

CHAPTER XV.

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**Don'ts for Beginners, Aquarium Societies,  
Bibliography, Glossary, etc.**

## DON'TS FOR BEGINNERS

- Don't, as a novice, begin with a large aquarium; one of 10 to 12 gallons is sufficiently large.
- Don't, except as a hospital or temporary receptacle, use the ordinary fish globe.
- Don't use all-glass receptacles as permanent aquaria, they are too liable to fracture.
- Don't use an aquarium greater in depth of water than in width.
- Don't handle an aquarium until the cement has "set" or become hardened.
- Don't arrange an aquarium until it is thoroughly cleaned on the inside.
- Don't clean the glass with anything but table salt when filled, or with whiting when empty.
- Don't move a filled aquarium; first decant most or all of the water.
- Don't move an all-glass aquarium at any time; lift it clear and set it down gently in its new place.
- Don't change the water when moving an aquarium; keep it in another vessel and afterwards return it, filling in with fresh water.
- Don't needlessly disturb the aquarium and its contents.
- Don't place the aquarium in a strong sunlight if a good steady light may be had elsewhere.
- Don't forget that a northeast exposure is the best, and light on the surface better than strong side-light.
- Don't exclude the free access of air to the surface by tightly covering the aquarium.
- Don't keep the glass too free of healthy algæ, except on the front.
- Don't use unclean vessels or appliances of any kind.
- Don't fail to exercise the most scrupulous cleanliness with everything pertaining to the aquarium.
- Don't permit the accumulation of refuse, of any kind, on the bottom.
- Don't put the hand into the filled aquarium, when this can be avoided.
- Don't have more than one person in charge of the aquarium.
- Don't fail to give it a little attention every day; this soon becomes a habit and will insure success.
- Don't use deep, narrow or funnel-shaped nets nor those of coarse knotted twine; use shallow ones of soft Brussels netting.
- Don't use the same net, or any other appliance, for sick and healthy fishes; this is sure to spread the contagion. Scald the net frequently.
- Don't fail to place a screen between the aquarium and the light on warm summer days, especially strong sunlight. Tissue paper or cheese cloth will answer the purpose.

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## DON'TS FOR BEGINNERS

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- Don't expect success except when the aquarium is well conditioned or balanced, with ample growing plants and a good light.
- Don't fail to remember that the plant life should exceed the animal life and scavengers be present. There can scarcely be too many health-growing plants in the aquarium.
- Don't place fishes into an aquarium until the plants are well established, but introduce scavengers at once.
- Don't change the water needlessly, its appearance and taste is the best guide.
- Don't occasion sudden changes in the temperature of the water.
- Don't forget that colder water will sustain more fishes than when it becomes warmer.
- Don't, as a novice, begin with fine fishes; the ordinary goldfishes are more hardy than the finely bred toy varieties.
- Don't, when no longer a novice, be contented with the common goldfishes; the inexpensive "sports" of the finer breeds are more interesting.
- Don't needlessly frighten the fishes; kind treatment will make them very tame.
- Don't jar the aquarium or rap on the glass; fishes have finely organized nervous systems. Guard against even the most unintentional cruelties.
- Don't handle fishes roughly; bruises and the loss of the mucus covering of the scales become seats for fungus diseases.
- Don't place large fishes in small aquaria, nor keep large and small fishes in the same receptacle, if avoidable.
- Don't keep fishes together which molest each other.
- Don't keep diseased fishes with healthy ones; remove them to a hospital jar for treatment.
- Don't buy fishes and plants promiscuously; be sure that they are clean and free from infection.
- Don't immediately introduce newly acquired fishes or plants into an established aquarium; keep them for some time in a separate receptacle, until fully assured that they are in perfect condition. This is a frequent cause of infection.
- Don't starve the fishes, but be even more careful not to overfeed them. Feed more sparingly in winter than in summer.
- Don't fail to remember that mistaken kindnesses kill as many fishes as neglect or inexperience.
- Don't feed more than the fishes will eat at once; they may only masticate the food and later eject it to contaminate the water.

