

## The Beginning.

The first time people see a tropical aquarium, is usually in a pet shop, garden centre or in a friends house. The overall impression given is one of a thriving mass of life, brightly coloured fish, plants even crabs and shrimps living in perfect harmony.

Shortly after many people decide to purchase an aquarium for themselves, their children or just to add a little something to a room.

This is where problems first start, what do you need to set up a happy and more importantly healthy aquarium.



As you read through this book you will be advised what to buy, what each item does, its importance and how to set it up correctly in the aquarium.

Let's face it the last thing you want is a tank full of dead or dying fish.

## **The size and sitting of an aquarium.**

The size of the aquarium is totally up to the individual, but I would recommend that the minimum size of an aquarium is 24"x12"x12". This is due to the volume of water. The smaller the volume the faster the change in water condition. This rapid change can be very harmful to the fish and plants. A tank smaller than this could be cruel as there won't be adequate room for swimming. Another thing to think about is where the aquarium will be located in the home. When thinking of the location for the aquarium a few points should be taken into consideration. First you should make sure that the aquarium stand is up to the job. Water is heavy and even a small aquarium holds a lot. Water weighs approximately 10Ib per gallon so a 24"x12"x12" aquarium holding 12.5 gallons of water would weigh 125Ibs. Adding the aquarium its self, gravel and equipment weight could take that figure up to 200Ibs which is a great deal of weight for the average coffee table. A good rule of thought is if you don't believe an adult could stand on it then it's not worth taking the chance. To keep the aquariums weight distributed evenly polystyrene tiles are required. The tiles are spread out under the tank on top of the stand. This helps remove any intolerances in the base of the tank and stand and helps protect the aquarium from stress and possible fracture.

The equations below show you how to calculate the volume of water in your aquarium and therefore in turn the approximate weight of water.

Length in feet x Breadth in feet x Height in feet x 6.25 = Gals

Gals x 10Ibs = Weight of aquarium water.

It is also important to keep the aquarium out of direct sunlight as much as possible. This is due to the fact that unsightly algae grow considerably faster in direct sunlight than under artificial lighting. The aquarium should also be kept away from draughts, heaters and radiators due to the temperature changes related to them. To the best of your ability the aquarium should be held at the same constant temperature at all times. Any large or sudden variations in the temperature can cause undue stress and possible death to the fish and plants within.

## **Equipment needed.**

Having now decided on the size and position of the aquarium the next problem is what to purchase and what these items actually do in the aquarium. The essential equipment needed to set up and run a healthy and happy aquarium is listed below.

- 1) Aquarium and condensation trays.
- 2) Hood and stand.
- 3) Lighting.
- 4) Heaters and thermostats.
- 5) Filters.
- 6) Air pump, airline, one way valve and air stone.
- 7) Thermometer.
- 8) Background.
- 9) Cable tidy.
- 10) Gravel, ornaments and plants.
- 11) Fish net.
- 12) Gravel hoover / algae magnet.
- 13) Dechlorinator.
- 14) Food.

The equipment list can be purchased gradually or all at the same time but, DO NOT purchase any fish at this stage. The aquarium takes time to be set up and get running correctly. By this time the fish you bought may be dead or very unhealthy.

The next few chapters will explain in some depth about each of the items listed.

## **1) Aquarium and condensation tray.**

The aquarium size you should have already decided on. There are many different shapes and sizes of aquariums from hexagon and corners to coffee tables and pictures. Saying this rectangular aquariums are still by far the most popular and therefore normally the cheapest design available.

The condensation tray is a piece of glass or plastic that sits on the lip that runs around the top of the aquarium. This slows down the process of evaporation by blocking the water vapour which then drips back into the aquarium. Both glass and plastic trays do the same job just as well so the choice of which is yours.

## **2) Hood and stand.**

There are many different designs and materials used in the manufacture of aquarium hoods. The majority of them are made out of wood with a laminated coating to simulate mahogany, teak or pine. Other types are made of metal or plastic which are normally black. All of the designs have brackets for lighting to be attached. At the rear of the hood there should be gaps either the full length or at each of corners. This is to let wiring and pipe work from in the aquarium out without the hood being lifted or twisted. The stand for the aquarium as we covered earlier must be strong enough to hold the overall weight of the aquarium. There are many different styles of stand from wrought iron, box iron to wood. You will be able to purchase a stand to match what ever hood you decide on. Some of the stands have shelves and cupboards which come in useful for storing the equipment needed for the aquarium. The stand must be placed on level ground to minimise twisting and possible damage to the aquarium. If you decide to purchase an aquarium over 48" long and situate it on floor boards it is recommended that you position the legs of the stand on the beams under the boards. This can be difficult but could prevent a disaster at a later date.

### **3) Lighting.**

The lighting in the aquarium can be achieved in a couple of different ways the first and the best for the beginner is the fluorescent tube. These tubes can be purchased from just about anywhere that sell fish products. Tubes will fit in all standard hoods and are quite compact.

A tube needs to be plugged or into a starter which makes the tube light. The starter itself can get quite hot but can be positioned outside the hood so not to alter the aquarium temperature. The tube method of lighting is a very low energy user and does not produce vast amounts of heat so there is no problem with the aquarium overheating.

Secondly are Metal halide lamps. These lamps are not the best lights for the beginner due to the fact that they are bulky and normally do not fit in standard hoods. Another reason is that they produce vast amounts of heat which could cause problems with the temperature of the aquarium. These lamps are used more by the professional in larger aquariums. They do produce more light output but with too many negatives for the beginner.

