



# Awareness on Snakes, Scorpions & Spiders

Compiled & Presented by: Jeanine Burger (Pri.Sci.Nat.;SIE&ES)  
Senior Environmental Advisor  
Eskom Tx NW Grid  
(051) 404 2439  
086 537 3593  
BurgerJe@eskom.co.za

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# SNAKES



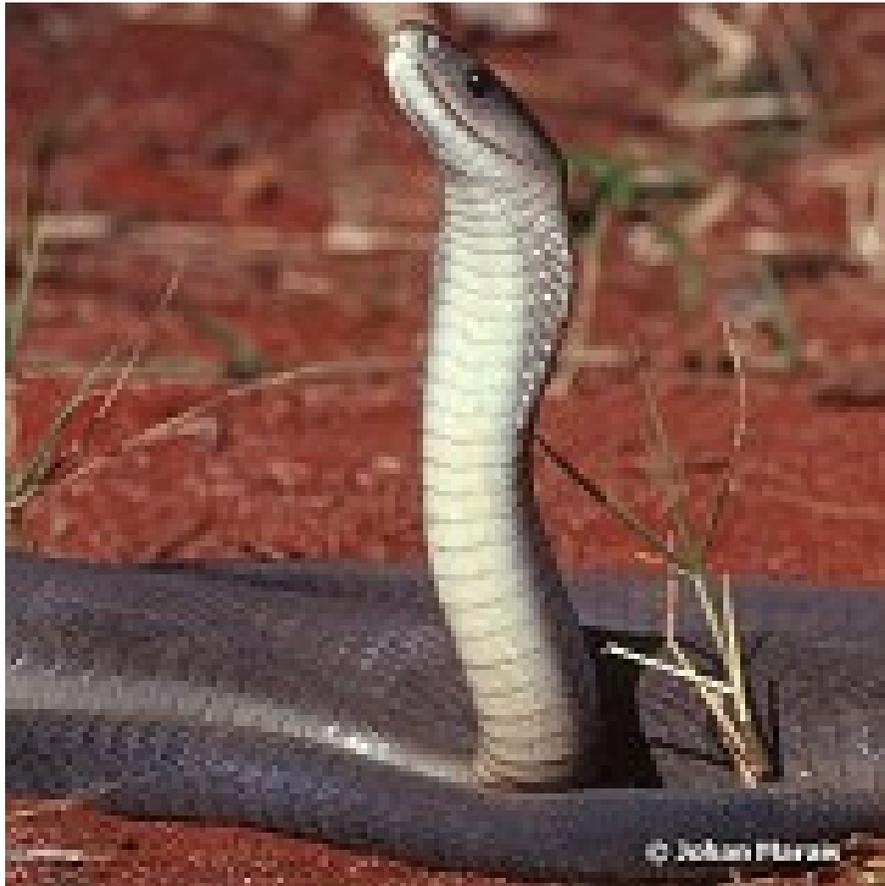
# Different Snake Venoms

- **Neurotoxic venom** - Cobras and Mambas - attacks the central nervous system, and starts to affect movement, breathing, swallowing, speech and sight.
- **Haematotoxic venom** - Boomslang - affects the blood by using up the clotting factors so it no longer coagulates leading to extensive blood loss into the tissues.
- **Cytotoxic venom** - Puff Adders - attacks the body cells or tissues, this bite is extremely painful, with much swelling and marked symptoms of shock.
- **Myotoxic venom** - sea snakes - attacks the muscles and can lead to death from kidney and heart failure.

# Black Mamba (Neurotoxic)

- One of Africa's most dangerous snakes.
- It's aggressive when cornered and will not hesitate to strike.
- It can reach speeds of up to 20 km/ph.
- It's the largest venomous snake in Africa with adults reaching an average of 8 feet in length (2.5m).
- Black Mamba's are not black at all, but brown/olive skinned. Their mouths are inky black which they show when threatened.
- Black Mambas live in savanna, scrub, tree hollows, and sometimes people's homes.
- If a Black Mamba encounters prey it can strike up to 12 times, each time delivering enough neuro and cardio-toxic venom to kill a dozen men within 1 hour.
- Without anti-venom, the mortality rate is 100%