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DON'TS FOR BEGINNERS

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Don't overfeed; very many of the ills of aquarium fishes are due to this mistaken kindness.

Don't leave uneaten food or offal in the aquarium. Use the dipping tube.

Don't feed worms without first cleaning them; they are carriers of both parasites and fungus diseases. Scalding them is a good method.

Don't overstock the aquarium at any time; until it is fully established the one safe rule is not more than one fish for every two or three gallons of water; even fewer large fishes.

Don't fail to get a large aquarium as soon as you become expert; the larger the tank, the surer the results.

Don't, as a novice, keep other fishes with the goldfish; they may not be altogether harmless.

Don't keep water bugs and beetles in the aquarium with fishes; they are all harmful and predatory.

Don't introduce plant-eating snails as scavengers. The Planorbis and Vivipara are the best common snails.

Don't feel discouraged by occasional reverses; they happen to every one, even to the most experienced aquarists.

Don't fail to remember that success with the aquarium depends upon the following prime conditions; inattention to any of these, or mistakes or neglect, will certainly lead to failure:—

1. Cleanliness of the vessel and all appliances.
2. A good and strong light.
3. A vigorous growth of plants.
4. Careful feeding of the proper food.
5. The immediate removal of sick or doubtful fishes.
6. Ample scavengers.
7. Avoidance of overstocking.
8. Persistence, determination to succeed, and a considerable good fortune.

Don't fail to join an Aquarium Society; if none exists, organize one.

Don't disregard any of the precepts of this volume; they are based on tried experience.

Don't fail to frequently review these *Don'ts*, and confer with authorities if in serious difficulties; the Aquarium Society of Philadelphia will be pleased to answer all inquiries.

These Don'ts apply more particularly to the Freshwater aquarium, but it may be beneficial to keep most of them in mind for the Marine aquarium, Terrarium and Aqua-terrarium as well.

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AQUARIUM SOCIETIES

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Four or more periodicals are published under the auspices of these Societies, a weekly, two fortnightly and a monthly; devoted to popular zoölogical, ichthyological and botanical study and the elucidation of subjects of interest to their members.

A Society of this kind has been established in Philadelphia since 1898, and has accomplished much to popularize the aquarium, its inhabitants and its maintenance. To encourage this both interesting study and beautifier of the home, some descriptions of this Society and its proceedings will be of interest.

The Aquarium Society of Philadelphia, on January 1, 1908, had 128 active members, a number of which reside in neighboring cities. Its purpose is more particularly the propagation of the finer breeds of the goldfish and the keeping of freshwater aquaria. The sessions occur monthly, except June, July and August. Set topics of interest are discussed, exhibitions take place, prizes are awarded and inquiries from any source are invited and answered.

POINTS FOR THE JUDGMENT OF GOLDFISHES. Authorities differ somewhat in the standards for judging goldfishes in prize competitions and as to their respective merits as fine specimens. Dr. E. Bade, one of the best-known German ichthyologists, advocates the following scales in awards:

Japanese Fringetail Goldfish	Body	Caudal fin	Dorsal fin	Pectoral and Ventral fins	Double anal fins	Color. Scaled or Transparent- ly Scaled	Points
	30	20	20	20	5	5	100

A long body would, for instance, take from the merit of the fish as many as 30 points and would in no case permit of over 70 points in its favor, or should the anal fin be single, its merit would not be over 95 points. If the body is not sufficiently rotund, but short and otherwise acceptable, then its merit as to body would be expressed by not over 20 to 25 points, and so with the other details of the fish.

