STEPHANIE COOPER
C11774783

INNOVATIONS
"CHIMAERA CREATURE DEVELOPMENT"
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Contents

Character Profile

Name: Chimaera
Monster of the divine race.

Parents: Typhon and Echidne

Physical Characteristics:
Chimaera is a monster which is part lion, part goat and part dragon.
Has the head and front of the body of a lion, a goat's horns on its head, and the rear part of its body is like a dragon.
Measures 1.5 metres tall at the shoulder and 2.6 m in length, not including the tail, which measures an additional 2m
Chimaera has very strong legs, front and rear, long, sharp claws and powerful jaws.
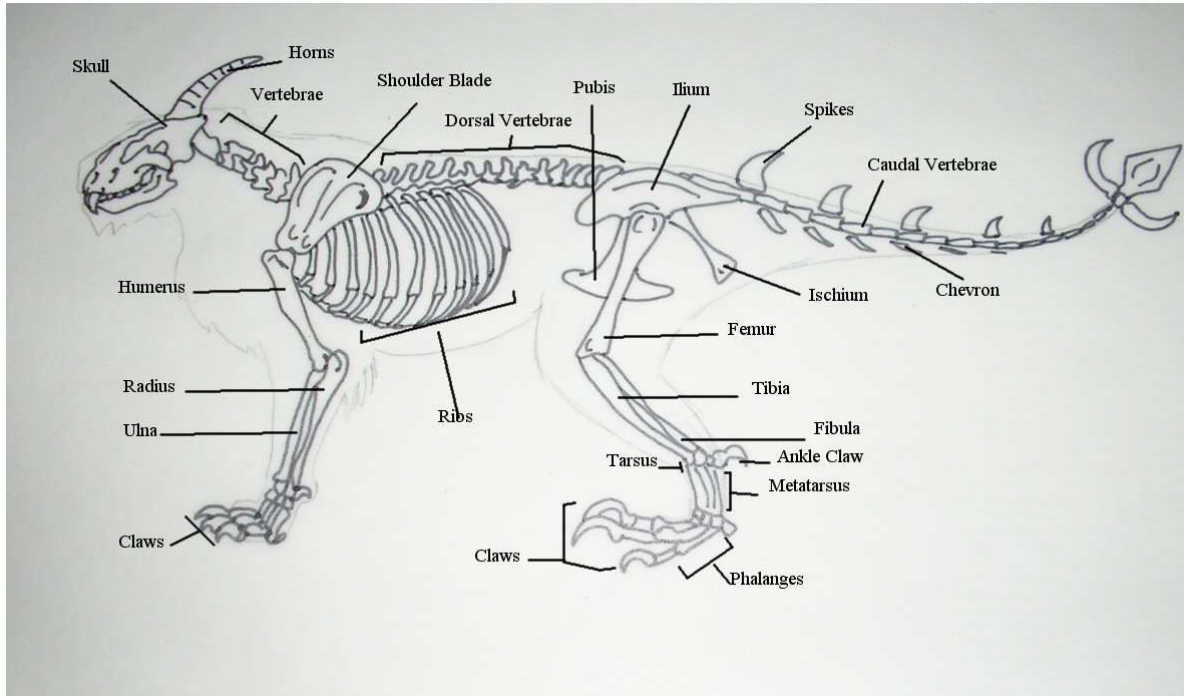Feeds entirely on the flesh of whatever comes in its way.
Like lions, it has 30 teeth, including large piercing canines to grab and kill prey. It also has a strong tail with spikes which it can use as an attack weapon.

The Chimaera is a fearful, strong beast which is said to have terrorized the citizens of Lycia (now Turkey).

It is known to have eventually been defeated by Bellerophon riding Pegasus, there are several different variations on exactly how Chimaera was defeated, but they all agree that it was difficult as Chimaera was a very strong creature.

Skull

Horns

Vertebrae

Shoulder Blade

Dorsal Vertebrae

Pubis

Ilium

Spikes

Caudal Vertebrae

Humerus

Ischium

Chevron

Femur

Radius

Tibia

Ulna

Ribs

Fibula

Tarsus

Ankle Claw

Metatarsus

Claws

Claws

Phalanges

- **Introduction**

   For this project I wanted to select a task that would let me develop my creative skills away from the computer. I wanted to develop and design a creature that could be used in a film. The DVD with extra features of *Harry Potter and the Prisoner of Azkaban*, shows an overview of the process for the creation of Buckbeak, which I thought was very interesting and got me into doing something in that area.
I wanted my character to integrate as much as possible with a given environment and interact with other characters.

It was actually Ian Stephenson's suggestion. In the first tutorial I mentioned how I wanted to model a creature such as the hippogriff from Harry Potter and incorporate it into a real environment. I was impressed to see how Buckbeak (the Hippogriff) blended in so well with the real actors and their surroundings. Then Ian Stephenson suggested that instead of doing that (which could be a simple compositing project) I should design the creature in a way a similar to how Buckbeak was created.

Harry and Buckbeak
http://www.dvd.net.au/movies/h/11266-2.jpg *(accessed 9.3.06)*

I originally planned to design this creature on paper, but after I had completed a few drawings, I realised it would be necessary to build a maquette.
I started off by looking at pictures of animals and drawing rough sketches of the ones that had physical characteristics I liked, or that seemed interesting. (See appendix 1) I wanted to design a believable creature, so I decided it was best to stick to *real* animals.

For a while, all I did was look up more animals and see how I could take different bits from each of these and make one whole. This however, was harder than I thought, as the creature had to have a purpose in life, so just throwing in bits randomly didn't make much sense.

- **Finding Information About Mythical Creatures**

Then I looked into mythical creatures, and started to focus more on these. I found it much better to know a bit about each of these creatures, researching things such as their origin, habitat, associated myths, etc.

I found this particularly interesting, as so far I only had experience in designing "realistic" creatures. Looking into how to create a creature that didn't exist in real life meant not having references for skeletal structure, movement and appearance. This made the process very different to what I was used to, where I would be able to refer to factual information which would provide a framework.

- **Settled on Chimera**

During my research on these creatures, I realised that most of them had already been used in many films and had always been represented in almost the exact same way. Creatures such as centaurs, dragons, minotaurs, etc. wouldn't have represented much of a challenge in terms of the design.
Then I came across the Chimaera from Greek mythology, a monster part lion, part goat and part snake (or dragon). The main reason I liked it was because I didn't know much about it, I hadn't seen it anywhere before; another reason that made me settle on the Chimaera was that I had been looking into lions at the beginning and understood their physiology a bit better than other animal's.

