrel without striking a target it vanishes with an audible pop. The draw on the wand's magical energy to power these changes reduces the wand to 6 charges. While at the controls, you can use an action to expend 1 or more of its charges to cast the *sleep* spell (save DC 15) from it. For 1 charge, you cast the 1st-level version of the spell. You can increase the spell slot level by one for each additional charge you expend. The gun regains 1d6 + 1 expended charges daily at dawn. If you expend the gun's last charge, roll a d20. On a 1, the wand within crumbles into ashes and is destroyed rendering the weapon useless.

Unlike the Fireball Gun, it is possible to create a handheld version but the advantages over a snooze wand are debatable and so no-one has bothered. Size tiny. Weight 15 pounds. Range 100/300.

SPIKE GUN

These can be mounted in the propeller tube, on wing mounts, or on the main body for use by the gunner. Synchronised double spike guns can also be created as wing mounts. Missile weapon attack for 1d8 piercing damage. The ammunition is iron spikes of the kind commonly used by adventurers. The hopper holds 20 of these and a mechanism loads the next spike a round after the weapon shoots. The weapon has the load property. 1d8 piercing damage. Size Tiny. Weight 14 lbs, 10 lbs of which is the hopper filled with ammunition. Range 130/520. Ammunition costs 6 sp for 20 spikes.

COMMON PROBLEMS

OUT OF FUEL

The aeroplane can glide. Halve speed (round up to nearest 5'). At the end of each of the pilot's turns the aeoplane loses altitude equal to the current speed and a DC10 control roll is required. The aeroplane may not gain altitude.

PILOT INCAPACITATED OR DEAD

Unable to change direction. Plane moves the rest of its movement in the current direction. Pilot automatically fails control rolls by the full amount of the DC.

BLUE FOX SCRAMBLE ... RED DRAGON AT 5 O'CLOCK!

"The Realms of the Sky belongs to Serraine, the incredible Flying City of the gnomes. They know no borders, and fear no monsters. From the far reaches of Alphatia to the mysterious lands of Arypt, their never-ending quest is for the magical fuel that will keep them flying!

Top Ballista describes the City of Serraine and its facetious inhabitants. You will learn to play gnomes, gremlins, pegataurs, nagpas, and other fantastic creatures as Player Characters. Join the famous Top Ballista flying squadron, and become an ace and a hero." – Top Ballista (back cover).

This player's book contains complete rules on how to create, equip, and play the unusual inhabitants of Serraine. New rules include air combat, spellcasting, and inventing machines usable in any D&D World

"Serraine, the Flying City of this book, can be introduced into any game world such as Faerun (the FORGOTTEN REALMS" Campaign Set) or Oerth (the WORLD OF GREYHAWK Fantasy Game Setting), since it could appear in the skies anywhere! The meddling gnomes could reasonably invent some planarshifting (one-shot!) drive unit for the city."* (Top Ballista page 64).