For the Chinese Telescope goldfish he advocates the standard of:

Body	Eyes	Caudal fin	Dorsal fin	Pectoral and Ventral fins	Double anal fins	Color. Scaled or Transparent- ly Scaled	Points
30	30	10	10	10	5	5	100

AQUARIUM SOCIETIES

Merit as to eyes is dependent upon their size and shape, as well as uniformity of size and equal projection from the head. The larger the eyes the higher the points in favor of the fish. Fig. 17 will explain the different forms of eyes, and this authority claims that the ovoid and conical are valued the highest and should be awarded the maximum number of points.

The Aquarium Society of Philadelphia has set a slightly different standard, the judging being for general conformation, eye and fin development rather than for color.

	Color	Eyes	Body	Caudal fins	Other fins	Points
Comets			25	50	25	100
Nymphs			40	35	25	100
Single-tailed Telescopes, as a separate class			40	35	25	100
Fringetails			35	40	25	100
Fantails			35	40	25	100
Mottled Telescopes	35	25	15	15	10	100
Moor Telescopes	30	30	20	10	10	100
Variagated Telescopes, (other than the two above)		35	25	20	20	100
Celestial Telescopes.		30	30	20	20	100

Scaled and Transparently-scaled fishes are also judged in separate classes, and highly colored fishes preferred to white or uncolored ones.

As absolute perfection in every particular has not yet been reached in any goldfish, modifications of the above standards are necessary in judging goldfish breeds, and though none may reach the standard of 100 points, the relative value of fishes in competitions may be arrived at by either of the above tables.

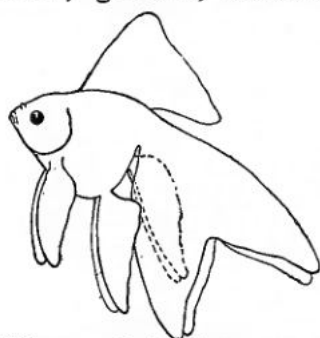


FIG. 240. Outline of a fine Fringetail Goldfish, half life size.

It is left to the reader to decide how many points a fish of the conformation of the outline half-life-sized drawing, Fig. 240, should receive in a competition. It is needless to say that few have seen so highly meritorious a Fringetail goldfish.



ENCLOSED AQUA-TERRARIUM  
First prize awarded by the Triton Society, Berlin.



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## GLOSSARY

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### GLOSSARY

#### Glossary of Scientific Terms used in this work

- Abdomen Belly  
Abdominal Pertaining to the belly  
Abortive Remaining or becoming imperfect  
Acuminate Tapering gradually to a point  
Acute Sharp-pointed  
Adipose Fleshy  
Air-bladder A sac filled with air, lying near the backbone of fishes; the swimming-bladder  
Alevin The newly hatched of fishes still attached to the umbilical sac  
Alternate Opposite  
Anal Pertaining to the anus or vent  
Anal fin The fin behind the vent, in fishes  
Anus The exterior opening of the intestines; the vent  
Arterial bulb The muscular swelling at the base of the great artery, in fishes  
Articulate Jointed  
Atrophy Non-development  
Attenuate Drawn out; long and slender  
Axillary In the hollow where a branch unites with the plant  
Auricle One of the chambers of the heart  
Barbel An elongated projection at the head, in fishes  
Basal At or near the base  
Bifurcated Forked; divided into two branches  
Bracts Small leaves or scales  
Branchiæ Gills; respiratory organs of fishes  
Branchial Pertaining to the gills  
Branchiostegals Bony rays below the opercular bones under the heads of fishes  
Byssus Tuft of threads, in molluscs  
Cæcum An appendage connected with the alimentary canal  
Calcareous Containing or composed of carbonate of lime  
Calyx Cup or outer covering of a flower  
Capillaries Hairlike vessels in animals and plants  
Capsule A seed pod  
Carapace A shell; the upper shell of a turtle, the covering of crustaceans  
Cardinal Teeth near the beak, in molluscs  
Carinate Keeled; having a ridge along the middle line  
Caudal Pertaining to the tail  
Caudal fin The fin constituting the tail of fishes  
Cilia Hairlike projections  
Ciliated Fringed; having hairlike projections  
Cinereous Having the color of wood ashes  
Clavate Club-shaped  
Concentric Having a common centre  
Conchology Science of shells  
Cuneate Wedge-shaped  
Cycloid Smooth-edged and circular