My first designs were very simple; I just took a lion, a goat and a reptile (used as a dragon) and put them together in a way that it would look 'nice' aesthetically. However, I had to take a step back and do more thorough research on the Chimera in order to identify its purpose and develop a character profile.

Chimera
The Chimaera was a fearful monster, breathing fire. The fore part of its body was a compound of the lion and the goat, and the hind part a dragon's. It made great havoc in Lycia (Asia Minor, the ancient coastal region of southwest Turkey), so that the king Iobates sought for Bellerophon to destroy it.

Chimaera: The Origins of the myth of The Chimera by Ugo Bardi, *January 2004*
http://www.unifi.it/unifi/surfchem/solid/bardi/chimera/origins.html

Bellerophon, Pegasus, and the Chimaera.

(Image and caption from www.eaudrey.com/myth/
accessed on 6 March 2006)

- **The Components of Chimera**

I found that ancient reports about the Chimaera are all about the same, and so are the images. They all represent it as a monster with three heads: A lion's head at the front, a goat's head coming out of the middle of the back and the snake's at the tip of the tail.

> The classic Chimera is a creature with the body of a lion, the tail of a serpent, and a goat's head sprouting out of the back. In ancient images what we find is a great uniformity, clearly the result of an attempt to show the same thing. Not only the proportions are always about the same, but also the chimera is shown always in a similar posture. Angry, with mouth open, often with the back arched in a position of impotent rage.

(THE CHIMERA IN MODERN FIGURATIVE ART by Ugo Bardi, 2002)

- **Deeper Source-Creature Research**

What I did next was look at pictures of lions and goats (See appendix 2), as well as researching their physiology (skeletal and muscular systems). I did several sketches of several different kinds of lions and goats, which allowed me to find which parts of which animals would go together to make up for the Chimaera I had in mind; perhaps not as a whole, but as separate parts.

- **Putting Chimaera Together**

Putting a creature together wasn't all that easy; I didn't quite understand what the use of having a goat's head coming out from the middle of the back of a ferocious creature could be. It wasn't until I read Ugo Bardi's article called *Chimaera: The Origins of the Myth* that I was able to understand it all a bit better. It explains how, initially, the apparent goat's head (A) might have actually been wings (B), someone (or something) riding the beast, or even one of it's front legs raised up (C), or a bent tail.

Images taken from www.unifi.it/unifi/surfchem/solid/bardi/chimera/origins.html last accessed on 6 March 2006.

The conclusion explains the reasons why it might actually be a goat. Ugo Bardi mentions the relation the goat has with European mythology, and how even though goats aren't common as monsters, the goat element in the Chimaera represents the unclean nature of the creature. (Bardi, Ugo 1997)

I then looked at some modern representations of the Chimaera (See appendix 3) and found a lot of variations. In some, the Chimaera was given three heads, all at the front, in others the heads were placed at different points, the goat and lion at the front, with the snake/dragon at the back, some even had wings. The bodies were also changed around; some representations having the body of a lion, others of a goat, some were split half way between two of the creatures, and others even tried to split the body three ways.

I considered the Chimaera's place within Greek mythology in which its main purpose in life was to terrorize the citizens of Lycia[1], where it lived. It had to be fearsome and made to kill. I looked at the sketches I had made with this in mind, and I finally settled on a lion's head, with goat's horns (slightly curved and pointing upwards, not the low strongly curved kind), and a dragon's tail. The body would have the front half of a lion with the rear half of a dragon. The fur of the lion would fade into the dragon's scales.
The lion's paws have claws which are noticeably larger than a normal lion's, and the dragon's half would have very distinct talons, as well as hooked claws on the rear of the ankle. There would also be a series of spikes running the length of the tail, which would terminate in a three-pronged spike.
As I had decided to reduce the number of heads from three to one, I felt that I should be very thorough in deciding how the head should look. I looked at a wide range of pictures of lions, both real and sculpted (statues, models, etc.).

(References unavailable, but originally from internet)

I narrowed these down to four main pictures that I subsequently based my design on. Of these, three were sculpted and one was of a real lion. I felt that the sculpted images of the lion were more dramatic interpretations of how a lion

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[1] Lycia is in modern day Turkey on the Southern end of the Mediterranean coast.

would look, and considering that that the Chimaera was a mythical beast, rather than just an ordinary lion, they would help make for a more dramatic appearance. The goat's horns, which by now were the only remaining part of the goat (since these were the only element which fit with the Chimaera's image) were simply put on top of the head. (See appendix 4)

The front part of the body was also based mainly on sculptures, since they represent a more idealised image of the lion as a strong and elegant predator than reality, in that they tend to have more defined musculature and larger claws (for example).

The back part required a different approach, since there are no real dragons upon which to base the design. On the one hand this allowed more design freedom, but on the other hand it meant that there was no framework to work within. (see appendix 5)

I used some pictures of dragons as reference and finally incorporated this with the other elements I had decided on.

Once I had the design I was happy with, I began modelling a maquette.

More Images (see appendix 6)

I found that the maquette (see appendix 7) resembled more closely what I had in mind than my drawings did; but the proportions weren't quite right. However, the maquette became quite useful, I could now see how the Chimaera looked like from many angles, rather than simply guessing.

- **Further Research**

I had to do further research once I had a rough design. The next step was creating the skeleton for my creature. The lion's skeleton was quite simple since reference was easy to find; the only changes made were on the paws and claws, which I made larger and I also added horns to the top of the head.

As for the dragon part, I didn't have any reference for it; so I looked at reptiles' skeletons.
I mainly looked at Komodo dragons and crocodiles and ended up with a mixture of the two, with some modifications (this is explained in more depth in the next section).

- **Further Design and Anatomy and Movement Research**

Further research made me come across several articles. One I found particularly interesting is called *Reign of Fire: Breathing Life Into Dragons* (mag.awn.com).
It includes an interview with the co-visual effects supervisor for the film *Reign of Fire*, Dan DeLeeuw.

> *"Director Rob Bowman wanted to make his dragons as vicious, as organic, and as scary as possible… Dan Delewuw reveals how they borrowed elements from nature to create a supreme predator who could destroy the world."*

> *"We wanted to make the dragon look like it really existed. We attacked the design on three fronts. We sketched the character on paper, sculpted it in clay and built it in the computer… We found that some of the designs might look great as a silhouette, but once the animator attempted to move the model, it didn't work. The front legs are part of the wings and if we made the wings too big, the dragon couldn't walk."*

This made me realize I would probably have problems, since I wouldn't be modelling the actual character in 3D.

