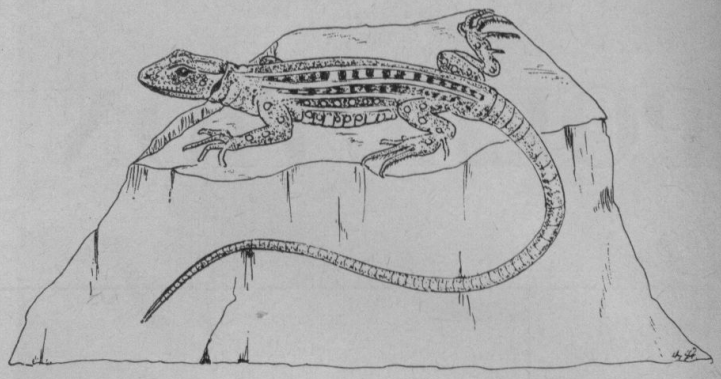
The Fringe-Fingered Lizard



By H. G. B. Gilpin, B.Sc.

THESE MODESTLY coloured but attractive little lizards are the only members of their genus to occur in Europe. They are found in southern France, Spain and Portugal and also in North West Africa.

Although no more than 7 to 7½ inches in length and Lacertis in shape, the Fringe-Fingered Lizard (*Acanthodactylus erythurus*) is a strongly built animal with a tail almost twice the length of the body. This appendage is finely pointed but in a healthy animal somewhat thickened at the root, probably due to the presence of fat, stored against periods when food is in short supply.

The ground colour on the upper surface is usually a light, buffish brown, sometimes merging into green along the back. Longitudinal lines of yellowish-brown spots extend along the body to the base of the tail. With increasing age these spots merge into irregular patches. I have not seen any newly born specimens but these are said to be black dorsally, with a series of white lines passing down the back, with red underparts. Most of the adult males I have seen have carried a row of intensely blue circular spots along the edges of the abdominal scales. The mature females retain a reddish coloration under the tail.

The head supports two large shields over the slightly prominent, piercingly dark eyes and the scales on the temples are small and roughly polygonal in shape. Those on the back become coarser as they approach the base of the tail than they are in the neck region.

Acanthodactylus favours an open, sandy habitat, fully exposed to the sun. It is plentiful on coastal dunes, particularly those adjacent to scattered pine woods or associated with sparse undergrowth or patches of dry scrub. To adapt them to life on the dry, sandy surface of their surroundings these lizards have tiny leaf-like fringes along their toes which effectively prevent them from sinking in the loose soil and enable them to traverse it with amazing rapidity.

I encountered these lizards in considerable numbers last year on the island of Gozo, some 40 minutes by boat from Malta. It was a baking hot day with the sun streaming down and the temperature well into 90°F. After lunching in Marsalforn, we drove along the coast road towards Obajjar and, our attention caught by three lines of tamerisk trees, stopped a little way outside the town. A raised flower bed, enclosed by stone walls some 30 inches high, extended for a considerable distance between the trees, separated by a broad stretch of sand, studded with large stones, from the edge of a boulder-embedded cliff, descending steeply to the sea below.

We were examining some burning bushes fighting their way upwards from the dry, powdery soil of the flower bed, when we suddenly realised that the ground was alive with lizards. Evidently the heat suited them admirably as, although they remained in view as long as we kept still, the slightest movement on our part sent them scurrying away in all directions. After a frantic dash of half a dozen or so yards they came to an abrupt halt, with outspread legs and head and shoulders raised, alert for the least gesture.

Considering the number of lizards visible at any one time, I had high hopes of securing a few specimens. The excessive heat, entire absence of any aids to capture and the speed with which they darted into cracks behind immovable rocks, however, rendered our attempts largely abortive. We did, after half an hour of perspiring effort, manage to secure one fully mature male *Acanthodactylus*. He was popped into a plastic bag—one of a supply kept in the car for such occasions—which was secured at the top with a rubber band and plentifully perforated with pin holes, and carried back to the bungalow on Malta where we were staying.

Once there, the need arose for some suitable container to hold the lizard for the remainder of our stay. Fortunately the bungalow was on a nursery and I was able to obtain some large sheets of horticultural glass and a roll of two-inch-wide sticky tape, of the type

used to join sheets of plastics material together, to provide a protective covering for the plants. It was a simple matter to bind the edges of four sheets of glass into a rectangular box, by taping the abutting edges, and then to attach a fifth piece of glass as a base.

