CHAPTER XV.

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.

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.

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 Planorbes and Vivipara are the best common snails.

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

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.

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 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 Transparently 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 Transparently Scaled	Points
30	30	10	10	10	5	5	100

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.

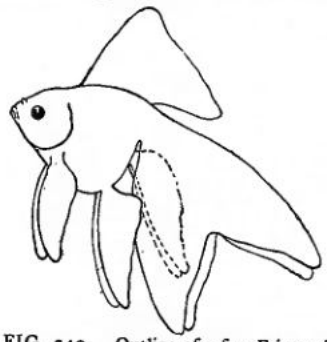

FIG. 240. Outline of a fine Fringetail Goldfish, half life size.

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.

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

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

Ichthiology 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

Irides Plural of iris
Keeled Having a ridge along the middle
Labial Pertaining to the lips
Laminæ A thin plate or scale
Lance-eliptical A long elipse
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

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
Pinnatified 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
Stamenate Furnished with stamens
Sternum The breast bone
Striate Striped or streaked
Sub Less than; not quite; under
Subulate Awl-shaped
Suture A grove or line in snail shells
Synonym A different word having the same meaning

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
Ventrical 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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