"Character design is not only how a character looks but also how it moves."
- Reign of Fire Interview

I had been focusing on the looks of the Chimaera and hadn't stopped to consider how it would move. So I went back to my design, and tried to find animals that I could use as reference for the dragon part, so that I could have an actual reference in order to develop a walk cycle for the creature during later stages of development.

It was recommended to me that I looked at the Komodo dragon, a giant lizard from Malaysia, in order to gain some understanding of the movement of larger reptiles. Another obvious choice was the crocodile which is another heavy, large reptile. This kind of creature was particularly appropriate because its body is entirely lifted off the ground while it is walking.
Researching these creatures entailed analyzing their appearance, anatomy and movement.
While it was not very hard to find videos of movement, or photos or sketches of their appearance; it was quite difficult to find detailed information on their anatomies, specifically their skeletons.
Based on this research, I borrowed elements from both the Komodo dragon and the crocodile (see appendix 8) in order to structure the rear section of the

Chimaera; although it was necessary to make some minor adjustments - especially on the feet and the tail - adding larger claws and spikes.

I also looked at the Dragonheart DVD, which contains an interview with Phil Tippett, who was the chief designer of the dragon which appears in that film. This provided me with other things to bear in mind such as the impact the design will have on movement. This interview also showed me that I was on the right track as they had proceeded to design the Dragonheart dragon using a similar process to that which I had been using.

- **How I Think I Did**

I am very happy with the design of the creature, and I feel that it fits in well with the image that the myths around it put forward. I also think that I have improved on some of the traditional designs in making it a more believable creature. Its more old fashioned image of having 3 heads, or wings or a snake tail fits more with a time when the people who designed these creatures did not have to account for the movement of it.
I think that the design of the creature overall was successful, and would fit into a Harry Potter style world very convincingly.

- **What I Would Have Improved**
It was only after I really started to get into the design of the creature that I realised exactly how big a job designing a creature like this is – my research has indicated that creatures that have appeared in films (such as Buckbeak from Harry Potter and the Prisoner of Azkaban and the Oliphants from The Return of the King) generally have many months of research and development behind them before they are even drawn for the first time, and also have a large team of people working on them. This is because developing a creature which doesn't already exist, but that still needs to be believable is very difficult. As the director of Harry Potter and the Prisoner of Azkaban Alfonso Cuarón said

> *"I didn't realize how difficult it was going to be to create Buckbeak, Once we worked out the physiology, the way his bones would actually move, we had to capture his personality, which is a mixture of regal elegance, particularly when he is flying, and the clumsy and greedy creature he becomes back on land."*
> *(http://www.writingstudio.co.za/page499.html)*

I do however feel that the creature would have benefited from being designed in 3d, as this would have allowed me to adjust the proportions and skeleton and see if it would actually work. As it is, the creature is aesthetically fine, but there is no way to prove if it is physically practical.
This would have been one stage in a process of gradual improvement where research would lead to drawings and maquettes and then to 3d designs, which would all improve on each other. The process would then start again until the right balance between fantasy and believability was found.

This balance is very important, the creature had to retain its "scariness" and magical feeling but still had to be something that would not look "fake" if it was placed in a scene with human actors and a real landscape. Some of the particularly difficult challenges in achieving this for my design were:

1. Choosing which parts of which animals would go together.
2. Choosing the characteristics of each part – for example: Should the tail have spikes? Should the lion's head have a mane even though the creature is technically female? What kind of goat's horns would be most appropriate?
3. The skeletal structure

- **What I Have Learned**

It is best when designing a fantasy character to follow a set pattern:

1. Ideas
2. Sketching
3. Research: This is where you look at any (if they exist) examples of similar creatures that have been designed by others, or creatures with similar attributes. You must look out for how those parts that you want to use as part of your creature work with the creature as a whole – you can't just attach a tail without allowing for the back to be strong enough to support it, or without giving it a purpose. Koalas don't have a tail because they don't need one – they climb with their claws, unlike monkeys, which do have one because their way of climbing needs it. It is also important to consider not just how the creature will look, but also how it will move, as movement will directly influence anatomy, which may have an effect on appearance.
It is important to remember that the research phase never really ends, as further research is usually necessary at each of the later stages.
4. Design: More formalised sketching, try different ways of combining the parts you found during the research phase, and try imagining the creature within its natural environment, behaving in the way you expect it to, to give your design perspective and keep it connected to the original ideas you had for it. Expect to return to the research phase at some point to clarify ideas.
5. Build Maquette(s): Ideally there will be several maquettes which will show the more important poses and expressions, as well as detail such as scales on reptiles for example, or fur etc.
6. Design Skeleton: The skeleton should be able to support the physical features of the creature, as well as being able to move in a way that fits with how you imagined the creature would move.
7. 3D Model: This will allow you to see all the parts working together (if they do). Providing you have done the research and design stages thoroughly all the parts should have come together reasonably successfully – although some minor modifications and adjustments might be required.

- **What I Would Have Done Differently**

My brief would have included a 3D model to test if the design was successful or not, and I would have liked to visit a zoo and observe animals behaviour and movement first hand. I believe that these two things would have allowed me to create a more finalized creature.

• Conclusion

I originally set out to create a creature which would be believable in a Harry Potter-like world, I feel that I have achieved this within the framework I set for myself in the proposal, although I should have allowed for a 3D model to be built, as this would have allowed me to test the "realness" of the creature a lot more.

I discovered that it requires a lot of research to put together a creature like a Chimaera, and that it is also very important to monitor the relationship between appearance, movement and behaviour at all times, as they will indirectly affect each other.

I would have liked to have developed my creature further, but the size of the job of creating a believable creature meant that there was not enough time to do everything, especially considering that the creature was only partially based on real animals.

I found that it is a very long and complicated process to mix creatures (especially those of different types – for example mammal and reptile) as their skeletal and muscular systems will be very different, as will their movement and behaviours.