To achieve greater light output from your tubes you can use a reflector. A reflector is a shiny metal strip which is bent to angle all the light into the aquarium. The reflectors can be purchased from most pet shops or garden centres. An alternative is to make your own. All you need to do is stick cooking foil to the inside of the hood. This is shiny and will reflect the light into the aquarium and cost you a lot less.

Whatever lighting you choose should be left on for 10 to 12 hours a day. This can be achieved by hand or with the aid of a timer plug. The timer plug gives a set amount of light a day that can mimic the wild. Also with a timer you can not leave the lights on or off by mistake. If you decide to have real plants in your aquarium you need the correct lighting to encourage plant growth. For more information ask at your local pet shop or garden centre. (See gravel, ornaments and plants).

#### **4) Heater and thermostat.**

The water in a tropical aquarium needs to be heated to 23-27 degrees C or 74-80 degrees F. This is achieved by the use of a heater which is controlled by a thermostat (stat). There are two main types on the market. The heater and stat separate or the heater with built in stat.

The heater and stat separate method is as it says a heater and stat which are in separate glass tubes. The two tubes need to be placed at each end of the aquarium to give the average temperature across it. The stat has a dial on the top which will adjust the temperature of the heater.

The heater with built in stat. is just one tube with both items in. The stat sits on top of the heater with the temperature dial on top. This heater can be placed anywhere in the aquarium but usually in one of the bottom corners.

No matter which of the two you choose they should never be turned on out of the water. If this happens the heater element can be damaged or destroyed. There are many different values of heaters which are measured in Watts. These are for heating different volumes of water constantly without temperature fluctuation. This list names the 5 main heater wattage levels 50 watt, 100 watt, 150 watt, 200 watt and 300 watt. There is a way of deciding for yourself which heater you need for your aquarium. The rule is that you allow 5 watts per gallon of water in the aquarium.

So the 24"x12"x12" aquarium with 12.5 gallons would need a 62.5 watt heater. Looking at the list above there is no heater this size. In this case choose the higher valued heater on the list. Which in this case is the 100 watt heater, you now know that this heater will quite adequately heat the water in the aquarium.

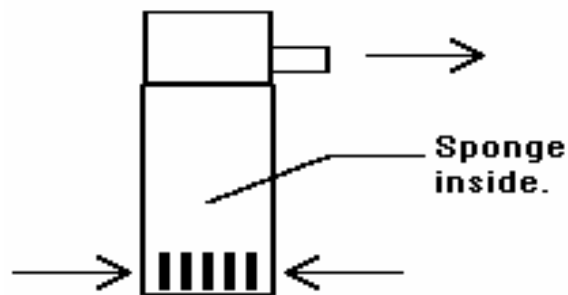
## 5) Filters.

Aquariums need filtering to keep the water clean and free from pollutants. Filters come in many different styles and sizes. It is quite important that the fish keeper knows how the filter they purchase works. This is so you know how to clean and maintain it correctly.

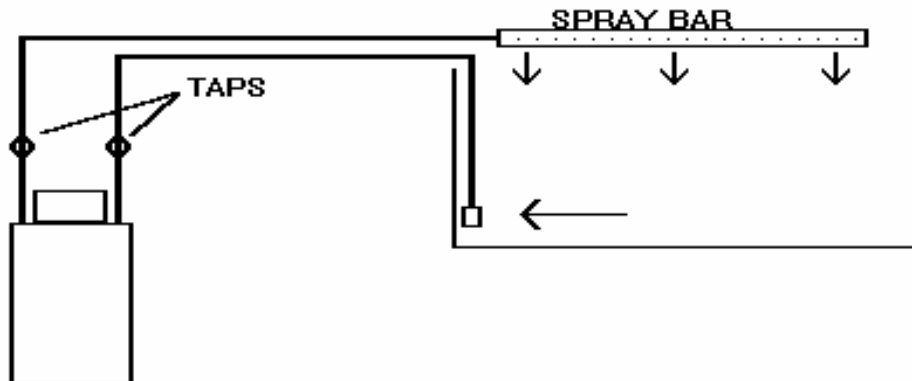
The following four chapters will explain the most commonly used filtration methods.

- a) Internal sponge filter.
- b) External filter.
- c) Under gravel filter with air stone.
- d) Under gravel filter with power head.

a) The internal sponge filter is a popular choice due to its ease of use. It sits in the aquarium and works by using a water pump fitted on top of a sponge cartridge (filter media). The water is pumped through the sponge which sieves out the debris. In time the sponge will work as a biological filter (explained latter). The internal filter comes in numerous sizes for different aquariums. The box of the filter, pet shop or garden centre will help you choose the correct size for the aquarium you have chosen. This filter method is very good but as the filter only takes the waste from the water, any missed falls to the gravel and stays there. This means the gravel will need cleaning to stop mass pollution (see gravel Hoover). The arrows on the diagram show the flow direction.