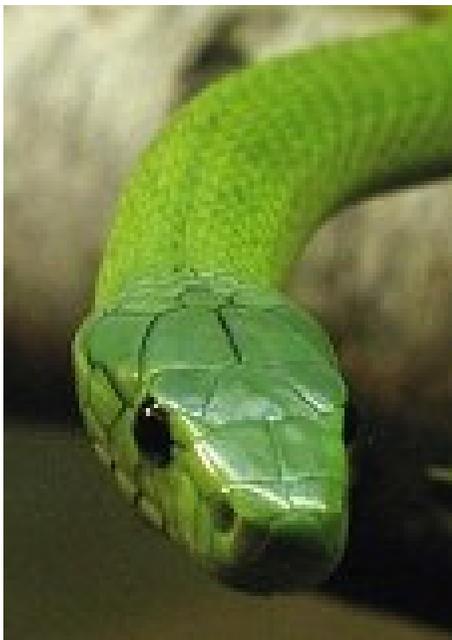
# Black Mamba



# Green Mamba (Neurotoxic)

- Is a venomous snake related to the highly dangerous Black Mamba.
- The Green Mamba is less aggressive and smaller than the Black Mamba, they average around 6 feet.
- The Green Mamba's venom is also significantly less toxic, however a single bite could certainly be fatal to a human.
- Green mambas are highly arboreal and almost never touch the ground.
- They are generally found in south-eastern Africa.
- Like their name, Green Mambas are a lovely grass green color, but yellow when born.

# Green Mamba



# Cape Cobra (Neurotoxic)

- Has a powerful venom and is one of the deadliest snakes in Southern Africa.
- Cape Cobras grow to an average of around 4 feet.
- Cape Cobras are particularly dangerous because they tend to be nervous and aggressive.
- Without treatment, the mortality rate in humans is 60% and death normally occurs 2-5 hours after being bitten, usually as a result of respiratory failure due to the onset of paralysis.
- The Cape Cobra is a beautiful looking snake some are yellow, some copper/mahogany colored and some are purplish/black.
- The Cape Cobra loves to hunt for rodents and can climb trees to raid weaver bird colonies.
- The Cape Cobra is common throughout dry regions in Southern Africa.

# Cape Cobra



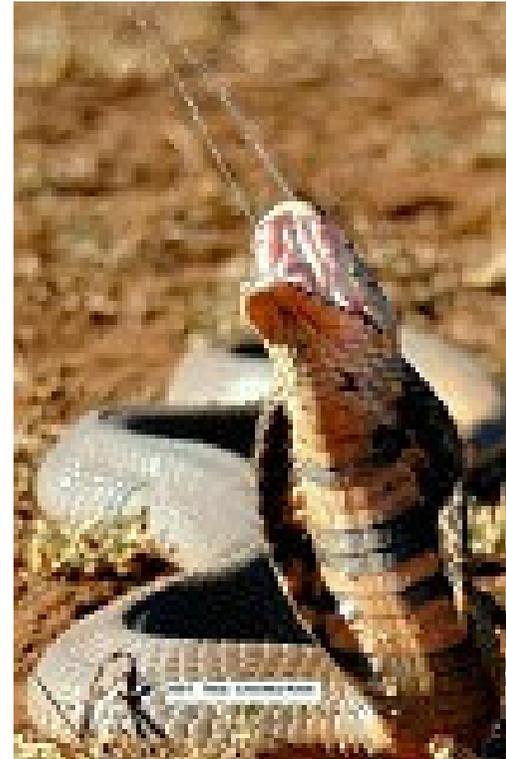
# Mozambique Spitting Cobra

- In color the snake is slate to olive grey, olive or tawny brown above, with some or all scales black-edging.
- Below, salmon pink to purple yellowish, with black bars across the neck and ventrals speckled or edged with brown or black.
- Young specimens sometimes have pink or yellow bars on the throat.

# Mozambique Spitting Cobra

- It is considered one of the most dangerous snakes in Africa, second only to the [Mamba](#).
- Like the [Rinkhals](#), it can spit its [venom](#). Its bite causes severe local tissue destruction (similar to that of the [puff adder](#)). Venom to the eyes can also cause impaired vision or blindness.
- This snake is a nervous and highly strung snake. When confronted at close quarters this snake can rear up to as much as two-thirds of its length, spread its long narrow hood and will readily "spit" in defence, usually from a reared-up position.