If I take up a similar task in the future, I will allow more time for research, and more time to develop the idea further (more maquettes and a 3D model for example) so that the creatures believability can be developed more fully.
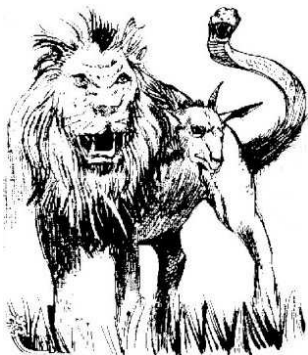
Appendix 1

Appendix 2
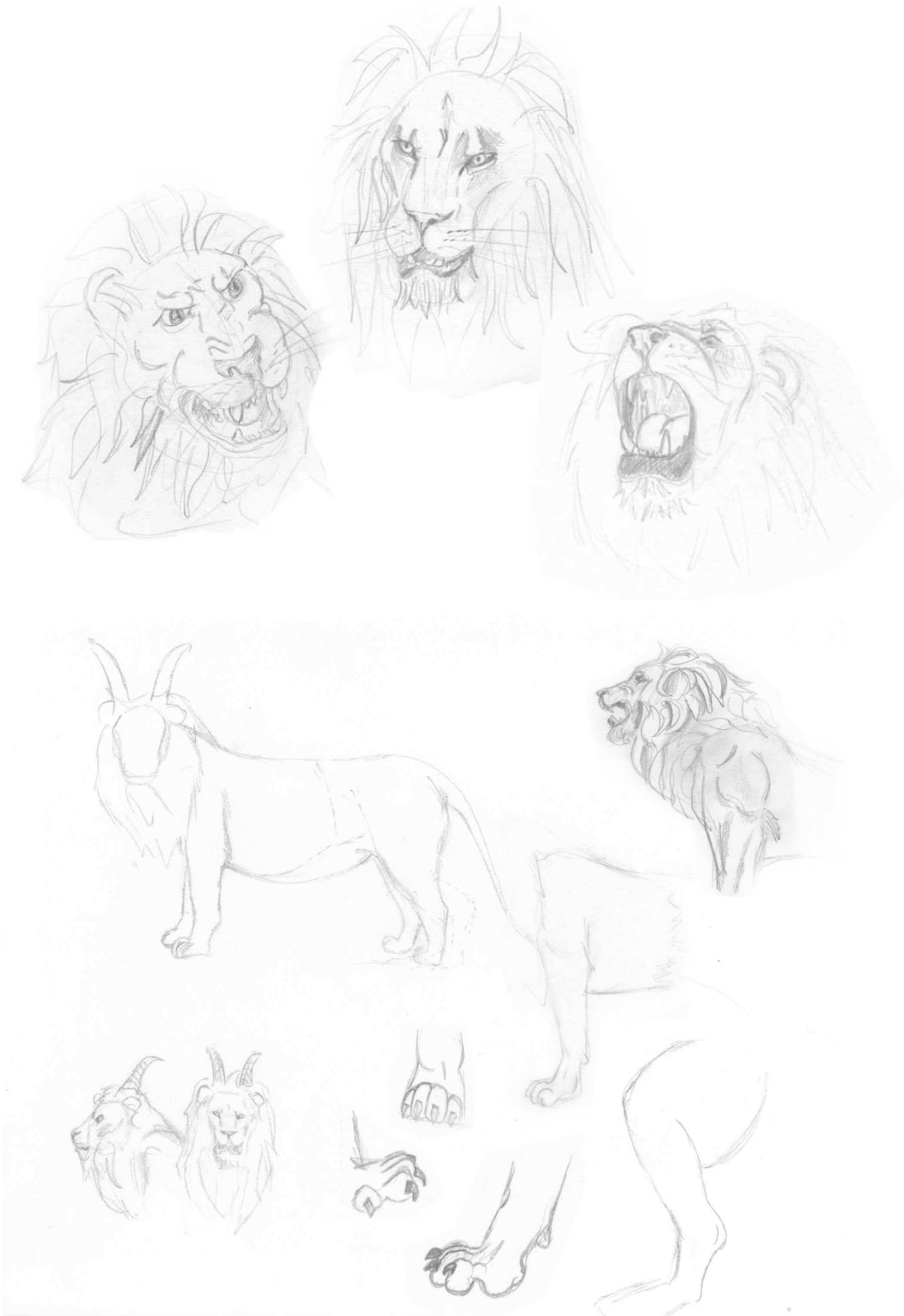
Appendix 3

http://www.occultopedia.com/images_/chimaera.jpg

"Gods Men and Monsters" illustrated by Giovanni Caselli

http://thanasis.com/modern/chimaera.jpg
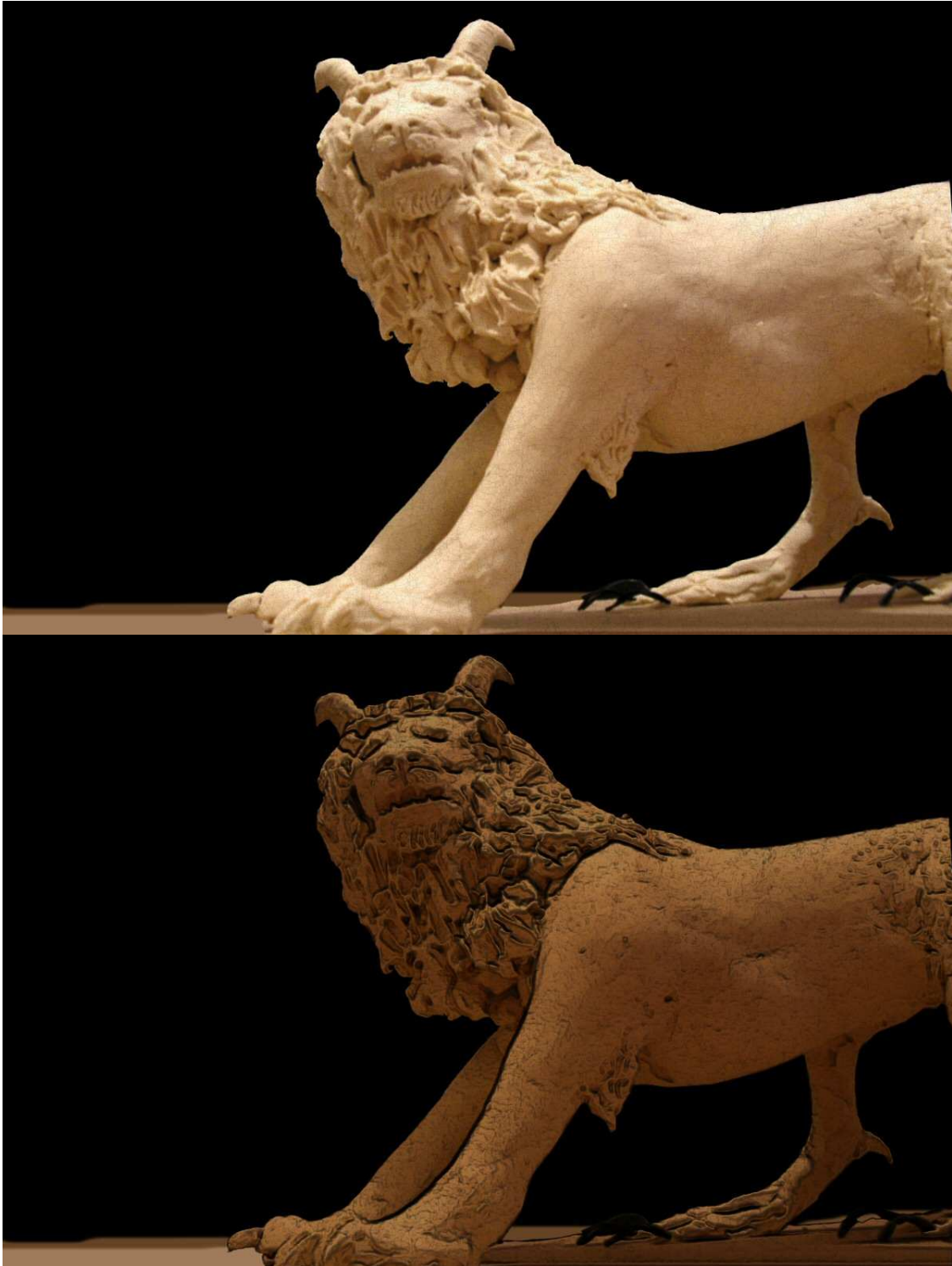
Appendix 4