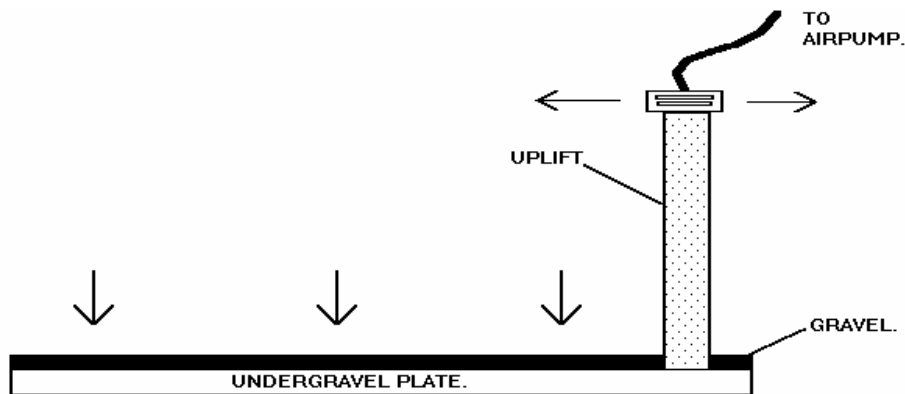


b) The external filter is another popular method of filtration. This works using the same method as the internal but the pump, canister and media are housed outside the aquarium. This makes the aquarium a lot less cluttered and gives you more room for fish and plants. The filter is linked to the aquarium via rubber pipes. The water is siphoned down one into the canister where it is pumped through the media and then back to the aquarium. Normally to start the water circulation you have to prime the filter. To achieve this you need to fill the canister with water so that the pump can return it to the aquarium. Any filter you buy will have its own recommended starting procedure with it. Some of these filters come with a priming ball which when pumped on the output pipe sucks the water up into the filter canister and starts the water circulation. The external filter can be installed with numerous types of filter media from sponge to peat. The difference media filters different things out of the water, this allows you to house specific fish in the water condition they require. The water that is pumped back to the aquarium normally enters via a spray bar which can be positioned above or below the water level. The spray bar returns the water through small holes along its length, this agitates the waters surface which adds oxygen. The arrows on the diagram below show the flow direction.

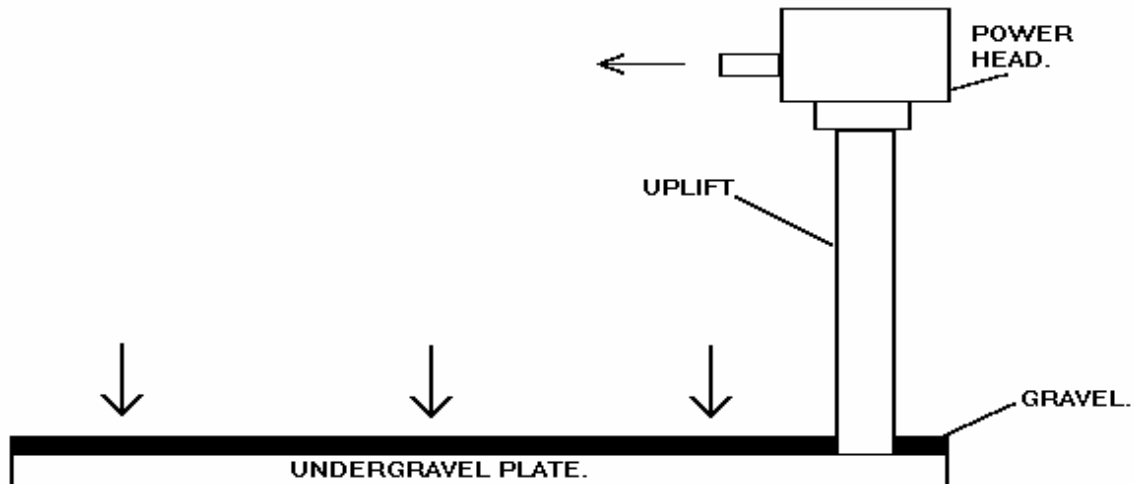


The pipes that the water is pumped through can be fitted with double taps, this allows you to disconnect the filter from the pipe work without breaking the siphon and without any water spillage from the aquarium or filter. These are very useful when cleaning the filter and media. This method of filtration is very good but again only takes the waste from the water. The waste that falls to the gravel stays there so the gravel will need cleaning to stop mass pollution (see gravel Hoover).

c) The under gravel filter using an air stone is a simple but effective method of filtration. The under gravel filter itself is a plastic tray with slots or holes in which is buried under the gravel. Attached to this plate is a tube called uplift. Down this is feed an airline with an air stone on the end (see air pump and accessories). The air stone sits right at the bottom of the uplift. When the air stone is connected to the air pump it produces thousands of tiny bubbles. These bubbles lift the water in the uplift causing a rising current. The water that flows up the uplift has to be replaced so water is drawn through the under gravel plate between the gravel. This system traps the debris in the gravel which is the filter media. Using this filter method all the waste falls to the gravel so the gravel will need cleaning to stop mass pollution (see gravel hoover). The arrows on the diagram show the flow direction.



d) The under gravel filter using a power head is the same method of filtration as the under gravel with an air stone. The only difference is that instead of using an air stone to draw the water up the uplift you use a power head. A power head is a water pump that sits on top of the uplift and pumps the water from under the filter plate causing the water flow through the gravel. This method can be a lot more effective than an air stone due to the fact that a power head can move a lot more water than the bubbles from an air stone. Again all the waste falls to the gravel so the gravel will need cleaning to stop mass pollution (see gravel Hoover). The arrows on the diagram show the flow direction.