# Mozambique Spitting Cobra



# Puff Adder (Cytotoxic)

- Considered to be Africa's deadliest snake because it is responsible for the most human fatalities.
- Puff Adders reach an average length of around 1 meter, and they're solidly built with a wide girth.
- Color patterns vary depending on where they live, their habitats extend throughout Africa except for dense rain forests and deserts.
- The Puff Adder has large fangs and its venom is powerful enough to kill a grown man with a single bite.
- Puff Adders rely on camouflage for protection and lie still if approached. Because of this, people tend to step on them and get bitten.
- Many fatalities occur because bites are not treated correctly, leading to infection and gangrene.

# Puff Adder



# Gaboon Viper (Cytotoxic)

- Has the longest fangs and the highest venom yield of any venomous snake in the world.
- Gaboon Vipers can be found in West, Central and parts of East Africa, they prefer forested areas.
- Adults reach an average length of around 5 feet.
- While the Gaboon Viper delivers a huge dose of venom, the venom is not as toxic as some of the other snakes on this list. A single bite could kill a man however.
- Gaboon Vipers are very interesting looking snakes with a huge triangular shaped heads and pretty black, brown and pink markings.
- Gaboon Vipers are quite passive and rarely bite unless provoked or stepped on (even then they don't always bite).

# Gaboon Viper



# Boomslang (Haemotoxic)

- An extraordinarily dangerous snake found in sub-Saharan Africa.
- Human fatalities are rare, since this snake is very timid, but spectacular.
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- It's venom is *haemotoxic*, which means that it affects the body's natural blood clotting mechanism resulting in the bleeding of the internal organs.
- Sometimes it can take as long as 24 hours before the symptoms of the venom can be felt or seen. Once it gets to work however, a person can bleed to death from every orifice.
- The Boomslang is a tree-dwelling snake (Boomslang means "tree snake" in Afrikaans).
- Females are brown, and males are light green with black highlights.
- The Boomslang reaches an average length of 5 feet. Its fangs are at the back of its head.

# Boomslang



# Twig / Vine Snake (Haemotoxic)

## **Appearance**

- Colouring is similar to that of a twig; grey-brown with lighter markings.
- Very long and thin averaging 1 metre in length.
- Head is elongated, with large eyes and horizontal pupils.

## **Venom**

- Haemotoxic – disabling the clotting process and causing internal and external bleeding.
- No antidote to a bite by this snake is available in South Africa.

## **The Bite**

- Puncture marks at wound site.
- Actual bite not very painful.
- Likely to bleed copiously as blood clotting mechanism becomes affected.

# Twig / Vine Snake



# Rinkhals

- Southern Cape province of South Africa, N.E through the Free State, Lesotho, Transkei, Kwazulu Natal, South Africa, Western Swaziland and parts of Gauteng, South Africa.
- The Rinkhals has eclectic tastes. Its main prey is toads, but it also eats small mammals, reptiles and other amphibians.
- Like several other snakes, the Rinkhals is also known for its ability to play dead.
- The Rinkhal only hunts at night because it is hiding from the sun during the day.



- **Venom**

The venom of the Rinkhals is neurotoxic and partially cytotoxic. It generally aims its venom at the face. If the venom enters the eyes it causes great pain.

- **Symptoms of a bite**

Local symptoms of swelling / bruising is reported in about 25% of cases. General symptoms of drowsiness, nausea, vomiting, violent abdominal pain, cramps and vertigo, or dizziness, often occur, as does a mild reaction.

*Vertigo = (refers to the sensation of **spinning** (subjective vertigo) or the perception that surrounding objects are moving or spinning (objective vertigo).*



- **Defensive behaviour**

When distressed the Rinkhals spreads its hood, showing its distinctive striped neck.

The Rinkhals is a spitting snake, and can spray its venom (which is neurotoxic) up to 2.5m.

It is also known to fake death by rolling onto its back with its mouth agape.

# Rinkhals





# Types of Venomous Snake Bites

- Cobras and Mambas inject **Neurotoxic** venom which will affect the nervous system and cause initial muscle weakness, blurred vision, difficulty in swallowing and breathing and eventually paralysis.