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## GLOSSARY

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- Cyprinidæ Fishes included in the families of Minnows, Carps, Chubs, Dace, Breams, Tench, Ides, Goldfishes, Gudgeons, Shiners, Barbels, Stone-Rollers, etc., and many among the multitudes of freshwater forms collectively known as Minnys and not distinguishable except by the naturalist from the young of other fishes which they are supposed to be by the laity
- Depressed Flattened vertically
- Depth Vertical diameter, of body of fishes and molluscs
- Dermal Pertaining to the skin
- Dextral Right-handed
- Diaphanous Translucent; semi-transparent
- Diaphragm Muscular septum between the thorax and abdomen
- Dorsal Pertaining to the back
- Dorsal fin The fin on the back of fishes
- Elong-ovate A long egg shape
- Emarginate Slightly forked; notched at the tip
- Epidermis The skin
- Erectile Susceptible of being raised or erected
- Fascicle A close cluster
- Fauna The animals inhabiting any region, taken collectively
- Filament Any slender or threadlike structure
- Filiform Thread-form
- Finely dissected Split into fine threads
- Flora The plants of any region, taken collectively
- Fry The young fish after the absorption of the umbilical sac
- Furcate Forked
- Fusiform Shaped to taper at each end
- Gemmation Budding
- Gills Organs for breathing the air contained in water
- Gill arches The bony arches to which the gills are attached
- Glabrous Smooth
- Gonospores Germinating buds
- Gullet Passage to stomach
- Haustellated Provided with a sucker
- Height Vertical diameter
- Helminth A wormlike animal
- Hexagonal Six-sided
- Hypha Rod-like Structures; spore capsules; brood sacs
- Hyoid Pertaining to the tongue
- Ichthyology Science of fishes
- Imbricate Overlapping like shingles
- Inarticulate Not jointed
- Infraoral Below the mouth
- Infraorbital Below the orbits or eyes
- Inperforate Not pierced through
- Intermaxillaries Bones forming the middle of the front part of the upper jaw, in fishes
- Interorbital Space between the eyes
- Interopercle Membrane bone between the preopercle and the branchiostegals
- Interspinal Bones in which fin-rays are attached, in fishes
- Iris Part of eye surrounding the pupil

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GLOSSARY

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- Irides Plural of iris  
Keeled Having a ridge along the middle  
Labial Pertaining to the lips  
Laminae A thin plate or scale  
Lance-elliptical A long ellipse  
Lanceolate Oblong, gradually tapers to the outer extremity  
Larva An immature form  
Lateral To or towards the side  
Lateral line The muciferous tubes along the sides of a fish  
Laterally Sideways  
Linear Like a line, of the same breadth throughout  
Littoral Near the shore  
Longitudinal Running lengthwise  
Lunate Form of the new moon  
Mammæ Milk glands, breasts  
Mammary glands Glands secreting milk  
Mandible Under jaw  
Maxilla Upper jaw  
Maxillaries Outermost bones of the upper jaw, in fishes  
Maxillipeds Foot-jaws of Crustaceans  
Metamorphosis A decided change in form  
Midrib The central or main rib of leaves in plants  
Mycelium A filamentous body from which a mushroom is developed  
Naked Without scales  
Nerves The fine veins in leaves of plants  
Nodule A rounded mass of irregular shape  
Nucleus The umbone or beginning of a shell of molluscs  
Oblique Slanting inclined  
Obscure Scarcely visible  
Obsolete Faintly marked; scarcely evident  
Obtuse Blunt  
Occiput Back of head  
Olivaceous Color of the olive  
Operculum Gill cover in fishes; calcareous lid closing the aperture, in molluscs  
Orbicular Nearly circular  
Orbit Eye socket  
Osseous Bony  
Ova Eggs Ovum Egg  
Ovate Shaped like an egg  
Oviparous Producing eggs which are developed after extrusion from the body  
Ovoviviparous Producing eggs which are developed before extrusion from the body  
Ovoid Shaped like an egg  
Palmate Web-footed  
Papillose With pimple-like elevations or tubercles  
Pectinate Having teeth like a comb  
Pectoral Pertaining to the breast  
Pectoral fin The foremost paired fins, in fishes  
Pediculated The stalk which supports only one flower