When purchasing a filter or power head you should be looking to circulate the water in the aquarium from 1-2 times an hour. For example the 24"x12"x12" aquarium with 12.5 gallons of water would need a unit with a water flow of 25 gallons per hour, or 112.5 litres per hour. Like the heaters always choose the higher valued unit to be sure the flow is sufficient. To convert gallons to litres follow the equation below.

$$\text{GALLS} \times 4.5 = \text{LTRS}$$

All the filters listed are eventually biological filters as well as sieving the debris out of the water. A biological filter has millions of friendly bacteria living in amongst it. These bacteria help to breakdown the waste in the water and remove the harmful chemicals caused by the breakdown of the fish waste. It takes about 4-6 weeks for new filter media to become fully established with bacteria. A way of speeding up this process is to use a biological filter enhancer. The enhancer is a bottle with hundreds of thousands of live bacteria that you add per gallon to the aquarium water. These bacteria get drawn into the filter media where they thrive on the waste that accumulates there. Bacteria enhancer can if you wish be used on a regular basis just to keep the filter running at full strength. (Always follow the manufacturer's directions).

## **6) Airpump and accessories.**

The fish, plants and the bacteria in your aquarium need oxygen to survive. The oxygen is put into the water with the aid of an air pump. The air pump is connected to an air stone via a rubber airline. In this airline you should fit a one way valve so that if the power is ever disconnected the water will not siphon back down the airline and flood the room. The only other way of stopping this is to position the air pump above the level of the aquarium. Therefore preventing the water from siphoning out. There are many different sizes of air pumps depending on the size of the air stone / stones you are using. There is a huge range of air stones and air ornaments you can purchase, from standard stones and bubble walls to divers and submarines. All of which are powered by the air pump. Consult your local pet shop or garden centre for more details on the size of pump required for the air stone / ornament you purchase.

## **7) Thermometer.**

The water in the tropical aquarium is heated so you need to keep a note of the temperature to make sure it is within the stated limits (see heater and thermostat). To do this you need a thermometer. There are a couple of different types on the market.

- a) The stick on type
- b) The standard glass thermometer with a sucker
- c) The digital thermometer.

a) The stick on type goes on the outside of the aquarium and read the water temperature through the glass. The problem with this is the thermometer can end up reading the temperature of the room instead of the aquarium. They are cheap and tend to work a lot better on thinner glass, but still are not very accurate.

b) The standard glass thermometer with a sucker is positioned in the aquarium and uses the sucker to stick to the glass. This reads just like a normal thermometer in the home and usually has a green zone or safe zone marked out on it. This is the temperature area that the manufacturer believes to be the best for tropical fish. These thermometers are still quite cheap but are a lot more accurate.

c) The digital thermometer has a digital display which sits outside the aquarium. From the display a sensor is placed in the water which sends the water temperature to the display. This is the easiest to read and most accurate. There is only one small sensor in the aquarium which is usually placed in the middle of the aquarium just above the gravel. Out of all the types of thermometers mentioned this is the most expensive but the easiest to read with no real chance of error.

All the thermometers above do the same job with varying degrees of accuracy. Out of the 3 taking value and accuracy into account I would recommend the standard glass thermometer with a sucker. It is easy to read and works well. They are available from all good pet shops and garden centres. Although if you have plenty of money the digital thermometer is a nice tool to own. After all it makes life that bit easier.

## **8) Background.**

The background on an aquarium is there for a couple reasons. The first is that a background can transform an aquarium into a thing of beauty and makes it a lot easier to display your fish. Another reason is that with no background the fish can feel threatened with no security. This is due to the fact that movement may be seen from all sides and the fish feel like there is no hiding places. This can make the fish lose their colour and cower at the bottom of the aquarium seeking shelter. There are many different designs of background and the pattern is down to personal taste. When purchasing a background all you need to remember is the height and the length of the aquarium. To attach a background to the aquarium use tape in the corners and the middle on the edges. It does not matter too much if the background is not tight because when the aquarium is full of water you can not tell.

## **9) Cable tidy.**

A cable tidy does just what it says. It is not a necessary piece of equipment but can be very useful. What it does is lets you connect numerous electrical appliances e.g. heater, filter, air pump etc..... but have only one plug to supply them all. This is useful if there is only one plug near the aquarium. There are a number of different designs and manufacturers but all do the same job. Each different cable tidy may need wiring up

slightly differently so always read the instructions first. Some cable tidies have switches, this enables you to turn off single appliances (e.g. Filter whilst cleaning.). This can be a very useful feature.

## **10) Gravel, ornaments and plants.**

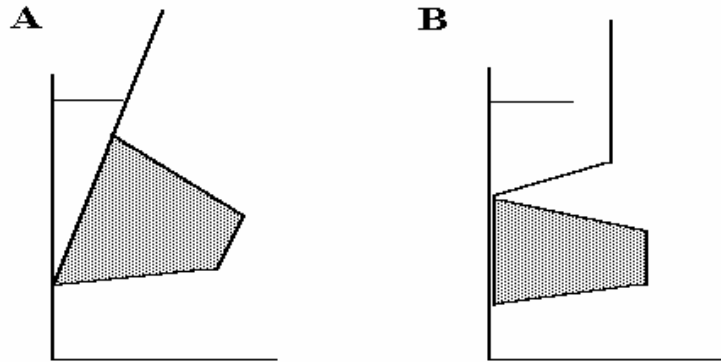
You may be thinking that gravel is just gravel but it is not. Do not buy builders gravel or take some from a beach or river. This is because to some gravel containing metal and other pollutants which could kill the fish and plants. Always buy aquarium gravel from your local pet shop or garden centre. The gravel should be PH neutral and contain no pollutants. The only thing you need to do is to thoroughly clean the gravel. Remember never use any soap or detergents to do this as they will poison the aquarium water. If you do not clean the gravel properly the water will go cloudy due to gravel dust which looks unsightly and takes along time to clear.