Appendix 5

Appendix 6

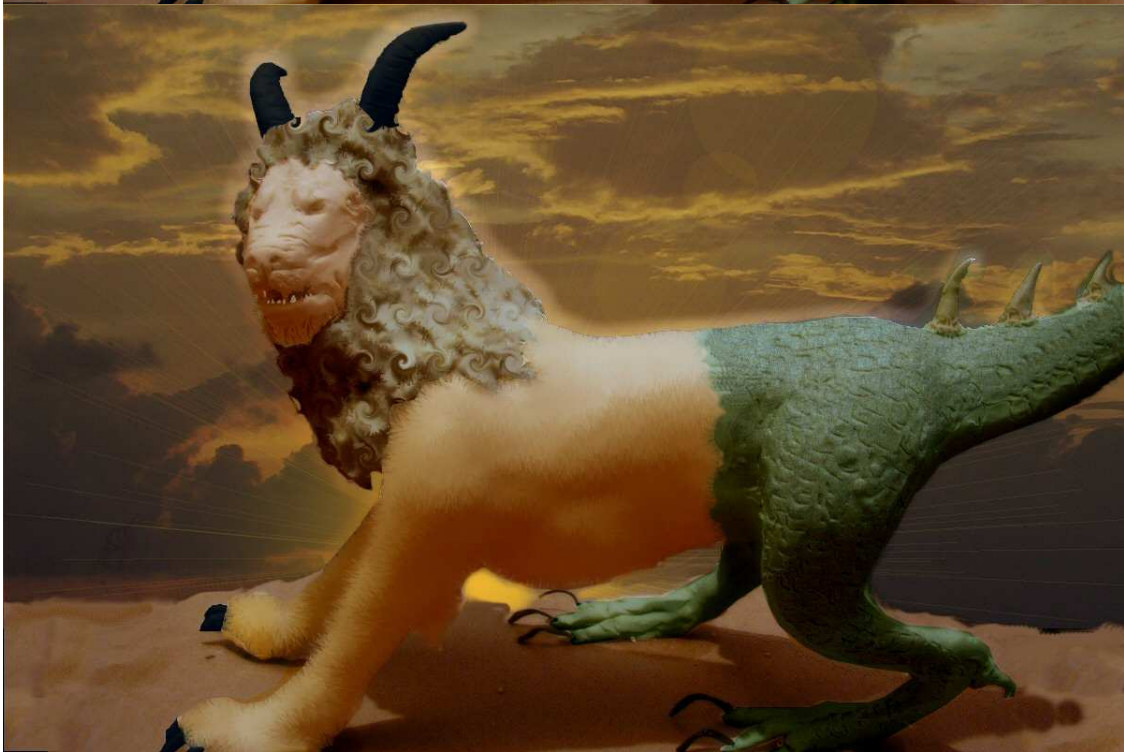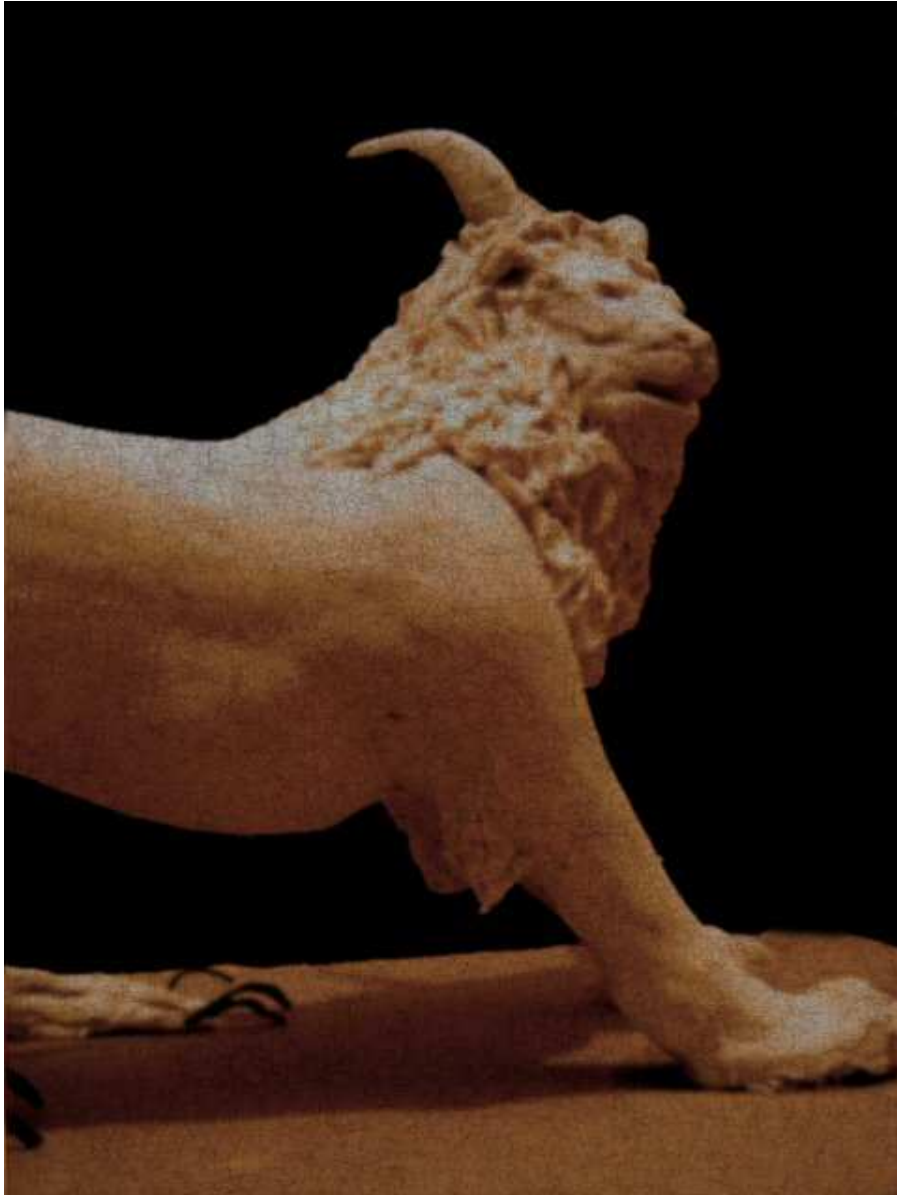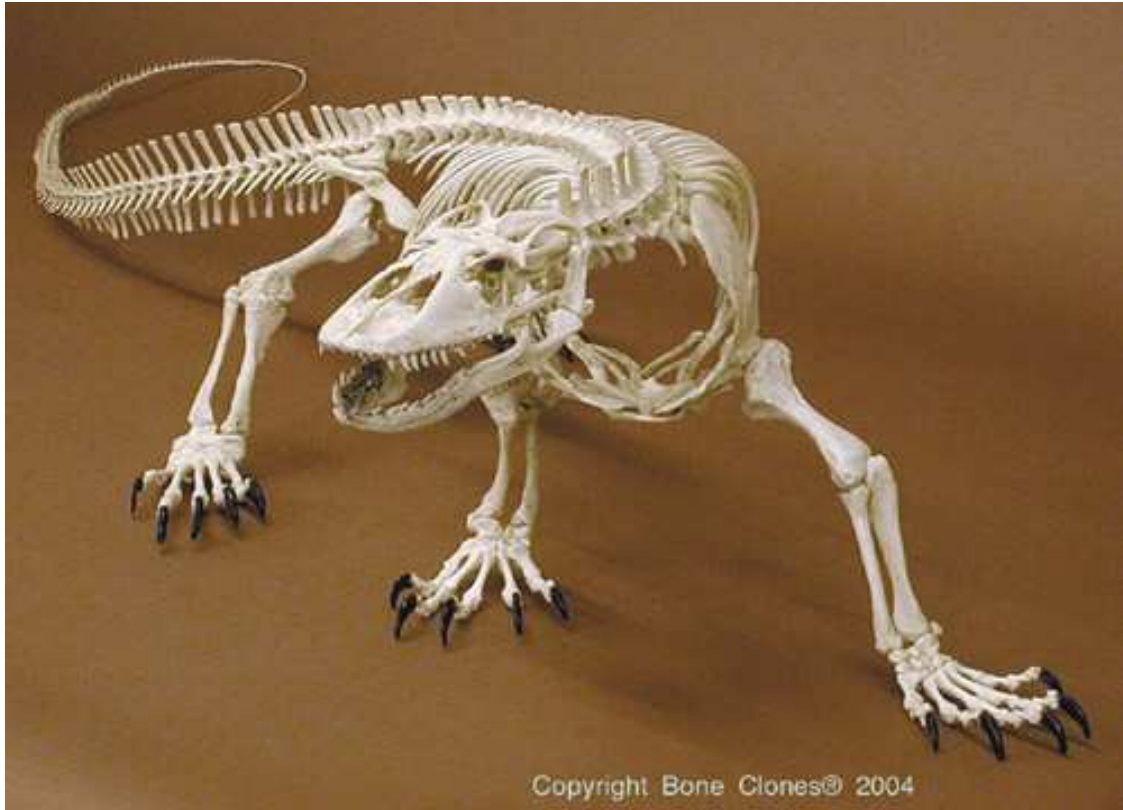# Appendix 7