Feeding presented no problem as the garden abounded in a variety of insect life, ranging from small flies up to locusts and the occasional praying mantis and the Fringe-Fingered Lizard quickly settled down.

These lizards make very satisfactory vivarium inmates. They are lively and active and feed freely on small locust hoppers, spiders and mealworms. Grasshoppers are pursued with particular enthusiasm and probably form a large part of their diet in the wild. I give mine a pot of water but have not yet actually seen them drink. They are kept in a vivarium two feet by one foot by one foot, the floor of which is covered with a one and a half inch layer of coarse sand, with a few moderately large rocks arranged along the back, interspersed with several succulent plants. They have not buried themselves in the sand so far but take refuge at times beneath or behind the rocks.

For the most part they remain in the open where, provided one keeps reasonably still, they are content to remain on view. They are however inclined to be nervous and disappear with astonishing speed into some predetermined retreat when startled.

Acanthodactylus requires additional heat in this country and I have found a 25 watt bulb raises their quarters to a temperature satisfactory to their needs.

When kept with other lizards, such as *Muralis*, experience has shown it is advisable to make sure they are fully grown, as *Acanthodactylus* has proved somewhat aggressive towards lizards which are smaller than, but almost as large as, itself.

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Sulphuric Acid.

Produced by (1) Thio-thio-oxidans, is highly reactive and may be short lived, depending on the contents of the aquarium; it dissolves any calcium compounds such as shell, decorative marble or lime stone forming calcium sulphate, it will also dissolve iron from the tank frame, rust and the iron oxide colouring matter from sand or gravel forming soluble iron sulphate. A temporary lowering of the pH value towards acidity will be shown. This acidity, through over-feeding, is recorded in an article entitled "Guppies," by F. L. Vanderplank in *the Aquarist*, January 1970, issue page 291.

Sulphuretted Hydrogen H_2S.

Produced by Vibro Desulphuricans (2) is a gas with an offensive odour, it is soluble in water to a greater extent than oxygen, it also reacts with the dissolved oxygen so necessary for the health of fish and plants. H_2S is generated in the absence of air, that is below the gravel, where it converts the iron sulphate into black iron sulphide which is insoluble in water. Iron sulphide not only blackens the gravel but will, in time kill the plants by destroying the root system.

Excess H_2S becomes occluded in the gravel and should be expelled by the occasional use of the "under-gravel biological" filter. In Nature the escape of H_2S into the air is the only means of reducing the sulphur compound content of the water.

The bad smell of all putrifying matter is due to this gas, so this condition is not just the aquarists' worry, but can be recognised in stagnant water in ponds, canals, rivers, water butts wherever there is pollution. The iron sulphate/sulphide reaction can be represented as: $FeSO_4 + H_2S = FeS$ Iron sulphide $+ H_2SO_4$ sulphuric acids.

In hot climates at certain times of the year, conditions are right for other salt water sulphur bacteria to become active, causing widespread destruction of fish and seaweed. One such place is Walvis Bay off South-West Africa, where dead fish pile up on many miles of beach, the smell of which is only slightly worse than the smell of the H_2S blowing in from the sea.

Caustic Soda

Produced by Thio-Beggiatoa in alkaline and only produced in small quantities at a time; it reacts with the carbon dioxide always present in a well-planted aquarium forming the less alkaline carbonate and bicarbonate. This alkalinity is short-lived, being neutralised by the sulphuric acid produced by (1) Thio-thio-oxidans.

The remaining members of the known fifty types, whilst conducting the same sulphur transformations, exist and react in any conditions found on earth.

Strains are known which tolerate high pressures, high salt concentrations, and temperatures as high as 160°F. Many are coloured, varying from green to bright red. These coloured strains need solar energy and usually consume organic matter, so where sulphur compounds exist the sulphur bacteria are active and more often than not the products are more harmful than otherwise.

I this article I have endeavoured to show the cause of variations in aquarium water conditions and how they control the health of fish and plants.

It would be pleased to answer any questions of this subject in the *Aquarist*, subject to the approval of the Editor.