There are many different types of ornaments in the shops from sunken ships to light up skulls. You can also use slate and ceramic plant pots to make caves and tunnels. What ever you decide to buy make sure that the item is suitable for aquarium use. Some cheap one aquarium items are painted with toxic paint which will dissolve and poison the water.

Another ornament you can add is plants, these can be plastic or real. Real plants can be easy to keep in the right conditions. All that a plant needs to live is the right lighting, aquarium plant feeder and planting or potting correctly. There are special aquatic potting media's available which help the plants root and therefore grow healthier. Plant feeder is a bottle of liquid fertilizer like used in the garden but specially formulated for aquarium use. If you feed the plants correctly they should grow well. If you purchase real plants clean them gently under luke warm tap water to try and remove any snails and other parasite that may be in the water from the place of purchase. Plastic plants are the other alternative these do not need lighting or the fertilizer, wont die and can be cleaned easily. Plastic plants should also be cleaned before introducing to the aquarium. If the plant is misshapen you can normally restore the former shape by putting it in hot water. Plastic plants are a good way to begin but real plants can be added without to many problems.

## 11) Fish net.

The fish net is an obvious piece of equipment but many people forget to buy one. They are normally made from a twisted pair of wires making a square net and handle. A little trick I have found is if you bend the handle of the net you can catch fish a lot easier and quicker. This is down to the fact that a straight handled net can not be pressed flat on the side of the aquarium. This means that the fish can swim out of the gap. A net with a bent handle can be pressed flat on the side of the aquarium so the fish has no way of escape. The diagrams show you the problem with a normal net (A) and the ease of a net with a bend in the handle (B).



## 12) Gravel hoover / algae magnet.

As mentioned in the filter section the gravel in the aquarium needs cleaning from time to time. The tool you need for this job is a gravel hoover. A gravel hoover is a long plastic tube with a smaller pipe attached to it. What happens is the large tube is put under the water level and the pipe in a bucket. By using the siphoning technique the water starts to drain out of the aquarium. The large end of the hoover is then pushed into the gravel and the waste is drawn up the tube. As the flow in the large tube is not as great as in the small pipe the gravel is not drawn away with the waste. As the gravel is not disturbed a great deal the water in the aquarium stays relatively clean. You can buy air driven gravel hoovers that plug into the air pump and work on the same principle as the under gravel filter drawing water up the tube using the flow of rising bubbles. The gravel hoover is a necessary tool to have in your collection. When using the gravel hoover it is important for you to be clean as well as the water and gravel. If you put a dirty arm in the aquarium you can spread disease and pollution into your aquarium.

Another useful cleaning implement is an algae magnet, this consists of two magnets which using magnetism hold each other through together the glass of the aquarium. On the magnet in the aquarium there is a rough pad which removes any algae from the glass when the magnet is moved over it.

### **13) Dechlorinator.**

A dechlorinator is important to the overall health and condition of the fish, plants and water in the aquarium. What this does is removes the chlorine a chemical present in tap water and which is harmful to fish. The chlorine harms the fish gradually over a period of time slowly poisoning them. Normally dechlorinators do a number of other jobs like conditioning and removing other chemicals from the water. There are many different manufacturers of this product but as long as it is a dechlorinator it will do the job fine. You add dechlorinator to any tap water that will be introduced to the aquarium from the initial set up to water changes. The directions and amounts to add per gallon will be on the bottle and may vary between manufacturers.

### **14) Food.**

Like any other living thing fish need feeding. The food you feed them depends on the type of fish you choose to keep. Flake food is the most popular and is a fully balanced diet for your fish. This food floats on the surface of the water. If your fish are a bit larger you can feed them floating pellets which come in varying sizes. These are of the same dietary balance as flake but larger so the fish can eat them easier. If you need to feed catfish there are special sinking pellets which hold the same dietary values as the above pellets but are designed to reach the bottom of the aquarium where the catfish live. When purchasing food it is important to get the right type for the fish you own. Always buy packed food and check the best before date. With loose food you have no idea how long it has stood for.

### **ELECTRICAL SAFETY.**

This is the most important section in the book. Do not forget that **ELECTRICITY CAN KILL**. Always unplug the aquarium before doing any work on any piece of equipment. When you set up the electrical items never have straight wires leading to the mains plug socket or the cable tidy. Have the wires looped so that if any water runs down them it can not get to the mains electricity but drips of the bottom of the loop. Be very careful when filling or changing any water not to splash any electrical items nearby.

Remember electricity and water is a deadly mix.

## **The aquarium set up procedure.**

Now that you have purchased and understand all the equipment needed to run a tropical aquarium all that remains is to set it all up. By following the simple set up procedure that follows you will be able to install and run your equipment.

### **Washing and cleaning.**

The thorough washing of all of the equipment that will come in contact with the water including the aquarium glass is the most important part of the set up procedure. Doing this wrong or not do it properly could cause deaths later. Cleaning is done to remove any dirt or debris that could poison or pollute the aquarium water. Out of all the equipment the gravel will be the one that needs cleaning the most as there will be a lot of dust which if left will make the water very cloudy and look awful. When cleaning the equipment never use any soap or detergents as they will poison the water and kill the fish. All that is needed is a clean bucket or bowl and lots of clean water.

If you have purchased bogwood you will need to soak it under water. This is due to the fact that a brown die like substance comes out of the wood and turns the water cloudy. Before soaking the wood wants to float and has to be waterlogged to stay on the bottom. What you need to do is submerge the wood that may need weighing down in a bucket of water. The time that peat stains the water varies with the wood from days to months. Every time the water in the bucket gets stained empty it and refill with fresh until the staining stops. A way of overcoming this is to look in the aquarium set ups in your local pet shop or garden centre. When you have found one with healthy fish and plants and most importantly with bogwood ask to purchase that piece. This will do away with the problem of soaking and staining of the water.