Appendix 8

Komodo dragon skeleton taken from
http://www.boneclones.com/images/sc-027_web-lg.jpg (accessed 07.03.06)

SKELETON OF A CROCODILE
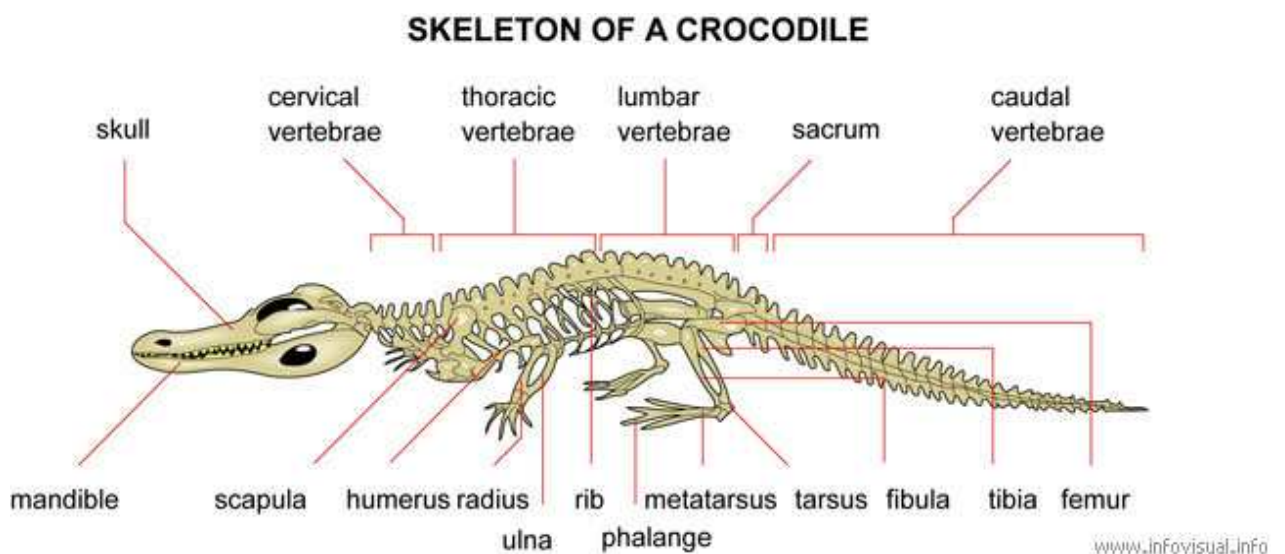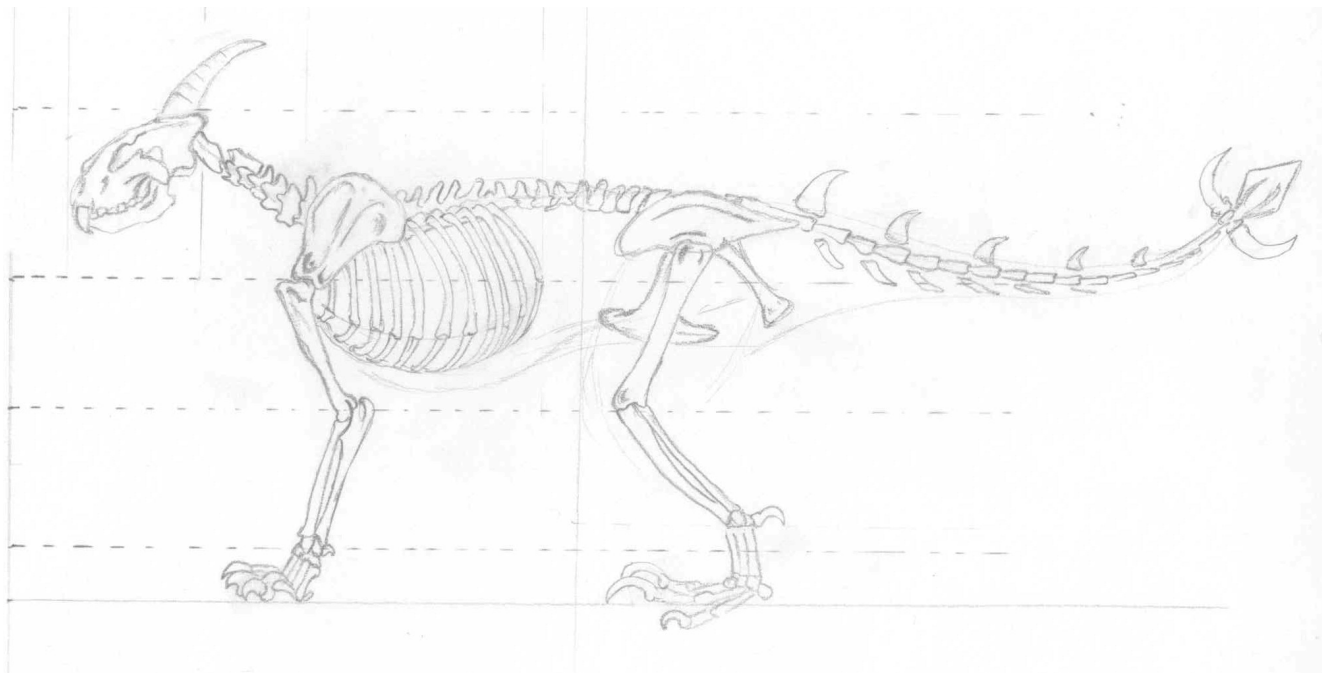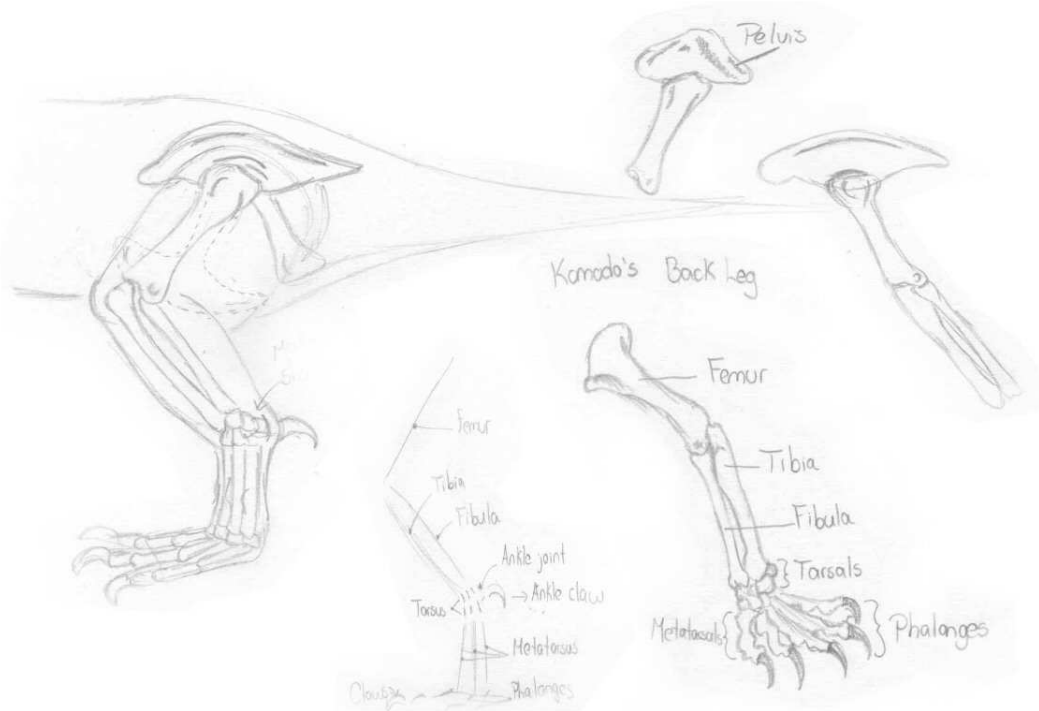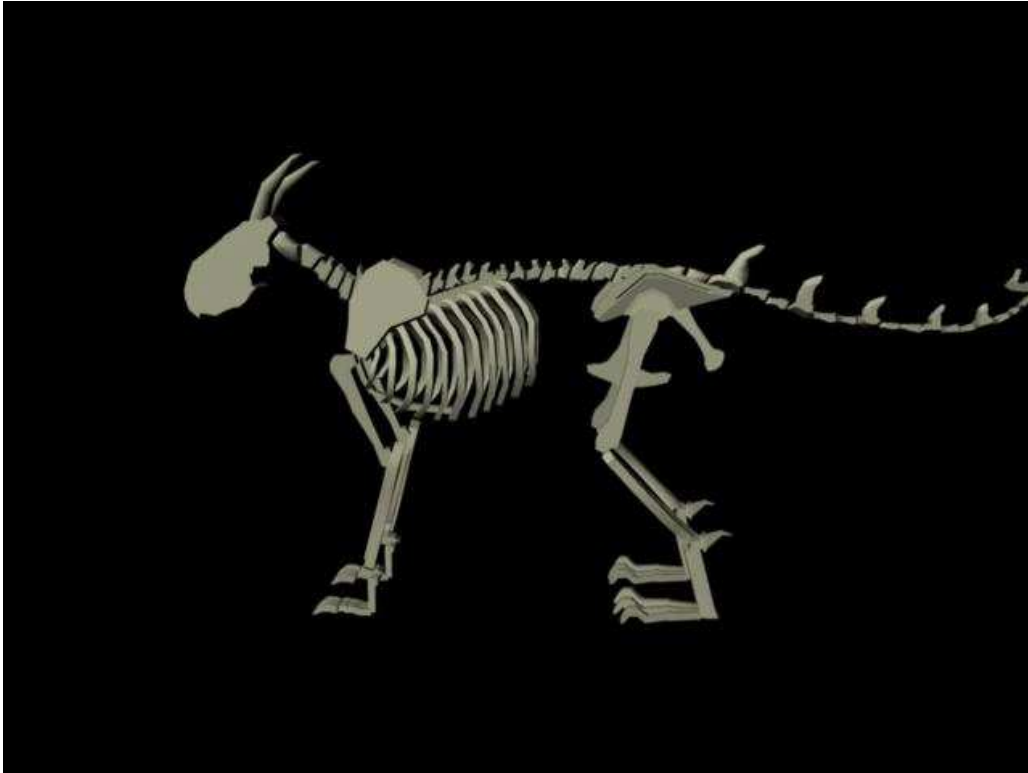