Adders inject **Cytotoxic** venom which will cause massive swelling and bruising to the area that was bitten, and could eventually burst the skin open.

Boomslange and Vine Snakes inject **Haemotoxic** venom which destroys the platelets in the blood and causes major internal bleeding in the lungs, liver, kidneys, spleen etc., and blood will also leak out of all orifices in your body, including minor wounds and bruises.

Berg Adders are highly dangerous as they inject both **Neurotoxic and Cytotoxic** venom into you.

# Snake Bite Treatment

- **What NOT to do:**

Do not panic and run around as this will increase the blood circulation and transport the venom quicker around the body.

Do not make a tourniquet (this means to tie a cloth tightly around the arm or leg) as this will destroy the tissue of the arm or leg below it and it might have to be amputated later, as well as concentrate the venom (if it was a venomous bite) in the area and kill that body part off quicker.

Do not cut and try to suck out the venom as we see them do in cowboy movies, as the venom will still get absorbed into your blood stream through your gums and cheeks.



- **What TO do:**

**Do** loosen the clothing, pressure the patient, and keep him calm and quiet.

**Do** dress the wound with a bandage and keep it cool (in the shade). This will stop your blood vessels dilating and decrease the blood flow in that area.

**Do** watch the patient carefully, if he loses consciousness, apply the **ABC's** (see below).



- **What TO do:**

- The **ABC's** (these three things are useful to remember in the majority of first aid situations):

**A = Airways**, tilt his neck backwards to get the tongue away from the back of his throat and stop him from choking on it. Do not put a blanket or anything under his head.

**B = Breathing**, look, listen and feel to check if he is still breathing. If he has stopped breathing, give him one breath every five seconds.

**C = Circulation**, check his pulse in his neck, on either side of his windpipe, or listen for a heartbeat by putting your ear next to his chest.

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- Once the situation has been assessed, then get help as quickly as possible. Person would need to get to hospital soon.
  - In hospital, if the snake is unknown, they would treat the patient symptomatically, that is, they would put him on a breathing machine if he stops breathing, give antibiotics if he shows signs of infection, etc.
  - Most people that get brought to hospital for snake bites, don't know much about the snake, so the practice of giving the patient an anti-venom is only done in certain cases.
  - (Besides, anti-venom is only housed in Cape Town and Pretoria, so anyone hiking in the Drakensberg - South Africa - and that gets bitten by a snake, will probably get brought to a Durban hospital, hence the symptomatic treatment which is given - this applies to South Africa).

# Identification and Treatment of Snake Bites

- South Africa is said to have over 150 species of snakes and only a low percentage of these are venomous.
- **However, given the shock, distress and panic that most of us would feel on unexpectedly encountering a snake, it is highly unlikely that we would be able to easily identify whether the snake we were facing was venomous or not!**
- Learning and teaching ‘**snake awareness**’ to you and your family is an important part of protecting you and them from snakes.
- This awareness of snakes and snake bites has a three pronged approach:
  - Be aware of the dangers posed by snakes and take steps to avoid them
  - As far as you are able, ‘proof’ your home and garden against snakes
  - Know the symptoms of a snake bite and the appropriate treatment

# The Bite

- **The venom from Adders and Vipers is Cytotoxic**
- Generally two puncture marks at the site of the bite.
- Bite causes instant pain with immediate swelling, bruising and blistering.
- Symptoms can include nausea and dizziness.
- Immobilise the limb but do not restrict the blood flow.

# The Bite

- **The venom from Mambas and Cobras is Neurotoxic**
- Generally two puncture wounds at the site of the bite.
- Bite can feel more like a sting and there is little or no bruising and swelling.
- Symptoms include feeling confused, dizziness, slurred speech, difficulty swallowing and breathing.
- Immobilise the limb and do restrict blood flow between the bite and the heart.
- Administer CPR until Medical help is available.

# The Bite

- **The venom from Boomslangs and Vine snakes is Haemotoxic**
- Sometimes puncture wounds can be seen at site of the bite.
- Bite is generally not very painful but within one hour copious bleeding is likely to occur from the bite wound and any other wounds cuts or scratches the victim may have.
- Symptoms can include a severe headache, nausea and vomiting.
- Whilst it is helpful to restrict the blood and lymphatic flow it is important not to cause bruising as this could lead to subsequent bleeding under the skin.
- If Venom is spat in to a person's eyes use any liquid available, preferably a neutral one such as water or milk – but anything at all will do - and flush out the eye.