Adding the gravel and may be an under gravel filter tray.

If you have decided to use an under gravel filter then this is the time to place the tray on the base of the aquarium. The uplift will need inserting in one of the holes provided and the others blocked off. There holes are normally found at each end of the plate. Which and you position yours is up to you. It makes no real difference.

When adding the gravel to the aquarium do not drop it from a great height as this could crack or weaken the glass. After the gravel has been added you can angle it from front to rear. Allow approximately one inch at the front and two inches at the rear. This will mean that any waste will naturally fall to the front of the aquarium making it easier to clean. This method also helps you see the fish easier as the gravel is angled towards you making visibility of the whole aquarium better. If you do not want sloping gravel this is fine a flat bed of gravel has even waste distribution. After adding the gravel make sure you have completely covered the under gravel filter plates if used. If there is any gaps left the water will be drawn through them and the filter will not run efficiently.

## **Adding equipment.**

The equipment can be broken down into.

- 1) Filters
- 2) Heaters
- 3) Air stone
- 4) Lighting
- 5) Thermometer

### **1) Filters.**

Filters can be positioned almost anywhere in the aquarium but at the back is less unsightly. If you are using an under gravel filter you have already buried the filter plates. All that remains to be added is the power head or air stone. If you are using an internal sponge filter it can be attached to the glass with the suckers and plate provided. This should be situated near the rear pointing towards the centre of the aquarium preferably positioned near the heater so that the heated water is circulated and no cold spots occur. The other type of filter which is the external is housed outside and under the water level of the aquarium. This filter only needs the intake and spray bar in the aquarium. The intake should be positioned near a rear corner and the spray bar either just above or below the water level.

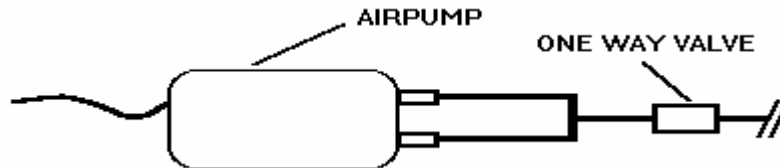
### **2) Heaters.**

Heaters with built in thermo-stat (stat) should be placed on the back or side walls of the aquarium as close to the gravel as possible. If possible position the heater near the water coming out of the filter. This will circulate the heat giving a constant temperature all over the aquarium. If you have a heater with a stat. separate you should place the heater at one end and the stat. at the other, this helps give the average aquarium temperature. When the heater and stat. are in position never let it touch the gravel as this can cause the stat. to take false temperature readings and try and compensate them with the heater which can cause overheating problems.

### 3) Air stones.

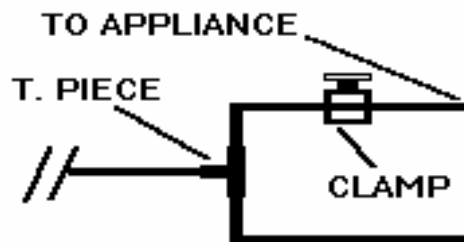
The air stone / air ornament is very important as the fish and plants need to breathe. The air stone and pump should be left running at all times to keep the oxygen level in the water as high as possible. Connect the airline to the air pump. If the air pump has a dual outlet then connect the airline to it as shown in diagram (A). This evens out the air pressure so that all the items attached have an even flow rate.

(A)

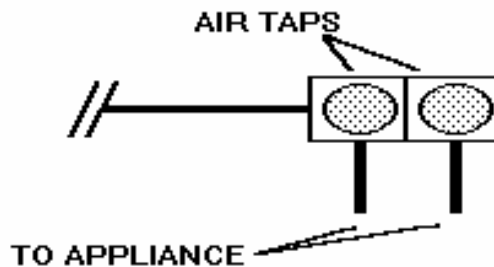


It is very important at this point to fit a one way valve in the airline to stop the possibility of water siphoning back down the airline and flooding the room. If you have an under gravel filter using an air stone and you want an air stone / air ornament or want more than one air stone / ornament you will need one of the following.

a) T piece and pipe clamp.



b) Air taps.



a) You attach the main pipe into a T piece. From there the two output pipes are connected to the air accessories. At this point you need to have the aquarium filled with water so you will have to wait a while longer but when the aquarium is full you will probably notice that one of the accessories will have less airflow than the other. When you have located the faster flowing accessory you attach the clamp to the airline leading to it and slowly tighten until the airflow through the two accessories is to your satisfaction.

b) With the taps you feed the main airline in one end and there are one or more outlets, on each of the outlets is a tap which can alter the air flow through it. This lets you alter the airflow to any of your air driven items independently.

The pipes from both of the methods can be buried under the gravel but air stones work better above the gravel.

The three items so far can be hidden out of sight using any plants and ornaments in the aquarium. You must make sure that the ornaments and plants do not get too close to the filter intake and the heater. This could cause damage to the plants and ornaments and may cause the filter to be blocked or not work as efficiently. If the heater was to come in contact with ornaments or plants it could cause false temperature readings or damage the ornaments in question.

#### **4) Lighting.**

If as I suggested you have chosen the fluorescent tube then the installation is simple. The tube itself fastens to clips in the hood. The starter can be housed under the aquarium or screwed to the rear of the hood. When these two items are in position all that remains is to connect the two leads from the starter to either end of the tube.