Image taken from http://www.infovisual.info/02/023_en.html (accessed 07.03.06)

Pelvis

Komodo's Back Leg

Femur

Tibia

Fibula

Ankle joint

Ankle claw

Tarsus

Metatarsus

Claw

Phalanges

Femur

Tibia

Fibula

Tarsals

Metatarsals

Phalanges

Rough 3D Model of skeleton
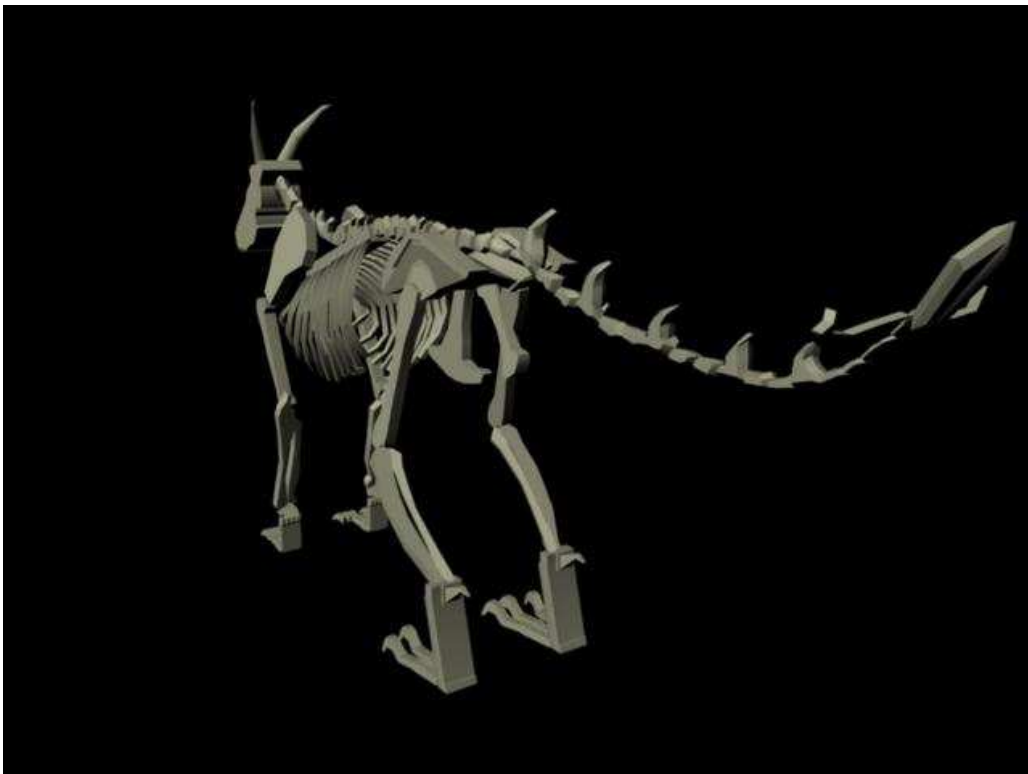
Bibliography

Frandson, R. D & Spurgeon, T.L. (1992) *Anatomy and physiology of farm animals (5th Edition)*
Philadelphia : Lea & Febiger

Muybridge, E (1957) *Animals in motion*
New York : Dover Publications

National Geographic Society (1996) *El reino animal : los mejores reportajes fotográficos de National Geographic Society*
Spain : El Pais, 1996

Weidenfeld & Nicolson, (1968) *Animal locomotion*
World naturalist
London : Gray,Sir, James

Bardi, Ugo (1996) *Chimaera*
[online]
http://www.unifi.it/unifi/surfchem/solid/bardi/chimera/
Accessed: 9.3.06

Bardi, Ugo (1997) *Chimaera (Origins of the Myth) [revised 2004]*
[online]
http://www.unifi.it/unifi/surfchem/solid/bardi/chimera/origins.html
Accessed: 9.3.06

Bardi, Ugo (2002) *Chimaera in Modern Figurative Art*
[online]
http://www.unifi.it/unifi/surfchem/solid/bardi/chimera/figurativechimera/index.html
Accessed: 9.3.06

Video reference - *Lion*
[online]
http://www.arkive.org/species/GES/mammals/Panthera_leo/more_moving_images.html
Accessed: 2.3.06

Video reference - *Komodo*
[online]
http://www.arkive.org/species/GES/reptiles/Varanus_komodoensis/more_moving_images.html
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