# Do's and Don'ts of Treating a Snake Bite

## DO:

- Try to identify the snake; colour, size, shape of head, attacking method are all useful.
- Loosen the Victim's clothing and, if necessary, move them in to the shade.
- Keep the victim calm and still; movement will increase blood flow and transport the venom to the heart much faster.
- Immobilise the limb but do NOT restrict blood flow unless you are certain the bite was from a snake that delivers neurotoxic venom.
- Clean and dress the wound being careful not to apply pressure and cause bruising.
- Be prepared to administer CPR if necessary.
- Get the victim to a hospital as soon as possible.

# Do Not!! - Do Not!! - Do Not!!

- While there can be differences of opinion as to what we should do for snake bites the consensus of opinion as to what not to do is reasonably consistent:
- Allow the victim to exercise or stress themselves.
- Cut the bite or attempt to suck the venom out.
- Give the victim anything to eat or drink especially alcohol.
- Use potassium permanganate crystals or solution near or on the bite wound.
- Use soapy water round the bite wound.
- Leave pressure bandages on too long.
- Leave the victim alone.
- Apply ice to the wound.
- Soak the affected limb in any solutions.

# Avoidance is the best cure!

- Most snakes cannot identify motionless objects, so it is best to stand perfectly still if a snake is encountered.
- Suitable protective clothing such as boots and long trousers can prevent a serious snake bite



# Scorpions

# Are all scorpions poisonous?

- **Yes!**
- **All species of scorpion are poisonous.**
- **If you are an insect**

# Scorpion Venom

- The venom from scorpions is **neurotoxic**.
- Some components in scorpion venom appear to have no other function than to cause localized pain or discomfort in the victim.



- Southern Africa has an extremely low mortality rate when it comes to scorpion envenomations.
- On average a dozen or so fatalities are recorded annually.
- Thanks to the availability of good medical facilities and antivenom, deaths in southern Africa are few indeed, usually restricted to infants and the aged.
- These figures pale in comparison to countries such as Mexico where on average 2000 people die annually as a direct result of scorpion stings.

# Medically significant species in SA

- In Western and Southern Africa – ***Parabuthus spp.***
- Across Southern Africa to Southeast Asia – ***Buthotus spp.*** (also known as ***Hottentotta***)

Thick Tail  
with Stinger



Fatal to Potentially Fatal

# General Rule of Thumb

- **More Poisonous:** Thick tail / Small Pinchers

Thick Tail  
with Stinger





# Less poisonous: Thin tail / Large Pinchers



# Symptoms of a scorpion sting

- Most scorpions are not dangerous to humans.
- There are, however, a few species, in the family Buthidae (**THICK TAILS**), that can be dangerous to humans.

## Common symptoms of a scorpion sting:

- pain, tingling or burning sensation at the sting site
- sweating, nausea and vomiting
- numbness
- muscle twitching
- abnormal neck, eye and head movements/twitching
- heart palpitations
- breathing difficulties may occur

# More severe reactions include:

- blurring of consciousness
  - unconsciousness
    - convulsions
- fall in blood pressure
  - shock
- the threat of death

# Local treatment:

1. Use ice bags to reduce pain and to slow the absorption of venom via vasoconstriction. This is most effective during the first 2 hours following the sting.
2. Immobilize the affected part in a functional position below the level of the heart to delay venom absorption.
3. Calm the patient to lower the heart rate and blood pressure, thus limiting the spread of the venom.

# Local treatment:

5. Apply a topical or local anaesthetic agent to the wound to decrease sensation of tingling, pricking, or numbness of the skin.
6. Administer local wound care and topical antibiotic to the wound.
7. Seek medical attention immediately.