#### **5) Thermometer.**

The position of the thermometer depends on which one you have purchased. If you have a stick on type it should be stuck on the outside top corner of the aquarium. A standard glass thermometer is positioned in the same place but on the inside of the aquarium. The digital thermometer has a sensor which is placed in the centre of the gravel or as central as possible. This sensor can be hidden as long as it is not buried.

### **Adding ornaments.**

You can add as many or as few ornaments as you wish (within reason). The ornaments and plastic plants can be used to hide filters, heaters, air stones etc..... If you decide to add rock caves for the fish to hide in it may be advisable for you to silicon the rocks together. This can stop your fish being injured or killed if the rocks ever slip or fall. Also sticking the rocks together helps save time if you ever need to remove them for cleaning or any other reason.

### **Adding the water.**

When filling the aquarium with water a plate or jam jar can be placed on the gravel bed (make sure they are clean but don't use soap). The water is then pored into or onto it, this breaks the fall of the water and does not disturb the gravel and ornaments which you have already positioned. Dechlorinator can be added to the water as you fill or in one dose at the end. You can do this because at the moment there are no fish or real plants in the aquarium that could be damaged by the untreated water. The only other way of dechlorinating the water in the aquarium is to leave the water for 24 hours. This allows the chlorine in the water to evaporate on its own. The aquarium should only be filled to within 2 to 3 inches of the top. If it is filled completely when the fish and possibly real plants are added the aquarium could overflow.

### **Real plants.**

If you have decided to grow real plants rinse them under luke warm water before adding to the aquarium. This reduces the risk of snails and other unwanted pests being transmitted to your aquarium. When the plants are not in the aquarium remember to keep them damp at all times. When planting try not to bend or break the roots as this could kill the plant. After planting you can add a fertiliser or plant feeding fluid. This must be added from time to time, see bottle for further information as doses vary between manufacturers. The plants can be positioned to hide any equipment on show but do not position them too close to the heater or filter due to burns or clogging.

### **First adjustments.**

Now you have added all of the items to the aquarium it is time to make any adjustments to the general layout. This could be to ornaments, plants, filters etc.....

## **IMPORTANT NOTE.**

Now the aquarium has water in it never attempt to move it. Attempting this could quite easily crack or weaken the glass or stand which could cause a disaster.

## **Wiring and starting up the equipment.**

The wiring up of the equipment can be done in two ways.

If you have purchased a cable tidy you can wire all the electrical equipment to it. This is done by cutting or removing the plug (moulded plugs are now fitted as standard) off the equipment, stripping the wires and attaching them to the appropriate pins in the cable tidy. A wiring diagram will be provided with the cable tidy, this will show you where to connect the Live and Neutral cables. After all the equipment has been connected to the cable tidy the case is screwed together and you are left with just one mains lead and plug which supplies the equipment with power. Some cable tidies even have switches so that you could turn off for example the filter so you could clean the internal parts without disturbing the running of anything else.

The other way of wiring the equipment is to use an adaptor block. This can be purchased at most hardware or D.I.Y. stores. With this you just plug all the individual items in and you are left with again one mains lead to be plugged in.

The two work just as well as each other but the cable tidy is a lot more compact and tidy. The choice of which is yours.

The starting and running of the equipment is not as daunting as you first think. The heater can be ruffle adjusted before you plug it in. The air pump which now has an airline with an air stone at the end can be plugged in and turned on. There might be a slight delay from switch on to when the air comes out of the air stone, this is due to water in the airline. The filter depending on which one you have can be turned on. An internal sponge filter or under gravel filter with either an air stone or power head can be turned on with no priming. External filters may need priming for the recommended methods check the manufacturer's instructions as they may vary.

### **Final alterations.**

Now that the aquarium has been filled with water and the equipment switched on you must leave it running for a day or two. This will give you time to adjust the heater temperature to the specified level. Another reason for leaving the aquarium a couple of days is that it gives the filter a chance to clear any debris that is in the water. If there is any dust from the gravel that does not clear within a couple of days change half the water. This will help by removing half of the dust.

### **Choosing the fish.**

Now it is time to choose the fish you would like to live in the aquarium. When doing this make sure of three things.

1) When you are buying fish only buy a couple at a time. This is due to the fact if you add a lot all at once there will be a bacteria explosion. This is caused by the fish waste and food that is not eaten this means poor water quality and in the end death of the fish. By adding a few at a time the bacteria levels grow steadily and the filter has a chance of coping. Leave at least 2 weeks between purchases.

2) Do not buy a fish that will outgrow the aquarium. Your local pet shop or garden centre will be able to help you out with this. If they can not help you look it up in a tropical fish book, this will tell you everything about it not just its size. DON'T BUY BLIND.

3) Make sure you are not keeping predatory fish with non predatory fish as this will only end up in deaths. If you want a predatory fish keep it in a species aquarium. This means on its own or with other fish that can cope with the predator. If you are not sure you can ask for advice or look in a tropical fish book.

### **Adding the fish.**

When adding the fish to the aquarium you must remember to acclimatise the bag with the fish in. To achieve this simply float the bag in the aquarium water for approximately 10 to 15 minutes. This will slowly match the water in the bag to water in the aquarium. Now this has been done it is time to add the fish to the aquarium. Most people would just tip the fish and the water in. I believe that it is good practice to net the fish in the bag and then add it to the aquarium. This I believe helps reduce the possible risk of disease spreading from the pet shop or garden centres tanks to your own. This also reduces the chance of snails being transferred to your tank. After the fish have been transferred from the pet shop or garden centre to your aquarium the fish will be stressed. A way of helping them overcome this stress quicker is after adding them turn the lights off and don't feed them for the rest of the day. Now that everything has been added to the aquarium it is now time to top up the last few inches of water. Remember to add the specified amount of dechlorinator.