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## GLOSSARY

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- Peduncle The supporting stem of a flower or seed
- Pelagic On or near the high seas
- Pellucid Clear, admitting light
- Perforate Pierced through
- Peristome A cap, or cover of a cup, in plants
- Persistent Continuing through life
- Pigment Coloring matter
- Pinnate Shaped like a feather
- Pinnatifid Divided in a feathery manner
- Pistillate Having a pistil and no stamens
- Plastron Lower shell of turtle
- Plicate Folded; forming folds or wrinkles
- Plumbeous Lead-colored; dull bluish-grey
- Poissons French for fishes
- Prehensile Clasping
- Protuberance A small excrescence like a pimple
- Pubis Lower part of the pelvis
- Pulmonary Pertaining to the lungs
- Punctate Dotted with points
- Pupa An immature form ; transformation after the larval stage
- Pyloric cæca Glandular appendage or sac opening into the alimentary canal, in fishes
- Pylorus The orifice through which food passes out of the stomach
- Quadrangular Having four angles
- Quadrilateral Having four sides
- Ray Cartilaginous rods in the fins, of fishes; arm of a star fish; the star fish
- Rhizomes A creeping branch or stem
- Rudimentary Undeveloped
- Rugose Rough with wrinkles
- Sagittate Lance or sword-shaped
- Sepal A leaf or division of the calyx
- Serrate Notched, like a saw
- Sessile Without a stem or peduncle
- Setiform Bristle-like
- Sinistral Left-handed
- Soft rays Branched fin-rays
- Specific gravity A weight which belongs to an equal bulk of each body
- Spiked A fin in which the main rays extend considerably beyond the tissue or web. A single-rayed fin
- Spikes Alternated growths on a common stem, in plants
- Spinous Stiff or composed of spines
- Stamen Male organ of flowers
- Staminate Furnished with stamens
- Sternum The breast bone
- Striate Striped or streaked
- Sub Less than; not quite; under
- Subulate Awl-shaped
- Suture A groove or line in snail shells
- Synonym A different word having the same meaning

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GLOSSARY

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- Tentacles Feelers  
Terete Cylindrical and tapering  
Terminal At the end  
Tessellated Marked with checks or squares  
Thoracic Pertaining to the throat  
Translucent Nearly transparent  
Transverse Crosswise  
Trenchant Compressed to a sharp edge  
Trifurcated Forked; divided into three branches  
Truncate Abrupt; cut off square  
Tubercle A small excrescence like a pimple, a papilla  
Typical Of a structure the most usual of a group  
Umbilicus The navel  
Umbone Nucleus of a shell  
Vent The external opening of the alimentary canal; anus  
Ventral Pertaining to the abdomen  
Ventral fins The paired fins behind the pectoral fins, in fishes  
Ventricular One of the walls of the heart  
Vermes Worms  
Vertebra One of the bones of the spinal column  
Vertical Up and down  
Verticil A small whorl  
Viscid Sticky  
Viscous Slimy  
Viviparous Bringing forth living young  
Web Membrane connecting the toes; also the fin-rays in fishes  
Whorl Arrangement around a stem in plants; volution or turn of the spire of a snail

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