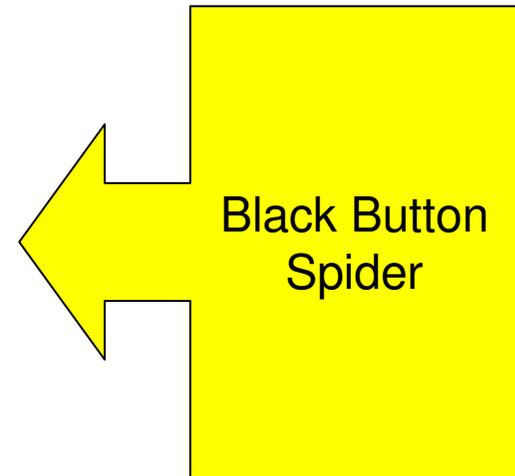


# SPIDERS

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- Of the 35,000 species of spiders described worldwide, only a handful are considered to be dangerous and only 27 are known to have caused human fatalities.
  - In Southern Africa there is **5 species** of dangerous spiders which bite might be fatal and or of medical importance.
  - The venom of the medically important spiders can be divided into those that have **neurotoxic** (affects the central nervous system) or **cytotoxic** (affects the tissue around the bite site) venom.

# SAs Most Venomous Spiders

- Button Spiders



# Black button spiders

- The bite of a black button spider is usually very painful.
- Causes profuse sweating, raised blood pressure and restlessness and generalised muscle pain and cramps, stiffness of the stomach muscles, limb pain especially legs, weakness in legs.
- Although no documented records exist of fatality due to button spider bites, they have the potential to cause severe symptoms with small children and elderly people being at greatest risk.

- In the case of black button envenomation the patient must be hospitalized and vital functions monitored for up to 24 hours.



# Brown button spiders

- The symptoms occurring after a bite from one of the brown buttons are milder and tend to be restricted to the bite site
- Characterized by a local burning sensation, which may spread to the surrounding tissue and lymph nodes.
- The bite site is more evident and often seen as a red macular spot or blanched area surrounded by a localised rash.
- The condition usually clears up within a day or two.

# Other Button Spiders of SA



# Six Eyed Sand (Crab) Spider

- Fast moving spider that only lives in the South African desert.
- It is a light or reddish brown and sometimes yellowish colored spider with a body of about 1/2 an inch long and when measure to include its legs is about 2 inches in length.
- Its legs are cambered in slightly like that of a crab.
- Relatives of this spider is the Recluse / Violen Spider.

# Six Eyed Sand (Crab) Spider

- Toxicology studies have demonstrated that the venom is particularly potent, with a powerful cytotoxic / neurotoxic effect.
- Causing blood vessel leakage, thinning of the blood and tissue destruction.

# Six Eyed Sand Spider



# Sac Spider

- Wandering predators that built silken retreats, or sacs, usually on plants, between leaves, under bark or under rocks.
- Venom: Cytotoxic
- Bite: Not painful
- Require Tetanus toxoid booster

# Sac Spider



# Violin / Recluse Spider

- Distributed nearly worldwide in warmer areas, and are often known as **Recluse spiders**.
- Are usually brownish with a darker brown characteristic violin marking on the [cephalothorax](#).



- Have potent tissue-destroying venoms, which is otherwise found only in a few pathogenic bacteria.
- This venom is highly necrotic in effect, capable of causing lesions (open sores) as large as a bottle cap.
- The wounds take a long time to heal and may require skin grafts. If these open wounds become infected there are often serious consequences. Rarely, the venom is carried by the blood stream to internal organs causing systemic effects.

# Violen / Recluse Spider



# *Spider Bite Symptoms*

- Determining whether a victim has been bitten by a spider may be impossible.
- Studies of brown recluse spiders have shown that victims seek treatment more than three days after their bites, making it nearly impossible to identify the culprit.
- Black widow bites are often identified only by symptoms of its venom, without any visible local bite.



Local reactions to bites from all manner of toxic bugs look the same:

- redness
- swelling
- itching
- pain



- Victims should be concerned when a local reaction continues to get worse for more than 24 hours.
- Look for redness spreading away from the bite, drainage from the bite, increase in pain, numbness/tingling, or a discoloration around the bite that looks like a halo or bullseye.
- Victims should also call a doctor if they are not up to date on their tetanus vaccinations.
- Anaphylaxis (allergic reaction) is always the biggest concern with any type of bug bite.
- If the victim exhibits any signs of allergic reaction or anaphylaxis shortly after a bug bite seek medical attention immediately.



***THE END***