## **Aquarium maintenance.**

The regular maintenance of an aquarium is the key to a healthy one. The chart that follows shows you what you need to do on a daily, monthly and occasional basis to achieve a health aquarium.

### **DAILY.**

- 1) Check the water temperature is within its limits.
- 2) If no timer is present turn lights on and off.
- 3) Feed the fish with the appropriate food.
- 4) Check for disease or deaths.
- 5) Check that the equipment is running correctly.

### **MONTHLY.**

- 1) Partial water change including fish waste using gravel hoover.
- 2) Clean algae from glass and ornaments.
- 3) Clean filter media and gravel.

### **OCCASIONALLY.**

- 1) Check electrical contacts for loose wires or water damage.
- 2) Trim exes plant growth. (Real plants)
- 3) Replace fluorescent tubes.

The above list of maintenance tips should be carried out not just for the first month or so but for ever. The lives of the fish in the aquarium rely on you doing this.

You may notice in the first few days to a week that the water may go slightly cloudy. This could be down to what is known as bacterial bloom. What happens is that as the fish produce waste and with bacterial filtration not working properly yet the bacteria in the water multiplies rapidly causing this cloudiness. If this occurs a partial water change every couple of days until it clears should help.

A partial water change is approx 20 to 25% of the aquarium water this is carried out on a monthly basis. This should be done with a gravel hoover which will remove the debris from the gravel. If you are using an internal sponge filter or an external filter you should clean the media in the water you remove from the aquarium. This is because tap water contains chlorine and chlorine kills the bacteria in the filter media. The water from the aquarium has the same bacteria present so the bacteria in the media live. Remember you are not trying to clean the media just remove any large pieces of debris. A clean aquarium will promote growth in the fish and plants and reduce the chance of disease.

After water changes you can remove unsightly algae from the glass. This is done with the magnetic glass cleaner or special cleaning pad. These are available from most pet shops and garden centres.

There are a couple of useful items that you can purchase to help you with the cleaning and general maintenance of the aquarium these are:-

Toothbrush / nailbrush. These can be used for cleaning corners of the aquarium and odd shaped ornaments.

Bottle brush (small and large). This can be used for cleaning pipes, filters and power heads.

A bowl. This is used to put the trimmings from the plants or dead fish or just for storing any wet item from the aquarium.

When you have equipment for cleaning the aquarium do not use it for any other job other than that. If you do the next time you come to use it in the aquarium it could poison the fish.

## **Feeding.**

Feeding the fish is an important part of the daily maintenance and should be carried out in 2 to 3 small doses a day. The fish should have eaten the food within 2 minutes if not reduce the amount in the next feed. If there is still food floating around the aquarium after this time then over feeding has taken place, this can cause pollution and deaths if left unchanged.

## **THE GENERAL HEALTH OF THE FISH.**

No matter how clean or how well you look after the aquarium disease can still strike. The best way to overcome disease is to catch the symptoms as early as possible. This gives the ill fish the best chance of recovery. Explained below are some of the most common illness / diseases that can occur in the aquarium.

### **Gasping for air.**

If the fish are gasping, normally at the surface of the aquarium. This could be one of a couple of things.

- 1) Poor water quality. Water change recommended.
- 2) Poor oxygen levels in the water. Recommend larger air pump, clean air stone if clogged or leave air pump on 24 hours a day.
- 3) Temperature too hot. Turn thermostat down to correct temperature.

### **Fungus.**

Fungus forms on open wounds and can be fatal if not treated. Fungus looks like cotton wool, a fluffy mass over the infected area. This is easily cured with an anti fungal product.

### **White spot.**

This can be classified as the most common of all aquarium diseases. The infected fish will be eventually covered with small white spots. This disease can be fatal if not treated. There are many cures available to overcome this problem. This disease can be transmitted to other fish in the aquarium and to other aquariums in water on nets etc....

### **Fin rot.**

Fin rot can be caused by sub standard water conditions, poor handling and fighting. The result of which is that the fins disintegrate. This can be cured by improving the water quality and purchasing a fin rot remedy. Fungus can also be linked with this due to the open wounds involved.

### **Burns.**

Burns can occur at any time to any fish. The heater can be covered with a heater guard which will help prevent this situation. If a fish burns itself on the heater you must keep the water quality good and to prevent fungus treat with an anti fungal remedy.

There are many diseases that fish can catch in the aquarium. If you think a fish has a disease that you can not identify you can contact a large aquarium remedy manufacturer who will send you a wall chart or pamphlet. In this there will be symptoms of the disease as well as the recommended plan of action and cure. It is a good idea to acquire an illness chart before the fish are ill so that you do not have to wait for one to arrive prolonging the treatment. If you do not have a chart then your local pet shop or garden centre will be able to help you choose the correct remedy. Always read the instructions and dilution levels on each bottle as they can vary. If you believe a fish is ill never use the same net or anything else that comes in contact with the water in another aquarium as a lot of diseases can be transferred through water. That also means cleaning your hands and arms before putting them in the aquarium.

Now that you have read this book you should be able to purchase and understand the equipment needed to set up a tropical aquarium. You should also be able to position, run and maintain the equipment correctly. As you can do this your aquarium should be healthy and happy for years to come.

***GOOD LUCK***

***AND***

***HAPPY FISHKEEPING***